

Medication Incidents Related to Look-alike Packaging

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Background

- Look-alike packaging refers to the situation when packaging of a medication is visually similar to another medication or drug product.¹
- According to a national Poison Centre perspective, the most common cause of medication errors occurring outside of healthcare facilities was look-alike packaging.²
- Approximately 30% of medication errors were due to look-alike packaging and labeling.³
- Medication incident reporting can be used to enhance understanding of factors that may contribute to medication incidents associated with look-alike packaging.

Objectives

The objective of this multi-incident analysis was to examine medication incidents related to look-alike packaging of drug products and to determine potential system-based improvements that may be customized in pharmacy practice to enhance medication safety.

Approach

- Reports of medication incidents involving look-alike packaging of drug products were extracted from the Institute for Safe Medication Practices Canada (ISMP Canada) Community Pharmacy Incident Reporting (CPhIR) Program⁴ between January 2010 and December 2015.
- After a review of 985 incidents, 578 were included in this qualitative, multi-incident analysis. The incidents were then analyzed and categorized into main themes.

Results

Seven main themes were identified:

- Theme 1: Wrong drug
- Theme 2: Right drug, but wrong strength/concentration
- Theme 3: Right drug, but wrong form/formulation
- Theme 4: Right drug, but wrong quantity
- Theme 5: Right drug, but wrong generic manufacturer
- Theme 6: Right drug, but wrong label
- Theme 7: Mix up of two drugs in the same vial

*Due to the multitude of themes, this multi-incident analysis was stratified with respect to high-alert medications in community/ambulatory healthcare⁵ and the top 100 most commonly prescribed medications.⁶

Table 1: Selected Main Themes & Incident Examples

Theme 2: Right drug, but wrong strength/concentration

Top 100 Most Commonly Prescribed Medications

A patient was due for a refill of Singulair® 10 mg. The pharmacist dispensed three boxes of Singulair® to the patient; two of which were Singulair® 10 mg and one box of Singulair® 5 mg. The pharmacist only scanned one of the three boxes during dispensing. The error was identified by the patient after taking one tablet of Singulair® 5 mg.

High-Alert Medications in Community/Ambulatory Healthcare

A prescription was written for Warfarin 1 mg, but Warfarin 5 mg was dispensed. The patient took the medication according to the directions for the 1 mg tablet on the label. A family physician noticed the error four weeks later and the patient was admitted to the hospital for changes in INR.

Theme 3: Right drug, but wrong form/formulation

Top 100 Most Commonly Prescribed Medications

A patient attended the pharmacy with a new prescription for Lorazepam SL 1 mg. However, the patient was provided with Lorazepam 1 mg. The error was noticed by the pharmacist after the medication had been dispensed.

High-Alert Medications in Community/Ambulatory Healthcare

A patient was due for a refill of their Novolin®ge 30/70. In error, the pharmacy dispensed Novolin®ge NPH. The patient's blood sugars had risen after starting the wrong medication. The error was discovered by the patient's wife when checking her husband's insulin supply.

Table 2: Potential Contributing Factors

Person-based Factors

- Confirmation bias; the tendency to see what one wants to perceive as opposed to reality
- Inexperience; lack of education or information about drugs

System-based Factors

- Look-alike labelling/packaging
- Look-alike/sound-alike drug names
- Lack of automation, like barcode technology, to ensure the correct medication is dispensed
- Storage of look-alike medications in close proximity
- Lack of verification with the original prescription and the medication dispensed
- Availability of multiple strengths/formulations from the same or different manufacturers
- Workflow interruptions during the prescription fill process

Table 3: Proposed Solutions Organized by the Hierarchy of Effectiveness

- | MOST EFFECTIVE | LEAST EFFECTIVE |
|---|---|
| 1. Forcing Functions & Constraints
Connect with pharmaceutical companies to advocate for safer packaging of drug products by introducing differentiation in product design. ^{1,3} | |
| 2. Automation & Computerization
Update computer software to detect and alert pharmacy staff of products with non-distinct packaging during the order entry stage of the medication-use process. | Implement barcode scanning into the pharmacy workflow to ensure the correct medication is dispensed. ⁴ |
| 3. Simplification & Standardization
Organize medication drawers/shelves, using a divider system, to spatially segregate look-alike products. ¹ | |
| 4. Reminders, Check Lists, Double Checks
Produce a reference list, unique to each pharmacy, of the medications that have non-distinct packaging. Have the list accessible for reference during dispensing tasks.
Place "alert" stickers on similarly packaged medications.
Perform independent double checks at every stage of the medication-use process to dispense the right product. | |
| 5. Rules & Policies
Avoid purchase of drug products with look-alike packaging and compare new products with existing packaging. ^{1,7} If the pharmacy already carries products with a similar appearance, switch manufacturers. ⁴
Scan the barcode of each stock product used to fill the prescription (including stock products for a compound prescription) before dispensing. | |
| 6. Education & Information
Appoint a safety officer (a member of the pharmacy team) to minimize the risk of medication incidents. ¹ The safety officer is responsible for staff education of drug products with non-distinct packaging. Staff education can include: <ul style="list-style-type: none"> Online internal learning modules Safety bulletins Training sessions | |

Conclusion

- Medication incidents related to look-alike packaging are common and have the potential to cause serious patient harm, especially when incidents involved high-alert medications.
- This multi-incident analysis has provided system- or workflow-based changes that can alert practitioners of look-alike drug products and prevent medication incidents.
- Person-based interventions like independent double checks, reminders, and education, can also support pharmacists in advancing safe medication use.

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