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Safe Use of Single-Dose/Single-Use Vials and  
Multi-Dose Vials in the Outpatient Setting

Is the way medication vials are handled in your office practice placing your patients at risk for infection? Every year there are reports of significant harm and even patient deaths due to the reuse of single-dose vials and the misuse of multiple-dose vials. The transmission of bloodborne viruses (e.g., hepatitis B, hepatitis C, HIV) and life- threatening bacterial infections, such as methicillin-resistant Staphylococcus aureus (MRSA), has also been reported.1

Drug shortages, increased medical costs to healthcare providers, the lack of education and training for staff members, and the failure to follow basic principles of infection prevention and control and aseptic technique are just a few of the reasons why some of these injection-related infections are happening.

Some common findings pertaining to medication safety made during these assessments include the following:

* Reuse of single-dose vials
* Failure to date opened multi-dose vials
* Failure to dispose of outdated vials (open or not)

The Centers for Disease Control and Prevention (CDC) first issued injection safety guidelines in 2007.2 Since that time, the CDC has been made aware of at least 19 outbreaks associated with single-dose/single-use medications.3 In 2010, the CDC issued additional guidance focusing on the safe handling of single-dose/single-use vials.4

**Protecting Your Patients and Your Practice**

**Single-Dose/Single-Use Vials**5, 6, 7

* A **single-dose/single-use** vial is approved for use on a **single** patient for a **single** procedure or injection.
* Single-dose/single-use vials are available in a variety of shapes and sizes. **Do not assume** that a vial is a single-dose/single-use vial based on its size or the volume of medication. **Read the label.** Single-dose/single-use vials are labeled as such by the manufacturer and typically lack an antimicrobial preservative**.**
* Single-dose/single-use vials should be discarded immediately after use. Do not save any medication remaining in these vials, as harmful bacteria can grow in it and infect a patient.
* If it appears that a single-dose/single-use vial has already been accessed (e.g., needle-punctured), **throw it away.**
* Never combine (pool) the leftover contents of single-dose/single-use vials for later use.

When possible, purchase single-dose/single-use vials rather than multi-dose vials. Consider using prefilled syringes or other ready-to-deliver unit dose packaging when ordering medications.

**Multi-Dose Vials**8, 9

A **multi-dose vial** may be recognized by its FDA-approved label indicating that it is intended for multiple doses. Multi-dose vials typically contain an antimicrobial preservative, which is also reflected on the label. If the vial does not contain a preservative, it is not likely a multi-dose vial.

* Although multi-dose vials typically contain an antimicrobial preservative to help limit the growth of bacteria, these preservatives have no effect on bloodborne viruses and do not protect against contamination when a healthcare worker fails to follow safe injection practices.
* When multi-dose vials are used, the vial must be accessed with a sterile needle and syringe each time. When possible, dedicate multi-dose vials to a single patient. Date and initial multi-dose vials when first opened and discard them within 28 days of opening, unless otherwise specified by the manufacturer.
* Prior to using a multi-dose vial that has been used before, double-check the expiration date (or the beyond-use date, as applicable) and inspect the contents to ensure that no visible contamination is present.
* Monitor your inventory of multi-use vials for expiration dates. Discard vials based on the manufacturer’s expiration/beyond-use date.
* Do not store multi-dose vials in patient care areas, such as treatment and examination rooms.
* Properly prepare injections in a designated medication preparation area that is clean and separate from where used or soiled equipment or materials are kept.
* Discard multi-dose vials when doses are drawn up in a patient treatment area or anytime the sterility of the vial is in question.
* Practice proper hand hygiene prior to the handling of any medication.
* Always use aseptic technique when preparing and administering injections. The vial’s rubber septum should be disinfected with alcohol prior to piercing it.
* Medications should be drawn up just prior to use and properly labeled.
* Never leave a needle in the medication vial’s septum for multiple uses.

**Additional Risk Management Suggestions**10

* Provide all staff members who perform injections with infection prevention and control training.
* Provide staff members with the supplies necessary to comply with Standard Precautions (e.g., hand hygiene products, personal protective equipment, cleaning supplies, syringes and safety needles).
* Designate a clean area for preparing medications.
* Identify a staff member who will be responsible for overseeing infection prevention and control practices in the office.
* Develop written infection prevention policies and procedures which are appropriate for your specific practice using evidence-based guidelines, regulations and/or standards of professional organizations, accreditation entities and/or regulatory agencies.

A video titled Safe Injection Practices: Protecting Yourself and Your Patients is an available educational resource for training staff members. This video may be accessed through the One and Only Campaign at: <http://www.oneandonlycampaign.org/content/bloodborne-pathogens-training>.

The failure to follow safe medication practices can put your patients and your practice at risk. Make sure that all members of your healthcare team use single-dose/single-use and multiple-dose vials properly.

References

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3. Ibid, p. 2.
4. Ibid, p. 3.
5. Centers for Disease Control and Prevention (CDC), “Questions about Single-Dose/Single-Use Vials,” Page last updated February 9, 2011, <http://www.cdc.gov/injectionsafety/providers/provider_faqs_singlevials.html>, 01/28/2014.
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7. Safe Injection Practices Coalition, Frequently Asked Questions (FAQs) Regarding Safe Practices for Medical Injections, March 1, 2011, <http://oneandonlycampaign.org/sites/default/files/upload/pdf/Injection%20Safety%20FAQs%20%282%29%20FINAL.pdf>, 01/28/2014.
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This information is intended to provide general guidelines for risk management. It is not intended and should not be construed as legal or medical advice