Preventable Medication Errors
Look-alike/sound-alike drug names

"A prescription was written for Mebendazole 100mg, 2 doses with 2 weeks apart. The pharmacist interpreted the prescription as metronidazole 1000mg, 2 doses with 2 weeks apart. The prescriber's handwriting was hard to read, and Metronidazole was commonly prescribed by this prescriber."

By Qi (Kathy) Li, Atsushi Kawano and Certina Ho

Did you know that one of the most common causes of medication error is the existence of look-alike/sound-alike drug names? As more medications are being marketed in addition to the thousands already available, many of these medication names may look or sound alike as shown on the ISMP's List of Confused Drug Names (https://www.ismp.org/tools/confuseddrugnames.pdf). Look-alike/sound-alike drug names can lead to medication incidents that might cause serious patient harm. These errors can occur at any point in the medication-use system, including prescribing, order entry, dispensing, administration and/or monitoring. The scenario above illustrates an example where a medication incident involving look-alike/sound-alike drug names occurred during the order entry process.

Many factors could contribute to the confusion of medication names, such as illegible handwriting, knowledge deficit on drug names, and crowded storage spaces, etc. Additionally, when patients receive care from different health care providers and take multiple prescription medications, a comprehensive medication history may be more difficult to obtain. Therefore, the issue of look-alike/sound-alike drug names has become a significant challenge to pharmacists, patients, and prescribers.

The Institute for Safe Medication Practices Canada (ISMP Canada) performed a multi-incident analysis to help identify contributing factors leading to medication incidents involving look-alike/sound-alike drug names. Voluntary reports of medication incidents were extracted from the Community Pharmacy Incident Reporting (CPhIR) program, a database designed by ISMP Canada with support from the Ontario Ministry of Health and Long-Term Care.4 A total of 342 medication incidents were reviewed and categorized into four main themes, as shown below.

Individual factors take into account human capabilities, limitations, and characteristics, such as confirmation bias, illegible handwriting, and knowledge deficit, etc. In order to clearly indicate medication and instructions on prescriptions, physicians should consider using standardized pre-printed order forms.1 Furthermore, independent double checks should be performed throughout the entire pharmacy workflow.

Environmental factors refer to issues in the work environment or within the workflow process, such as drug storage, environmental distractions, or drug shortage, etc. It is recommended that the pharmacy dispensing area should be organized to create a safe and efficient working environment. For example, there should be enough physical space to accommodate pharmacy staff members during the dispensing process.

Technological factors are related to the use of pharmacy computer systems, such as copying prescriptions and scanning barcodes. The copy functionality is available in most pharmacy software systems. In order to prevent confirmation bias, policies should be made within the pharmacy to restrict or limit the process of copying from previous prescriptions (where applicable).

Unique factors are special characteristics pertaining to look-alike/sound-alike drug pairs themselves, such as similar dose, similar indication, or same ingredients available in multiple formulations, etc. Warning flags should be incorporated into the pharmacy computer systems to alert for potential mix-up during drug selections.

Look-alike/sound-alike drug names continue to be an inevitable issue that often led to negative impacts on patient safety. Selected recommendations with varying degrees of effectiveness are presented in Table 1. A multifactorial approach is essential to overcome the threats to patient safety. Everyone in healthcare has a role in preventing medication errors. ISMP Canada's ongoing initiative is to advocate for the reporting, sharing, and learning from medication incidents and ensure continuous quality improvement in the delivery of patient care. H

Table 1: Selected recommendations in preventing medication incidents involving look-alike/sound-alike drug names

Recommendations	Effectiveness of Safety Strategies	
• Include both brand and generic names in the order entry system • Use standardized pre-printed order forms (where applicable)	Simplification / Standardization	High Leverage
• Incorporate reminders or alerts in the pharmacy computer systems for look-alike/sound-alike drug names • Place auxiliary labels or flags on medication storage bins, where look-alike/sound-alike drug pairs are potentially stored • Perform independent double checks • Verify all verbal prescription orders by repeating/reading it back, spelling out the drug names, and providing the indication of the drug	Reminders, Checklists, Double checks	
• Include indications for each medication on the prescription order • Restrict or limit the process of copying from previous prescriptions (where applicable) • Store look-alike/sound-alike drug pairs in separate physical locations	Rules & Policies	
• Emphasize the importance of look-alike/sound-alike drug names in pharmacy internal communication and staff orientation/ training	Education & Information	Low Leverage

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Electronic medical records

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