Analysis of Medication Incidents in Ontario

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Objectives

The Ontario Medication Incident Database (OMID) developed by the Institute for Safe Medication Practices Canada (ISMP Canada) has been capturing medication incidents since 2000. The OMID is part of the ISMP Canada Medication Incident and Near Miss Reporting Program[1].

Analysis of the OMID can help identify high-risk areas in the medication-use process.

This project highlighted the most significant findings from a quantitative analysis of the OMID.

Methodology

As of October 31, 2009, 41,571 medication incidents have been voluntarily reported by 67 Ontario institutions and facilities and by individual practitioners.

A quantitative analysis was performed with a focus on the severity of outcome of the incidents and medication-use areas associated with these incidents voluntarily reported as causing harm or death.

Results

Severity of Outcome

- The National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) Index for Categorizing Medication Errors[2] was used to categorize medication incidents according to their severity (Figure 1)
- 3.90% (1622 of 41,571) of the incidents were associated with **harm or death** (categories E to I) (Figure 2)
- 88.61% (36,837 of 41,571) of the incidents were associated with **no harm** (categories B to D) (Figure 2)

Medication-Use Areas

- Stage of medication use for medication incidents (Figure 3)
- Type of medication incidents (Figure 4)
- Top 5 high-alert medications (Figure 5)
- Possible cause(s) of medication incidents (Figure 6)

Figure 1. NCC MERP Index for Categorizing Medication Errors[2]

Severity of Outcome		NCC MERP Category for Medication Errors
No Error	A	Circumstances or events that have the capacity to cause an incident
Error, No Harm	B	An incident occurred but the incident did not reach the patient (An "incident of omission" does reach the patient)
	C	An incident occurred that did reach the patient, but did not cause patient harm
	D	An incident occurred that reached the patient, and monitoring was required to confirm that it resulted in no harm to the patient and/or intervention was required to preclude harm
Error, Harm	E	An incident occurred that may have contributed to or resulted in temporary harm to the patient, and intervention was required
	F	An incident occurred that may have contributed to or resulted in temporary harm to the patient, and initial or prolonged hospitalization was required
	G	An incident occurred that may have contributed to or resulted in permanent patient harm
	H	An incident occurred that required intervention to sustain life
Error, Death	I	An incident occurred that may have contributed to or resulted in the patient's death

Figure 2. Severity of outcome of medication incidents

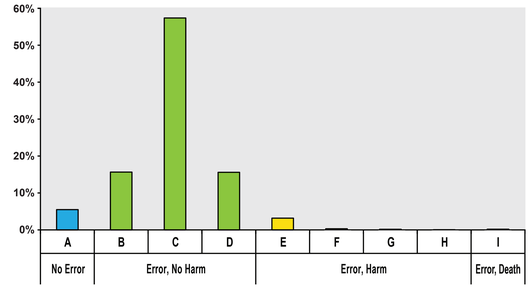


Figure 3. Stage of medication use for medication incidents voluntarily reported as causing harm or death

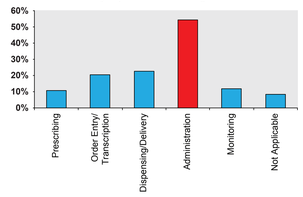


Figure 4. Type of medication incidents voluntarily reported as causing harm or death

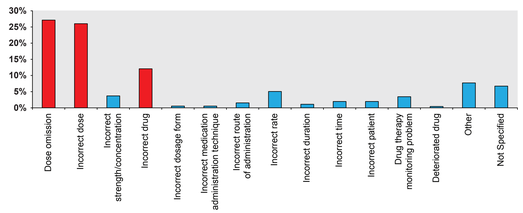


Figure 5. Top 5 high-alert medications through medication incidents voluntarily reported as causing harm or death

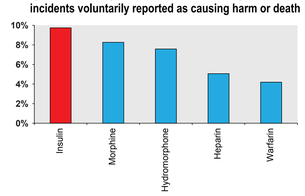
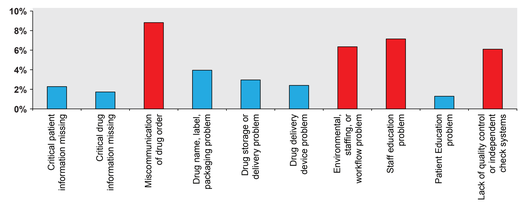


Figure 6. Possible cause(s) of medication incidents voluntarily reported as causing harm or death



Conclusion

It is impossible to infer the probability of specific incidents based on voluntary reporting, but the OMID 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.

Although data from the OMID include incidents reported by community pharmacies, their numbers are very few relative to the data from other reporting institutions. Therefore, the trends identified may not necessarily be extrapolated and applied to community health care setting.

As the OMID continues to accumulate data over time, trends and changes in medication incident patterns will be identified. OMID will continue to provide guidance to Ontario, and help identify new areas of focus to enhance medication safety.

References

1. ISMP Canada Medication Incident and Near Miss Reporting Program https://www.ismp-canada.org/err_report.htm
2. NCC MERP Index for Categorizing Medication Errors http://www.nccmerp.org/pdf/indexColor2001-06-12.pdf

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