BACKGROUND

Use of multi-dose medications, whether commercial medications or pharmacy compounded preparations, increases the risk of medication contamination.

Cross contamination of medication can occur when products are shared between patients and during improper handling and storage (e.g. by sources of moisture such as sinks, other opened products or medications).

PURPOSE

The use of multiple dose medications should be avoided whenever possible as they are susceptible to contamination. The purpose of this policy is to avoid inadvertent patient harm when using medications provided to patient care areas in multi-dose formats.

DEFINITIONS

Medications provided in multi-dose formats are defined as:

1. Multi-dose vials labeled as such by manufacturer and containing preservative
2. Medications that are packaged in a container that provides more than one dose and include but not limited to oral liquids, topical medications, ophthalmic/otic medications, inhaled medications

Expiration Date:
The date that the manufacturer applies on commercial medication containers and after which the medication should not be used.

Beyond-use Date:
The date that Pharmacy applies on pharmacy compounded or re-packaged products and after which products should not be used or stored. The beyond-use date takes into consideration chemical stability and sterility. This term is not interchangeable with “expiration date”.

POLICY

Single-dose medications will be used whenever possible.

Multi-dose injectable vials that contain a preservative will be discarded after 28 days or as specified by the manufacturer.

Multi-dose vials and containers should be dedicated to a single patient. If they are to be used for multiple patients, they should not be kept at the bedside.

Multi-dose containers of oral and topical liquids, topical cream and ointments provided by pharmacy to a specific patient, will be used during patient’s hospitalization provided that it does not go over the manufacturer’s expiration date or beyond use date.

Multi-dose containers of oral and topical liquids opened on wards will be labeled with a beyond-use date of 6 months.

Multi-dose containers of topical creams and ointments opened on wards will be labeled with a beyond-use date of 3 months.

Ophthalmic and otic medications will be labeled upon opening the bottle with a beyond-use date of 1 month or as specified by the manufacturer.

Multi-dose medications will be discarded when:

- the medication is expired (as per beyond-use date or manufacturer’s expiration date)
- the medication in use is discovered unlabelled
- contamination is suspected or visible
• the medication was dedicated to a patient that has been discharged

This policy does not apply to containers of disinfectant and antiseptic solutions.

PROCEDURE

MULTI-DOSE MEDICATIONS (general handling procedures):

• Follow the manufacturer’s or pharmacy instructions for storage and use.
• Date opened multi-dose medications with the opened date and the beyond-use date indicated in the table below.
• Check the beyond-use date on the multi-dose medication before administering to the patient and discard if not dated or outdated.
• If the integrity of the contents is in doubt, discard the medication.

INJECTIONS

In addition to the general handling procedures for multi-dose medications:

• Use a new sterile syringe and needle/cannula when entering an injectable vial. Do not enter a vial with a syringe or needle/cannula that has been used on another patient.
• Cleanse the access diaphragm of vials using friction and a 70% alcohol/2% chlorhexidine wipe. Allow to dry before inserting a device into the vial.
• Keep multi-dose vials away from the immediate patient environment.
• Do not store vials in clothing or pockets.
• Do not pool or combine leftover contents of vials for later use.
• Use proper aseptic technique and throw away vials if aseptic technique is compromised.
• Inspect vials and discard if sterility has been, or is thought to have been compromised. Examine and discard the vial when particulate matter, discoloration or turbidity is observed.
• Only one open multi-dose vial of a medication should be available at a time.
• **NOTE**: Single use injectables contain no preservative and should be discarded following the first and only use, regardless of the vial size.

ORAL LIQUIDS

In addition to the general handling procedures for multi-dose medications:

• Use up any opened bottle prior to opening another.
• Store oral liquid medications in a clean, dry environment away from any possible sources of contamination.
• Do not store oral liquid medication at the bedside. If bottle is taken to the bedside, it should be dedicated to that patient only and not returned for general use.
• When it is necessary to transfer oral liquid medication into a single dose for individual patients, transfer the medication carefully to ensure that the contents are not contaminated. Label the container that the product is transferred into.

TOPICAL MEDICATIONS

In addition to the general handling procedures for multi-dose medications:

• Store topical creams and ointments in a clean, dry environment, away from any possible sources of contamination.
• Do not store topical creams and ointments at the bedside. If container is taken to the bedside, it should be dedicated to that patient only and not returned for general use.
• If it is necessary to transfer topical medications into a single dose for individual patients, transfer the medication carefully to ensure that the contents are not contaminated. Label the container that the product is transferred into.
<table>
<thead>
<tr>
<th>Multi-dose Dosage Forms</th>
<th>Categories of Multi-dose Containers</th>
<th>Examples</th>
<th>Beyond-use Date (BUD)</th>
</tr>
</thead>
</table>
| injections              | multi-dose injectable vials that contain a preservative | • insulin  
• epinephrine 1 mg/mL 30 mL vial (must also be protected from light)  
• colymycin is an exception; has no preservative but it can be used within 24 hours when administered for inhalation | 28 days |
| liquids (oral and external) | patient specific containers | • Simethicone 40 mg/mL 30 mL bottle  
• Calamine lotion | patient's hospitalization or as per expiry date on medication label |
|                         | commercial containers opened on wards and used for multiple patients | • Diovol Plus 350 mL bottle  
• Tylenol liquid  
• Benzoin Tincture | 6 months |
| creams and ointments    | patient specific containers | • Clotrimazole 1% cream 30 g tube  
• Anusol HC 15 g | patient's hospitalization or as per expiry date on medication label |
|                         | commercial containers opened on wards and used for multiple patients | • Emla 30 g  
• Dermabase | 3 months |
| ophthalmic/otic medications | patent specific multi-dose containers | • Tobramycin 0.3%  
• Auralgan 14 mL ear drops | 1 month or as per medication label |

REFERENCES


Hogston, R., Marjoram, B., 2011, Foundation of Nursing Practice, 4th Edition

Provincial Infectious Diseases Advisory Committee (PIDAC) – Infection Prevention and Control for Clinical office practice, 2013

Public Health Agency of Canada (PHAC) – Routine practices and additional precautions for preventing the transmission of infection in healthcare settings, 2012


Canadian Society of Hospital Pharmacies (CSHP) Compounding Guidelines for Pharmacies, 2014
MEDICATIONS PROVIDED IN MULTI-DOSE FORMAT

Association for Professionals in Infection Control and Epidemiology, Chapter 110: Pharmacy Services, 4th Edition, 2014