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Drug Allergy Incidents in Community Pharmacies: A Multi-Incident Analysis

L. KIM[1] **and** **C. HO**[1,2]

1. Institute for Safe Medication Practices Canada
2. Leslie Dan Faculty of Pharmacy, University of Toronto

ISMP CANADA

UNIVERSITY OF TORONTO LESLIE DAN FACULTY OF PHARMACY

CMIRPS Canadian Medication Incident Reporting and Prevention System

SCDPIM Système canadien de déclaration et de prévention des incidents médicamenteux

INTRODUCTION

- **Drug-induced allergic reactions** are frequent and unpredictable events accounting for approximately 5-10% of all adverse drug reactions.[1] However, many drug allergies are preventable in nature, especially if the patient's allergies have been previously documented.[2]
- Allergic reactions lack homogeneity in both presentation and severity, and they can range from mild, localized discomfort to systemic, life-threatening anaphylaxis which presents a challenge for pharmacists to manage.

OBJECTIVE(S)

- To identify common themes underlying drug allergy medication incidents involving patients with documented allergies.
- To offer recommendations to help prevent future incidents in the community setting.

METHOD(S)

STEP 1: Searched ISMP Canada Community Pharmacy Incident Reporting (CPhIR)[3] Database for medication incidents involving drug allergies and related free-text search for symptoms of allergic reactions (e.g. hives, rash) from 2010 and 2014.

STEP 2: Selected incidents for final analysis. Incidents irrelevant to the topic of drug allergies and inadequate descriptions for analysis were excluded.

788 incidences were initially retrieved. Only 273 incidents met the inclusion criteria and were included in this multi-incident analysis.

STEP 3. Analyzed and categorized incidences into three themes and further divided into subthemes.

STEP 4. Identified potential contributing factors.

STEP 5. Provided recommendations to fill in patient-safety gap.

RESULT(S)

Theme	Subtheme	Recommendations
1 Missing Documentation	**Prescriber Error** ***Example**) Our pharmacy system indicated a penicillin allergy; however the doctor's office did not have the patient's allergic information. The pharmacist advised the patient to stop the medication and had amoxicillin switched to a more appropriate choice.*	**1.** Always obtain and record the patient's list of drug allergies. Keep their medical profile up to date. **2.** Have dialogue with patients and/or the patient's caregivers to mitigate potential incidents (e.g. as an additional routine check, always ask about patient allergies upon medication pick-ups).
	Pharmacy Error ***Example**) A child's penicillin allergy was not documented on her profile however it was discovered while counselling was provided to the child's father. The previous reaction was described as "a rash and hives on her back."*	
	Free-Form Comments ***Example)** A patient experienced a skin rash on the face after using a compound made with Glaxal® Base, as ordered by the doctor. This known allergy to Glaxal® Base was entered as a free-form comment thus neither the doctor nor the pharmacist came across any system alerts.*	**1.** Consider enhancing the pharmacy computer system for improved allergy detection. **2.** Eliminate "free-form texting or inputting" of allergy information in patient profile. **3.** Include inactive or non-medicinal ingredients into computer allergy database **4.** Perform independent double checks during order entry and dispensing as well to prevent incidences of allergic reactions undetected by the computer software.
2 Computer Detection Incapacity	**Cross Reactivity** ***Example)** A patient had a recently documented sulfonylurea allergy on file however the computer failed to generate an alert for Septra® when filled as a self-start antibiotic therapy. The patient never used Septra® until a year later when she developed another UTI. Upon use the patient developed severe hives and was later treated at the hospital.*	
	Inactive Ingredients ***Example)** A patient has a peanut allergy and was prescribed Prometrium® as part of a hormone replacement therapy. The patient's husband picked up the prescription and was not counselled by the pharmacist nor asked about the patient's peanut allergies. The patient later read the medication information sheet and saw the allergy warning. The pharmacist reacted by contacting the software provider. Their response was that because the peanut oil isn't an active ingredient, the system will not catch it.*	
3 Alert Bypass	***Example)** A patient presented a prescription for Macrobid® for which she was allergic to (documented). A pharmacy student processed the prescription and bypassed the allergy warning. The supervising pharmacist also failed to catch the mistake and it was later dispensed. The patient called the following day and said that she couldn't tolerate Macrobid®; it made her sick to her stomach. The pharmacist later called the doctor and he ordered Cipro® instead.*	**1.** Electronic prescription order entry systems require continuous quality improvement to minimize the potential of "alert fatigue" regarding allergies (e.g. statistics regarding alert overrides may be collected to inform updates to users). Ensure that a pharmacist reviews the alerts that are being removed by the manual alert override function.

CONCLUSION(S)

- Drug-induced allergic reactions can occur unexpectedly with various medications and can have serious consequences to patient care if not recognized and prevented in an appropriate manner.
- Drug-induced allergies can be easily screened and documented given the right tools and appropriate resources.
- Although unpredictable in nature, the presence of an existing drug allergy should prompt healthcare professionals to be mindful and cautious when prescribing and/or dispensing medications.
- Learning from medication incidents and identifying potential systems-based contributing factors are key steps for facilitating continuous quality improvement in medication safety.

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CONTACT INFORMATION

For more information contact us below:

Website: www.ismp-canada.org
Telephone: 416-733-3131 (Toronto)
1-866-54-ISMPC (1-866-544-7672) (Toll Free)
Fax: 416-733-1146
Address: 4711 Yonge Street, Suite 501
Email: info@ismp-canada.org