

Aggregate Analysis of Medication Incidents in Community Pharmacy

Certina Ho, R.Ph., B.Sc.Pharm., M.I.St., M.Ed.; Maryan Gemus, B.Sc.P.T., M.Sc.P.T.; Shelina Manji, R.Ph., B.Sc., B.Sc.Pharm.

Objective

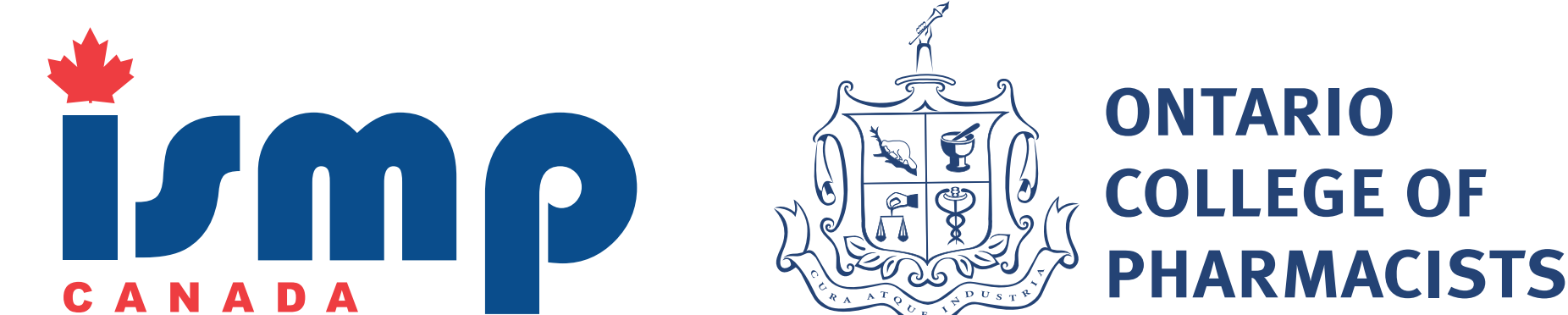
To enhance medication safety and reduce the risk of medication incidents in community pharmacy practice.

Data Source

The Institute for Safe Medication Practices Canada (ISMP Canada) reviewed 229 medication incidents that were reported to the Ontario College of Pharmacists (OCP) Complaints Committee from 2001 to 2007.

Method / Activities

- De-identified medication incident data ($n = 229$) were reported to the online ISMP Canada Medication Incident and Near Miss Reporting Program¹.
- A quantitative analysis of the medication incidents was performed.



References

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

Acknowledgements

- Investigations and Resolutions Department of OCP
- Complaints Committee of OCP
- Canadian Medication Incident Reporting and Prevention System (CMIRPS)

Figure 1. NCC MERP Index for Categorizing Medication Errors²

Severity of Outcome	NCC MERP Category for Medication Errors
No Error	A: Circumstances or events that have the capacity to cause an incident
	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, No 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

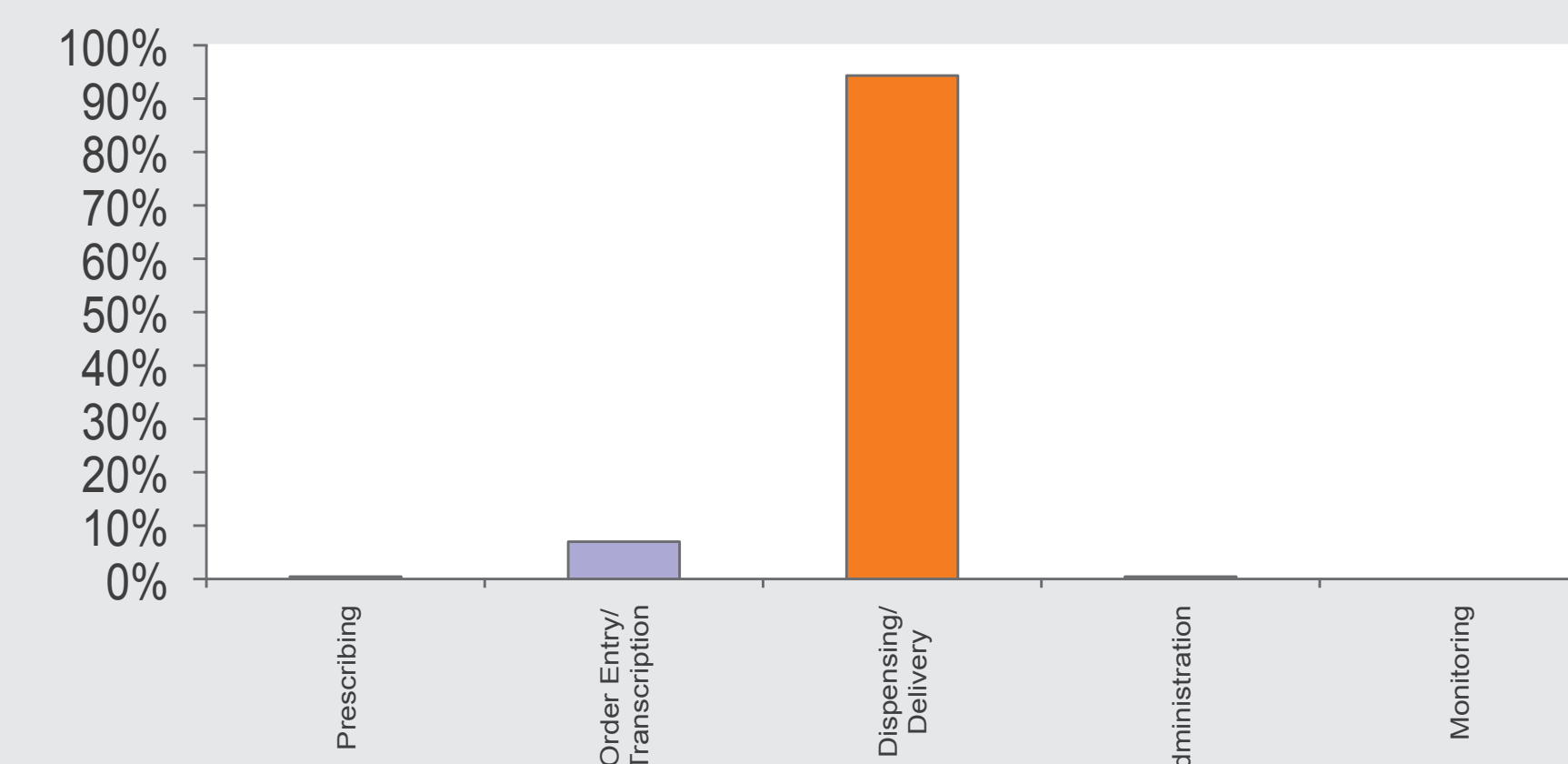


Figure 4. Type of medication incidents

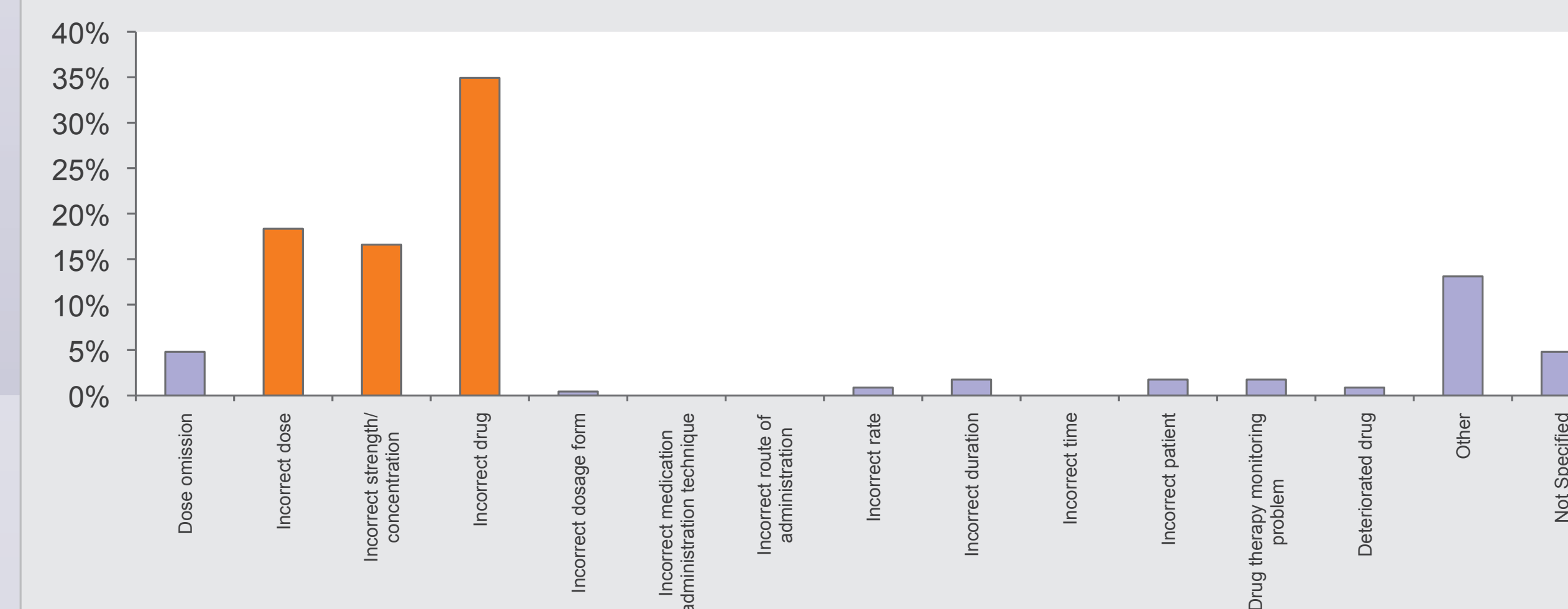
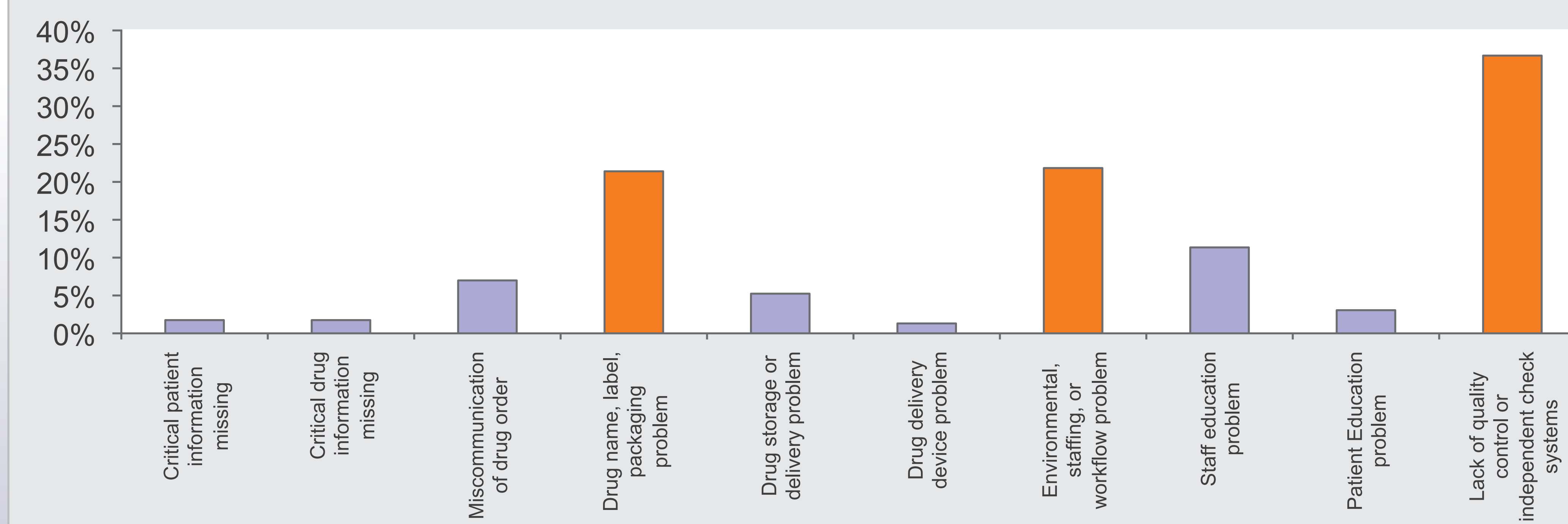


Figure 5. Top 10 medications and potential "red-flag" medications

Most Frequently Reported Medications	Number of Incidents Reported	Top 10 Medications Reported as Causing Harm / Death	Number of Incidents Reported
Amoxicillin	6	Chlorpromazine	3
Prednisone	6	Atenolol	3
Atorvastatin	6	Prednisone	3
Warfarin	6	Warfarin	3
Methadone	5	Carbamazepine	2
Azithromycin	5	Clarithromycin	2
Furosemide	4	Furosemide	2
Atenolol	4	Methotrexate	1
Levothyroxine	4	Metformin	1
Clarithromycin	4	Metronidazole	1

Note: A single medication incident may involve more than one medication.

Figure 6. Possible cause(s) of medication incidents



Results

Severity of Outcome

- The National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) Index for Categorizing Medication Errors² was used to categorize medication incidents according to their severity (Figure 1)
- 26% (59 of 229) of the incidents were associated with harm or death
 - 97% (57 of 59) were classified as producing only temporary harm (Figure 2)
- 74% (170 of 229) of the incidents were associated with no harm
 - 15% (26 of 170) required interventions or monitoring in order to prevent harm or confirm the lack of harm to patients (Figure 2)

Medication-use Areas

- Stage of medication use for medication incidents (Figure 3)
- Type of medication incidents (Figure 4)
- Top 10 medications and potential "red-flag" medications in community pharmacy practice (Figure 5)
- Possible cause(s) of medication incidents (Figure 6)

Conclusion

- Analytical results of this small sample size could not be generalized to represent community pharmacy practice.
- Continued compilation and analysis of medication incidents from community pharmacy practice would provide a more valuable data source.
- Through 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.