Preventable Medication Errors: Look-Alike/Sound-Alike Drug Names

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BACKGROUND

- The existence of look-alike/sound-alike drug names is one of the most common causes of medication error and is of concern worldwide.
- In a community setting, look-alike/sound-alike medication incidents can occur during prescribing, order entry, dispensing, administration and/or monitoring.[1]
- Medication incident reporting can be used to gain a deeper understanding of contributing factors or potential causes leading to medication incidents involving look-alike/sound-alike drug names.

OBJECTIVES

- This study shares information about medication incidents involving look-alike/sound-alike drug names reported to ISMP Canada's Community Pharmacy Incident Reporting (CPhIR) Program (www.cphir.ca) and highlights the common themes identified through a multi-incident analysis.

METHODOLOGY

- Reports of medication incidents involving "look-alike/sound-alike" were extracted from the CPhIR Program from April 2010 to March 2012.
- 342 incidents met inclusion criteria and were included in this qualitative, multi-incident analysis.
- The incidents were reviewed independently by two ISMP Canada analysts.

RESULTS

- Examples of look-alike/sound-alike drugs (**Table 1**)
- The four main themes identified are:
  - **THEME 1:** Individual factors
  - **THEME 2:** Environmental factors
  - **THEME 3:** Technological factors
  - **THEME 4:** Unique factors

CONCLUSION

- A multifactorial approach is essential to overcome the threats to patient safety from look-alike/sound-alike drug names (**Table 2**).
- The results of this multi-incident analysis are intended to educate health care professionals about the vulnerabilities within our healthcare system.
- Community pharmacists can mitigate and prevent the likelihood of negative outcomes from occurring through understanding the common themes (**THEMES 1, 2, 3, 4**) and implementing safeguards within practice settings.

THEME 1: Individual Factors

Sample Case: A prescription was written for Mebendazole 100 mg, 2 doses with 2 weeks apart. The pharmacist interpreted the prescription as metronidazole 1000 mg, 2 doses with 2 weeks apart. The prescriber's handwriting was hard to read, and metronidazole was commonly prescribed by this prescriber. When the pharmacist was discussing with the patient in terms of therapeutic indication of the prescription, it was discovered that the patient was supposed to be treated for worms, not bacterial infection.

Potential Contributing Factors:
- Knowledge deficit
- Confirmation bias
- Illegible handwriting on the prescription
- Lack of independent double checks

THEME 3: Technological Factors

Sample Case: Sample Case: A patient took Tri-Cyclen® LO before and received a new prescription from the doctor for Tri-Cyclen®. The pharmacy staff member copied from previous prescription on patient's profile and filled as Tri-Cyclen® LO. The patient noticed the medication package was the same as before and was anticipating a change. The patient returned to the pharmacy before she took the pills.

Potential Contributing Factors:
- Confirmation bias
- Copying previous prescriptions
- Lack of independent double checks

THEME 2: Environmental Factors

Sample Case: Sample Case: Due to the shortage of Apo®-Amilzide, Novamilor was filled for the patient. When Apo®-Amilzide became available, the pharmacy staff member planned to switch back to it. However, the Apo®-Amiloride was chosen instead of Apo®-Amilzide. Apo®-Amilzide was a combination drug including amiloride and hydrochlorothiazide. Patient noticed the yellow color tablets when picking up the prescription and questioned the pharmacist. The patient's profile was checked and the error was noticed.

Potential Contributing Factors:
- Drug Shortage
- Proximity of storage of look-alike/sound-alike drug pairs
- Lack of independent double checks

THEME 4: Unique Factors

Sample Case: The prescription was written for Hydrocortisone 1% ointment; however, Hydrocortisone 1% cream was dispensed.

Sample Case: A patient was prescribed Carbamazepine CR 200 mg; but Carbamazepine 200 mg was dispensed.

Potential Contributing Factors:
- The look-alike/sound-alike drug pairs has similar or same therapeutic indications
- The look-alike/sound-alike drug pair is available in similar or same strength
- The same active ingredient is available in multiple formulations
- Lack of independent double checks

Table 1: Examples of Look-alike/Sound-Alike Drug Names

BRAND NAME (Generic name)					
Celebrex® (Celecoxib)	**Losec®** (Omeprazole)	**Lamictal®** (Lamotrigine)	**Reminyl®** (Galantamine Hydrobromide)	**Seroquel®** (Quetiapine Fumarate)	**Yaz®** (Drospirenone and Ethinyl Estradiol)
BRAND NAME (Generic name)					
Celexa® (Citalopram Hydrobromide)	**Lasix®** (Furosemide)	**Lamisil®** (Terbinafine Hydrochloride)	**Amaryl®** (Glimepiride)	**Seroquel XR®** (Quetiapine Fumarate)	**Yasmin®** (Drospirenone and Ethinyl Estradiol)

Table 2: Hierarchy of Effectiveness in Preventing Medication Incidents Involving Look-Alike/Sound-Alike Drug Names

	Summary of Recommendations
Highest Leverage	**Simplification/Standardization:** - Include both generic and brand names in pharmacy order entry system. - Use standardized pre-printed order forms.[1]
	Reminders, Checklists, Double-Checks: - Incorporate warning flags into pharmacy computer systems to alert for look-alike/sound-alike drug names.[2] - Place auxiliary alerts on medication storage bins or shelves, where look-alike/sound-alike drug pairs are potentially stored.[1] - Perform independent double checks.[3] - Verify all verbal orders by repeating it back, spelling out the drug names, providing the indication of the drug to the caller.[5]
	Rules & Policies: - Include indications for each medication on the prescription.[2] - The copy functionality is available in most pharmacy software systems to enhance pharmacy workflow. Limit the process of copying from previous prescriptions (where applicable). The inputted prescription information should be verified against the original prescriber-generated prescription order. - Store look-alike/sound-alike drug pairs in different locations.[4]
Lowest Leverage	**Education & Information:** - Highlight the importance of look-alike/sound-alike drug names as part of pharmacy staff trainings and internal communication.[4]

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