NEVER EVENTS

Patient Death or Serious Harm as a Result of 1 of 5 Pharmaceutical Events

Definition and Harm Prevention Strategies

Use a combination of prevention strategies. A one-size-fits-all approach is not applicable; consider strategies that influence as many steps of the medication management system as possible. The harm-prevention strategies for the 5 pharmaceutical events below are intended for quick reference and are not comprehensive; facility-specific factors should be evaluated carefully before implementing any strategy.

1. Wrong-route administration of chemotherapy agents, such as vincristine administered intrathecally (injected into the spinal canal). This includes vinca alkaloids administered using a non-intravenous route.
    - Implement strict protocols for chemotherapy administration and use distinct labelling and packaging.
    - Ensure sequential sign-off to confirm the administration of any prescribed intrathecal medication before dispensing a medication that is known to be fatal if given intrathecally.
    - Dispense vincristine and other alkaloids in a minibag (*not* a syringe) with a prominent auxiliary label that says, “For intravenous use only – fatal if given by other routes.”
2. Intravenous administration of a concentrated potassium solution.
    - Restrict access to concentrated potassium solutions.
    - Stock premixed solutions when possible.
3. Inadvertent injection of epinephrine intended for topical use. This includes parenteral administration of topical epinephrine.
    - Never put topical medications in parenteral syringes.
    - Use clear labelling and separate storage for injectable versus topical medications.
4. Overdose of hydromorphone by administration of a higher-concentration solution than intended. This includes use of a concentrated formulation, a calculation or dilution error, or a misunderstood order.
    - Standardize the concentrations available in critical care areas.
    - Store patient-specific doses in care areas only when required, in appropriate containers, as the most ready-to-use formulation; remove high-dose, high-concentration opioids stock from care areas.
    - Implement dilution protocols and use barcode scanning before dispensing.
5. Neuromuscular blockade without sedation, airway control, and ventilation capability. This includes inadvertent administration of neuromuscular blocking agents (NMBAs) to patients who are not sedated or ventilated and in whom the airway is not secured – or intended administration of an NMBA without sedation.
    - Paralyzing agents (NMBAs) are available only in critical care areas and are segregated from other stock medications with distinct warning labels.

Sources: ASHP Guidelines on Preventing Medication Errors in Hospitals, Linn DD et al, Am J Health Syst Pharm 2025, Medication Safety in High-Risk Situations, Medication Safety Self-Assessment, Never Events for Hospital Care in Canada, Never Events in Healthcare, Targeted Medication Safety Best Practices for Hospitals

Ontario Health

Resources for Patients and Care Partners

- Ontario Health: *Medication Safety* patient guide

Resources for Health Care Teams

National and Provincial

- Ontario Health: *Medication Safety* quality standard
- Accreditation Canada: Safe management of high alert medications and limiting high-concentration and high-total-dose opioid formulations are included as Required Safety Practices in the 2025 accreditation guidelines (national standards can be accessed using your hospital's online portal)
- Healthcare Insurance Reciprocal of Canada: Care – Medication Adverse Events
- Institute for Safe Medication Practices Canada (ISMP Canada):
  - Medication Safety Self-Assessment: Focus on "Never Events" in Hospitals and Ambulatory Care Centres
  - Canadian High-Alert Medication List and related user guide
  - Safety bulletins:
    - A New Canadian Approach to High-Alert Medications
    - ALERT: Fatal Outcome After Inadvertent Injection of Epinephrine Intended for Topical Use
    - Preventable Tragedies: Two Pediatric Deaths Due to Intravenous Administration of Concentrated Electrolytes
    - Shared Learning – Reported Incidents Involving Hydromorphone
    - "Paralyzing" Mix-ups in the Operating Room: Opportunity to Improve Safety With Neuromuscular Blockers
  - Canadian Pharmaceutical Bar Coding Project
  - Do Not Use: Dangerous Abbreviations, Symbols, and Dose Designations
  - TALLman Lettering

International

- American Society of Health-System Pharmacists (ASHP)
  - ASHP Guidelines on Adverse Drug Reaction Monitoring and Reporting
  - ASHP Guidelines on Medication-Use Evaluation
  - ASHP Guidelines on Preventing Medication Errors in Hospitals
- International Medication Safety Network (IMSN): IMSN Global Targeted Medication Safety Best Practices
- ISMP (United States): Targeted Medication Safety Best Practices for Hospitals (best practices 1, 7, 19)
- National Health Service, England: Recommendations From National Patient Safety Agency Alerts That Remain Relevant to the Never Events List 2018

Additional tools and resources are available in our Quality and Patient Safety Program Community of Practice on Quorum, as well as on our Medication Safety Quality Standard: Tools for Implementation Quorum page.

To learn more about Ontario Health's Never Events Reporting program for hospitals, please visit Never Events.

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