Injection Safety: Preventing Needle and Syringe Reuse

Reuse of needles, syringes and other injection or infusion equipment can result in transmission of bloodborne pathogens, endangering patients/residents and staff. As a general rule, the vast majority of needles and syringes are not reusable. Those sharps that may be safely reprocessed (such as cardiac or biopsy needles) come with a manufacturer’s statement to that effect.

Reusing needles and syringes to administer parenteral substances on multiple patients or residents is strictly prohibited by the infection control guidelines of the Centers for Disease Control (CDC). Reuse also violates the practice standards of various professional associations, including the Association for Professionals in Infection Control and Epidemiology, the American Society of Anesthesiologists and the Association of Nurse Anesthetists. Clinical surveys demonstrate, however, that compliance problems persist, especially in physician offices and among anesthesiologists.*

This article offers practical risk management strategies to reduce the likelihood of inappropriate reuse and potential contamination, thus enhancing patient/resident safety and minimizing liability.

Gathering Information

The first step in assessing injection safety is to survey the practice habits of providers who prescribe and administer injections. A comprehensive questionnaire on the subject (Tool C – Revised) is available from the World Health Organization, at http://www.who.int/injection_safety/Injection_safety_final-web.pdf.

Surveys minimally should capture the following information:

- annual number of injections
- proportion of injections given with single-use equipment
- sterility of equipment utilized for intravenous (IV) injections or infusions
- number of sterilized needles and syringes used to administer injections
- number of disposable needles ordered and utilized
- availability of puncture-resistant sharps containers in clinical settings
- frequency of needle-sticks or other sharps injuries

Enhancing Injection Practices

Utilizing the baseline survey data, organizational leaders can begin to assess their areas of exposure and implement indicated risk control measures, including the following:

- **Prohibit reuse of disposable syringes.** The cost-cutting practice of administering medications – especially expensive or controlled drugs – to multiple patients or residents from the same syringe is highly unsafe and should never be condoned in a clinical setting.

  It is sometimes mistakenly believed that a syringe may be reused if the needle is changed. However, even in needleless systems and luer-fitted IV infusion ports, backflow may occur, leading to contamination by bloodborne pathogens. Emphasize to providers and staff members that once a syringe has been connected to an IV infusion, it must be considered contaminated and appropriately discarded after use.

  To reduce the possibility of syringe reuse, consider purchasing and using alternative devices, such as

  - **auto-destruct syringes** that can be used only once
  - **fixed-needle syringes** with a metal clip that locks the plunger after a single use
  - **safety syringes** with removable plastic tabs to indicate when the syringe has been used

  For more information on initiatives to enhance injection safety and standardize equipment, visit the Web site of the World Health Organization’s Safe Injection Global Network (SIGN) alliance at http://www.who.int/injection_safety/sign/en/.

- **Utilize prepackaged injectables.** Another strategy is to encourage use of prepackaged needles and syringes, which are sterile and intended only for a single use. Purchasing “bundled” injectable medications helps promote hygienic practice and patient/resident safety by minimizing the contamination risks associated with preparing injections on site.

  Frequent reports of viral transmission via contaminated needles underscore the importance of aseptic injection technique. The following infection control principles are consistent with CDC recommendations, and should be observed by all healthcare professionals who give injections:

  - Ensure that all hypodermic needles are sterile, as well as the lumens of syringes used to administer parenteral substances.
• Post reminders that infusion fluids, administration sets and pressure transducer setups are intended for a single use, in accordance with manufacturer guidelines.
• Train staff members not to rely solely on visual inspection to confirm the absence of blood contamination in a needle or syringe.
• Inform staff and practitioners that applying chemical germicides to used needles and syringes cannot guarantee sterility, and therefore is not recommended.
• Prohibit needle recapping by hand or using any other technique that involves pointing the needle toward any part of the body. If recapping is necessary, instruct staff to use a mechanical device designed to hold the needle sheath.
• Dispose of old needles and syringes in puncture-resistant containers located where injections take place.

Specify single-dose vials. Even with bacteria-fighting preservatives, multi-dose vials are prone to contamination, making single-dose units preferable. If multi-dose vials must be used, ensure that staff members adhere to the following infection control guidelines:
• Draw up medications as close to administration time as possible, in order to minimize handling and reduce the risk of airborne contamination.
• Do not aspirate vials with a previously used needle if there is a chance that vial contents will be administered to another patient or resident.
• Refrigerate multi-dose vials after they are opened or as recommended by the manufacturer.
• Cleanse the access diaphragm with 70-percent alcohol before inserting any device into the vial.
• Use sterile needles and refrain from touching the shaft of a needle before penetrating the access diaphragm.
• Dispose of needles and syringes immediately after use, and never leave a needle in the septum of the vial, as this may encourage reuse of the syringe.
• Discard a multi-dose vial if there is any chance that its sterility is compromised or that it otherwise may pose a hazard to patients or residents.

Emphasizing Prevention
The following risk management principles should be incorporated into written policies, staff orientation and educational activities:
• Reduce unnecessary injections by encouraging the use of appropriate oral alternatives.
• Ensure that waste management systems are designed to prevent contamination from disposable syringes and other potentially dangerous sharps.
• Hold clinical departments accountable for the use of safe injection technology, and incorporate OSHA guidelines regarding sharps hazards and bloodborne pathogens into job descriptions and performance reviews.
• Reinforce the importance of following injection safety guidelines, and ensure that compliance is monitored by an infection control specialist.

Resources
• Anesthesia Patient Safety Foundation (APSF®), at www.apsf.org
• Association for Professionals in Infection Control and Epidemiology (APIC®), at www.apic.org
• Exposure Prevention Information Network (EPINet), at http://www.healthsystem.virginia.edu/pub/epinet/about_epinet.html


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