I. Description

Management of multi-dose vials of parenteral medications and vaccines

II. Rationale

This policy outlines the management of multi-dose vials/pens of parenteral medications and vaccines in both institutional and clinic practices.

III. Policy/Procedure

A. Policy

1. In general, the use of multi-dose vials is discouraged. If a single-dose vial is not available and a multi-dose vial is the only available option, the Pharmacy Department will strive to provide the smallest available size.

2. All patient care areas will treat manufacturer produced multi-dose vials as single use products. These products will be removed from the Pyxis MedStation as a whole vial (or number of vials), and any unused portion discarded. Exceptions to this are listed in Appendix A.

3. An Assistant Director of Pharmacy may allow for an exception for a vial to be used as a true multi-dose vial, on a drug-specific basis, in the event of a drug shortage.

4. Pharmacy use of multi-dose vials is addressed in UNCHCS Policy PHARM #0251, “Compounded Sterile Preparations (CSPs).”

5. All IV-based solutions (e.g., NS, D5W, etc.) are considered single-dose items. These IV-based solutions do not contain preservatives and may not be used as a multi-dose bag. These items should never be used for multiple patients.

6. In the operative environment (e.g., OR, Holding, PACU, PCS, and L&D OR’s), multi-dose vials may be used for a period of 24 hours.

7. If the manufacturer’s expiration date of recognized multi-dose vials/pens is prior to 28 days, then the medication expires on the manufacturer’s expiration date.

B. Procedure

1. Practitioners should discard multi-dose vials when:
   a. Suspected contamination has occurred
   b. Contents are discolored or have otherwise altered in appearance
   c. 28 days after opening has passed, unless otherwise specified by the manufacturer
   d. The manufacturer’s expiration date on the vial or pen has passed
   e. Particulate matter is present
Medication Management: Use of Multi-Dose Vials/Pens of Parenteral Medications and Vaccines in Acute Care and Ambulatory Care Environments

2. When it is necessary to discard a partially used or contaminated controlled substance multi-dose vial, the destruction must be witnessed by another licensed healthcare provider, and documented as per UNCHCS Policy NURS #0010, “Medication Administration” and UNCHCS Policy NURS #0019, “Pyxis® MedStation Systems.”

3. Locations:
   a. Clinics
      i. All vaccines being used in clinics are managed per the State Vaccine Policy and Centers for Disease Control guidelines/recommendations.
      ii. Botulinum Toxin Type A vials can only be used on a single patient once reconstituted. Botulinum Toxin Type A vials cannot be used on multiple patients based on package insert information.
      iii. It is the responsibility of the individual opening the multi-dose vial to label with date of expiration, time (if applicable), and initial the vial. An opened vial that does not contain this information must be discarded.
      iv. All opened and/or punctured multi-dose vials should be discarded every 28 days, unless otherwise specified by the manufacturer.
      v. Single dose vials must be discarded after each use and should never be used for multiple patients.
   b. Operative Environment (OR, Holding, PACU, PCS, and L&D OR’s):
      i. Multi-dose vials may be used for a period of 24 hours.
      ii. It is the responsibility of the individual opening the multi-dose vial to label with date of expiration and initial the vial. An opened vial that does not contain this information must be discarded.
      iii. After 24 hours, unless otherwise specified, nursing must dispose of multi-dose vials in the red biohazard box. If desired, nursing may return vial(s) to the OR Pharmacy for disposal.
   c. Department of Radiology (CT, MRI, Diagnostic Radiology, Nuclear Medicine, PET):
      i. It is the responsibility of the individual opening the multi-dose vial to label with date of expiration and initial the vial. An opened vial that does not contain this information must be discarded.
      ii. After the shelf-life has expired, technologist or nursing staff must dispose of multi-dose vials in the radioactive waste container or red biohazard box as appropriate.
   d. WakeBrook
      i. WakeBrook will follow the guidelines in Appendix A on the use of multi-dose vials in the Acute Care setting and Ambulatory Care settings.
      ii. Expiration date stickers to be placed on opened vials are located within the automated dispensing cabinet (ADC).
      iii. It is the responsibility of the individual opening the multi-dose vial to label with date of expiration, time (if applicable), and initial the vial. An opened vial that does not contain this information must be discarded.
      iv. Pharmacy staff will monitor MDV usage to ensure that the appropriate expiration date is programmed into the ADC.
4. Multi-dose vials in patient care areas and other medication storage areas will be inspected every 28 days to ensure that this policy is followed. These inspections will be performed according to the UNCHCS Policy PHARM #0015, “Liaison Service for Acute Care” and UNCHCS Policy PHARM #0825, “Liaison Inspections for Clinics.”

5. Pyxis Clinical Data Category alerts will be used to remind nursing personnel of multi-dose vial procedures. When appropriate (e.g., drug shortage), a dispensed multi-dose vial will trigger a (Clinical Data Category) alert that the vial must be labeled with date of expiration and initialed when first opened and must be discarded within 28 days, according to the Clinical Data Category or the manufacturer’s expiration date if less than the Clinical Data Category.

6. Proper aseptic technique handling of multi-dose vials is outlined in the Infection Control Policy.

7. See Appendix A for allowable multi-dose vials in Acute Care, including the Department of Radiology, and Ambulatory Care environments.

IV. Reviewed/Approved by


Pharmacy & Therapeutics Committee – August 2012; October 2014, February 2016

Last update – January 2016
## Medication Management: Use of Multi-Dose Vials/Pens of Parenteral Medications and Vaccines in Acute Care and Ambulatory Care Environments

### Appendix A:

**Allowable Multi-Dose Vials in Acute Care, Department of Radiology, and Ambulatory Care Environments**

<table>
<thead>
<tr>
<th>Medication/Category</th>
<th>Notes</th>
</tr>
</thead>
</table>
| **Insulin Products** | - Pharmacy will remove and re-stock insulin multi-dose vials at least every 28 days  
- Insulin multi-dose vials do **not** have to be dated or initialed when opened, as the Pharmacy Department will remove and re-stock vials at least every 28 days  
- Should be stored in Pyxis machines, as this is essential for billing and tracking purposes  
- Should not be stored in a refrigerator on nursing units |
| **Pentobarbital**    | - Pharmacy will remove and re-stock vials at least every 28 days  
- Will be labeled with a 28 day beyond use sticker prior to being placed in the Pyxis MedStation and relabeled each 28 days if the medication has not been opened or tampered with  
- Should be stored as recommended by the manufacturer  
- When it is necessary to discard a partially used or contaminated vial, the destruction must be witnessed by another licensed healthcare provider, and documented |
| **Testosterone**     | - Multi-dose vial that will be stored in Pyxis machines as needed for patient specific indications, and will be dated with a 28 days stamp prior to being placed in the Pyxis  
- Will be removed when no longer indicated for the patient  
- Should be removed in mL’s and NOT as vials from Pyxis MedStation machines  
- Should be stored as recommended by the manufacturer  
- When it is necessary to discard a partially used or contaminated vial, the destruction must be witnessed by another licensed healthcare provider, and documented |
| **Midazolam**        | - Multi-dose vial that will be stored in Pyxis machines as needed for patient specific indications, and will be dated with a 28 days stamp prior to being placed in the Pyxis  
- Will be removed when no longer indicated for the patient  
- Should be removed in mL’s and NOT as vials from Pyxis MedStation machines  
- Should be stored as recommended by the manufacturer  
- When it is necessary to discard a partially used or contaminated vial, the destruction must be witnessed by another licensed healthcare provider, and documented |
| **Diazepam**         | - Multi-dose vial that will be stored in Pyxis machines as needed for patient specific indications, and will be dated with a 28 days stamp prior to being placed in the Pyxis  
- Will be removed when no longer indicated for the patient  
- Should be removed in mL’s and NOT as vials from Pyxis |
**Medication Management: Use of Multi-Dose Vials/Pens of Parenteral Medications and Vaccines in Acute Care and Ambulatory Care Environments**

<table>
<thead>
<tr>
<th><strong>MedStation machines</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Should be stored as recommended by the manufacturer</td>
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<tr>
<td>When it is necessary to discard a partially used or contaminated vial, the destruction must be witnessed by another licensed healthcare provider, and documented</td>
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</tbody>
</table>

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<thead>
<tr>
<th><strong>PPD Skin Test</strong></th>
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<tbody>
<tr>
<td>Can be used up to 28 days after the first dose is withdrawn, unless otherwise specified by the manufacturer</td>
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<table>
<thead>
<tr>
<th><strong>Fluphenazine Products</strong></th>
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<tbody>
<tr>
<td>Fluphenazine vials labeled by the manufacturer as multidose vials may be used as a multi-dose vial for 28 days from the date of opening, unless otherwise specified by the manufacturer</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Department of Radiology (CT, MRI, Diagnostic Radiology (including Radiation Oncology), Nuclear Medicine, PET)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medication/ Category</strong></td>
</tr>
<tr>
<td>IV contrast media</td>
</tr>
<tr>
<td>Radiopharmaceutical vials</td>
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<tr>
<th><strong>Ambulatory Care</strong></th>
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<tbody>
<tr>
<td><strong>Medication/ Category</strong></td>
</tr>
<tr>
<td>Insulin products</td>
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<tr>
<td>Testosterone</td>
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<tr>
<td>PPD Skin Test</td>
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<tr>
<td>Local anesthetics</td>
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<tr>
<td>Makena® (hydroxyprogesterone caproate injection)</td>
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<tr>
<td>Fluphenazine Products</td>
</tr>
<tr>
<td>IPOL® (Poliovirus Vaccine)</td>
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</table>
Inactivated) specified by the manufacturer.

- Vaccines being used in clinics are managed per the State Vaccine Policy and Center for Disease control guidelines/recommendations.