



Focus on **PEDIATRIC ANTIBIOTIC SUSPENSIONS**

Pediatric patients may be at increased risk of harm from medication incidents, often related to pharmacokinetic differences.¹ A recent analysis of incidents involving pediatric antibiotic suspensions that caused harm highlighted opportunities for improvement to safeguard this vulnerable population.

Did you know?

About 1/3

of reported
harm-related incidents
associated with pediatric
antibiotic suspensions
were discovered by
**patients/families/
caregivers.**



Dosing Calculations

INCIDENT EXAMPLE:

A prescription for an antibiotic suspension for a pediatric patient specified the dose in milligrams (mg). The lower-concentration product was used to calculate the quantity to dispense, however, the higher-concentration product was selected at order entry. The instructions on the prescription label described the dose only in millilitres (mL), which unintentionally doubled the amount of drug per dose. The parent called the pharmacy because the dose seemed higher than usual, and the child was experiencing diarrhea.

POTENTIAL CONTRIBUTING FACTORS:

- Look-alike product names during order entry
- Incomplete dosing instructions on label
- Lack of independent double check



RECOMMENDATIONS:

- Standardize dosing instructions on the label to include the amount (mg) and volume (mL) to minimize the risk of misinterpretation across different concentrations.²
- Document quantity calculations and include them in the independent double check against the original prescription.¹

Reconstitution

INCIDENT EXAMPLE:

An antibiotic suspension prescribed for a pediatric patient necessitated 3 bottles to complete the regimen. The parent noted that 1 bottle was not reconstituted (i.e., only powder), and the other 2 bottles contained a thicker-than-usual suspension. These observations were later corroborated by a pharmacy staff member when the bottles were brought back to the pharmacy.

POTENTIAL CONTRIBUTING FACTORS:

- Reconstitution delayed until patient pick-up
- Missed technical check following reconstitution



RECOMMENDATION:

- Require that the clinical check by the pharmacist be performed before filling the prescription and the final technical check (by the pharmacist or pharmacy technician) be done after reconstitution.¹

References

1. [Pediatric medication errors in the community: a multi-incident analysis](#). ISMP Can Saf Bull. 2022;22(5):1-4.
2. [A multi-incident analysis of reports associated with newer insulins](#). ISMP Can Saf Bull. 2026;26(3):1-6.



National Incident Data Repository for Community Pharmacies SMART Medication Safety Agenda

September 2026

Overview

The National Incident Data Repository for Community Pharmacies (NIDR) is a component of the Canadian Medication Incident Reporting and Prevention System (CMIRPS). The NIDR was established to support the collection of reports of near misses and medication incidents submitted by community pharmacies for the purpose of improving medication safety, thereby demonstrating a growing commitment to reporting and a culture of safety.

The SMART (**S**pecific, **M**easurable, **A**ttainable, **R**elevant, and **T**ime-based) Medication Safety Agenda describes medication incidents that were anonymously reported to the NIDR, potential contributing factors, and recommendations to reduce the risk of recurrence.

Call to Action

1. Discuss the medication incidents and potential contributing factors to determine if the risk exists in your pharmacy.
2. Consider the recommendations provided, and brainstorm additional safety strategies to prevent these types of medication incidents.
3. Document (e.g., in your reporting platform) and implement an action plan to prevent these types of medication incidents.
 - Use the Hierarchy of Effectiveness (to the right) to focus on system-based rather than person-based solutions, where possible.
 - Consider the feasibility of each action with respect to human resources, physical environment, finances, etc., and identify a suitable timeframe (e.g., within 1 month, within 6 months).
4. Regularly monitor the progress of action plan implementation to identify opportunities for continuous quality improvement.

MOST EFFECTIVE



Forcing functions and constraints

(e.g., removal of a product from use)



Automation or computerization

(e.g., bar code scanning in the dispensing process)



Simplification and standardization

(e.g., standardized storage of insulin by duration of action)



Reminders, checklists, double checks

(e.g., independent double check for high-alert medications)



Rules and policies

(e.g., policy to ask for 2 unique patient identifiers)



Education and information

(e.g., education sessions on common look-alike/sound-like medications)

SYSTEM-BASED

PERSON-BASED



LEAST EFFECTIVE

Adapted from: <https://ismpcanada.ca/resource/hierarchy-of-effectiveness/>

National Incident Data Repository  Référentiel de données nationales sur les incidents

CMIRPS  SCDPIM
Canadian Medication Incident Reporting and Prevention System Système canadien de déclaration et de prévention des incidents médicamenteux

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Discussion Topic:

Date:

Recommended Action

Specific

Describe the action with precise details, including who will be responsible.



Measurable

Create a monitoring plan to evaluate the implementation of the action, as well as its effectiveness.



Attainable

Brainstorm key challenges and barriers, particularly with respect to available resources and supports.



Relevant

Define the level and type of action according to the Hierarchy of Effectiveness.



Time-bound

Specify the timeframe for implementation and the frequency of monitoring for safety improvement.





Discussion Topic:

EXAMPLE (“incorrect drug” incident)

Date: YYYY MM DD

Recommended Action

Specific

Describe the action with precise details, including who will be responsible.



Implement bar code scanning technology in the dispensing process to help detect selection errors during filling before they reach the patient.

Pharmacy Owner will select a bar code scanning machine that is compatible with the dispensing software.

Measurable

Create a monitoring plan to evaluate the implementation of the action, as well as its effectiveness.



Monitoring for implementation:

Review prescription counts to determine the proportion that bypass bar code scanning. Schedule team meetings to ask for reasons (e.g., product not in system) and then incorporate solutions.

Monitoring for effectiveness:

Review medication incident data to analyze changes in “incorrect drug”, “incorrect strength”, and “incorrect dosage form” types of incidents, targeting a decrease in such incidents.

Attainable

Brainstorm key challenges and barriers, particularly with respect to available resources and supports.



Financial resources will be affected initially (due to the cost of bar code scanning technology) but may be recovered in the long term with fewer “incorrect product” incidents that lead to waste.

Staff will need supporting policies and workflow diagrams to help incorporate bar code scanning into the dispensing process.

Relevant

Define the level and type of action according to the Hierarchy of Effectiveness.



Bar code scanning technology is an example of automation/computerization, which is a system-based, high-leverage strategy.

Bar code scanning automates an independent double check of a product after it is selected from the pharmacy shelves for filling, alerting the user if it does not match the product in the system.

Time-bound

Specify the timeframe for implementation and the frequency of monitoring for safety improvement.



- Pharmacy Owner will secure the necessary financial resources to purchase (and maintain) bar code scanning technology within 1 year.
- Pharmacy Manager will create implementation supports (policies, diagrams) to be made available during staff training on the bar code scanning technology.
- Monitoring for implementation will be conducted by the Pharmacy Manager weekly for the first 3 months, then monthly until < 1% of prescriptions bypass bar code scanning.
- Monitoring for effectiveness will be conducted by the Pharmacy Manager monthly.