MEDICATION INCIDENTS REPORTED TO AND REVIEWED BY THE ICRC:

An Analysis by ISMP Canada

Edgard Petrov, BScPhm Candidate
School of Pharmacy,
University of Waterloo
Analyst, ISMP Canada

Certina Ho, BScPhm, MISt, MEd
Project Manager, ISMP Canada
Adjunct Assistant Professor,
School of Pharmacy, University of Waterloo

In a collaborative effort to enhance patient safety, the Institute for Safe Medication Practices Canada (ISMP Canada) reviews medication incidents reported to the Inquiries, Complaints, and Reports Committee (ICRC) at the Ontario College of Pharmacists (OCP) on a regular basis. ISMP Canada reviewed 78 medication incidents that were reported to the ICRC between January 1st, 2007 and December 31st, 2008. A previous review was completed which analyzed 229 medication incidents reported to the OCP from 2001 to 2006.[1]

The purpose of this review is to look for trends that may aid in the discovery of system-wide issues affecting patient safety, highlight areas of interests and concerns in community pharmacy, and make recommendations in order to prevent similar incidents from occurring in the future. The information gathered from these incidents gives ISMP Canada and OCP insight towards the development of possible strategies to prevent or mitigate the risk of medication incidents in community pharmacy practice.

This report highlights the most significant findings of a quantitative analysis of 78 medication incidents *(refer to sidebar: Limitations of Analysis)* with a main focus on:

- Degree of harm to patient due to incident
- Type of incident
- Areas of concern in community pharmacy practice
- Medication system stages involved in the incident
- Common medications reported
- Possible contributing factors

DEGREE OF HARM TO PATIENT DUE TO INCIDENT

Of the 78 incidents, 56.4 % were associated with "no error" (i.e. near miss) or "no harm" (i.e. medication is dispensed to patient, but no symptoms were detected and no treatment was required). On the other hand 42.3% of the errors resulted in "harm" (which ranges from mild, moderate, to severe harm) and 1.3% (i.e. 1 incident) resulted in "death" (i.e. there is reason to believe that the incident caused the patient's death or hastened the patient's death). Although the number of incidents included in this analysis is small, it is still important to consider the healthcare resources associated with the "harm" or "death" cases and, particularly, the grief and suffering caused to the patient and the patient's family.

TYPE OF INCIDENT

The three most common types of incident reported were:

1. Incorrect dose/frequency/duration (33%)
2. Incorrect drug/dosage form (27%)
3. Incorrect strength/concentration (10%)

A number of factors might have contributed to the incidents mentioned above. Some of these factors include the use of dangerous abbreviations, look-alike/sound-alike drug names, and proximity of storage of look-alike packaging in the pharmacy. ISMP Canada has undertaken

various analyses and strategies to address many of these issues via the distribution of recommended system safeguards through the Safety Bulletins (available at http://www.ismp-canada.org/ISMPCSafetyBulletins.htm). For example, a list of "Do Not Use Dangerous Abbreviations, Symbols and Dose Designations" can be retrieved from http://www.ismp-canada.org/download/ISMPCanadaListOfDangerousAbbreviations.pdf.

AREAS OF CONCERN IN COMMUNITY PHARMACY PRACTICE

Documented Allergy:

Patient is allergic to clindamycin and the allergy is documented in the pharmacy computer. A verbal prescription was received for 28 Dalacin 150mg capsules. The prescription was entered and eventually dispensed. The patient took 2 doses. Within a short time, her back was itching and inflamed. The itch was spreading all over the body. The throat was also becoming raspy / hoarse. She went to the emergency room and was given IV medications for several hours. She was furious that she was dispensed clindamycin because it had been listed in the pharmacy records.

Documented allergies accounted for about 6% of the incidents reviewed. A potential gap in the dispensing process was identified. It is possible that the computer-generated drug utilization review (DUR) or allergy alert that is flagged by the DUR program of the dispensing system during order entry was an oversight or being overridden. Although allergy alerts are typically shown or displayed on the hard copy of the prescription printout, they are often printed in relatively small fonts that can easily be missed during the prescription-checking process.

Compliance Aids or Blister Packs:

A patient in a retirement home is on blister packs. After undergoing treatments in the hospital for dementia and Alzheimer's disease, he was sent back to the retirement home and prescribed Seroquel 25mg. After 3 weeks, the medication was discontinued by the doctor but the pharmacist kept putting the medication in the blister packs.

Incidents involving compliance aids and/or blister packs accounted for about 9% of the incidents reviewed. Changes in therapy are often difficult to manage with blister packs.

Compounding:

An 8 year old patient was prescribed clonidine suspension for attention deficit hyperactivity disorder. During compounding, the technician mistook microgram for milligram and therefore the suspension was dispensed with 1000 times the intended strength. The patient was found sitting and breathing shallowly shortly after administration and was admitted to the hospital.

The misinterpretation between the dosage units of "µg" and "mg" contributed to this 1000 fold overdose error. ISMP Canada has also received several reports of 1000-fold compounding errors involving the preparation of oral clonidine suspension.[2]

MEDICATION SYSTEM STAGES INVOLVED IN THE INCIDENT

Our analysis indicated that the dispensing/delivery stage accounted for the most number of medication incidents, followed by the order entry/transcription stage. These two stages are the two core

LIMITATIONS OF ANALYSIS

Although the number of medication incidents analyzed in this report is small (78) and therefore the results cannot be extrapolated as a true reflection of community pharmacy practice they do reveal the nature of some of the incidents that occur and their possible contributing factors. Some of the limitations of this analysis include:

- Given the small sample size and lack of statistical analysis it is impossible to eliminate "chance" as a possible explanation for our results.
- This report only reviews medication incidents submitted to OCP's ICRC. Therefore our results cannot be used to obtain a true estimate of the incidence and type of medication errors occurring in community pharmacy practice.
- To balance the purely quantitative nature of the data analysis reported here, it might be more appropriate to study detailed descriptions or investigation reports of specific medication incidents reported to OCP and analyze the data qualitatively.

processes occurring in a typical community pharmacy. Additionally, since most of these reports were discovered and reported to OCP by patients and/or their caregivers, it is doubtful that other stages of medication use (i.e. prescribing, administration, and monitoring) would have been acknowledged in the initial incident reports.

COMMON MEDICATIONS REPORTED

The top four drugs associated with the 78 medication incidents were:

Synthroid®	8 of 78 cases
Amlodipine	5 of 78 cases
Clindamycin	3 of 78 cases
Warfarin	3 of 78 cases

While warfarin is recognized as one of the high-alert medications by a previous ISMP Canada incident analysis on the "Top 10 Drugs Reported as Causing Harm through Medication Error"[3], further research with larger sample size is needed in order to determine if the other three drugs are indeed high-risk medications in community pharmacy practice. In fact, the above are quite commonly prescribed/dispensed medications in primary care and community practice. Therefore, it would be too pre-mature to consider these medications as high-risk or red-flag medications in community pharmacy practice based on this analysis.

POSSIBLE CONTRIBUTING FACTORS

The most common causes of medication incidents were environmental factors (i.e. noise and distraction in the pharmacy), staffing or workflow problems, followed by education issues (both patient and staff education) and miscommunication of drug orders. It is possible that the contributing factors presented in this report may not be truly reflective of all possible causes of medication errors associated with community pharmacy practice. However, they do provide a good indication or bench mark as to where most incidents may originate from. Also, it is important to keep in mind that one incident may have multiple causes.

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RECOMMENDATIONS

1. All healthcare practitioners are encouraged to report medication incidents and near misses to ISMP Canada's Medication Incident and Near Miss Reporting Program (available at https://www.ismp-canada.org/err_ipr.htm) for the purpose of shared learning.
2. Patients are also encouraged to report medication incidents via the ISMP Canada Consumer Reporting portal at http://www.safemedicationuse.ca/report/.
3. Engage your pharmacy team in continuous quality improvement (CQI) or medication safety initiatives offered by ISMP Canada, which include:
   - Community Pharmacy Incident Reporting (CPhIR) (available at http://wwww.cphir.ca) which facilitates community pharmacists to report, share the lessons learned from medication incidents, and prevent similar incidents from occurring.
   - Medication Safety Self-Assessment® for Community/Ambulatory Pharmacy™ (available at http://www.ismp-canada.org/amssa/), which can help identify system improvement opportunities within your own pharmacy.
   - Root Cause Analysis (RCA) (available at http://www.ismp-canada.org/rca.htm) that can be used to perform a comprehensive, system-based review of critical incidents.
   - Failure Mode and Effects Analysis (FMEA) (available at http://www.ismp-canada.org/fmea.htm) which is a proactive assessment of work environment, equipment and procedures to identify system deficiencies and potential error sources.

1 Ho C. Medication Incidents Reported to OCP: A Review by ISMP Canada. Pharmacy Connection 2008; September/October: 28-29.

2 ISMP Canada. Oral Clonidine Suspension: 1000-Fold Compounding Errors Cause Harm to Children. ISMP Canada Safety Bulletin 2011; 11(1): 1-3. [Available at: http://www.ismp-canada.org/download/safetyBulletins/ISMPCSB2011-01-ClonidineSusp.pdf.]

3 ISMP Canada. Top 10 Drugs Reported as Causing Harm through Medication Error. ISMP Canada Safety Bulletin 2006; 6(1): 1-2. [Available at: http://www.ismp-canada.org/download/safetyBulletins/ISMPCSB2006-01Top10.pdf.]