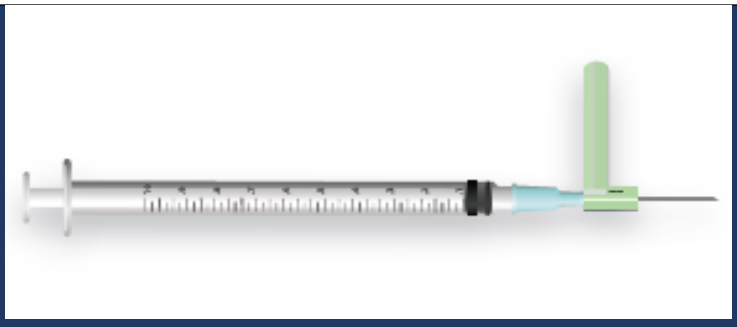

Healthcare Associated Infections Antimicrobial Resistance Program

Injection Safety Toolkit

WEST VIRGINIA
Department of
Health & Human Resources
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Introduction and background [2]

Injection safety practices are vital to patient safety. Safe injection practices are actions taken to perform injections in a safe manner for patients, healthcare personnel, and others. These practices are intended to prevent transmission of infectious diseases between one patient and another, prevent transmission between a patient and healthcare provider, and prevent harm such as needlestick injuries.

Unfortunately, when safe injection practices are not strictly followed during patient care, serious consequences may occur putting patients and healthcare personnel at risk of infectious and non-infectious adverse events. Improper use of syringes, needles and medication vials has resulted in patient-to-patient transmission of bloodborne pathogens such as the hepatitis B, hepatitis C, human immunodeficiency virus or HIV, as well as bacterial infections. The Centers for Disease Control and Prevention (CDC) estimates that more than 50 outbreaks have occurred due to unsafe injection practices, with nearly 150,000 patients affected since 2001. Unsafe injection practices have been linked to a wide variety of procedures and settings.

Patient Impact [2]

During routine healthcare procedures, improper use of syringes, needles, and medication vials have resulted in one or more of the following:

- Transmission of bloodborne viruses, including hepatitis C virus to patients.
- Notification of thousands of patients of possible exposure to bloodborne pathogens and recommendation that they be tested for hepatitis C virus, hepatitis B virus, and HIV.
- Referral of providers to licensing boards for disciplinary action.
- Malpractice suits filed by patients.

Injection safety and other basic infection control are key components to ensure patient safety. These events serve as a reminder of the serious consequences of failure to maintain strict adherence to safe injection practices during patient care.

Medication Preparation Area [2,5]

Facilities should have a designated area in which medications are drawn up. The medication preparation area should:

- Be clean and away from possible sources of contamination such as sinks and other water sources.
- Not have any tools or equipment that may have come into contact with blood or body fluids in the medication prep area. Equipment may include used syringes, needles, IV tubing, blood collection tubes, or needle holders.
- Be cleaned and disinfected regularly by well trained staff.
- Have hard, non-porous surface for preparation activities.

- Contain and have readily accessible necessary supplies such as alcohol-based hand rub, needles and syringes in their sterile packaging, and alcohol wipes.

When drawing up medication:

- Use aseptic technique to access parenteral medications:
  - Use new sterile syringe and sterile needle.
  - Prevent contact between the injection materials and non-sterile environment.
  - Perform hand hygiene.
- Prepare an injection as close as possible to the time of administration to the patient.
  - Consider using conventionally manufactured pre-filled syringes if pre-drawn syringes are needed.
- Avoid interrupting healthcare personnel (HCP) who are drawing up medications.
- Use a quiet area for medication and consider posting a "quiet area" sign in the medication area.

A medication area checklist and quiet area sign template are included in ***Appendix A and B***.

Single-dose and Multi-dose Vials [1, 2, 5, 6]

Outbreaks can be caused by unsafe injection practices such as syringe reuse and misuse of medications vials. The misuse of vials mainly involves the reuse of single-dose vials. These types of vials should only be used once for a single patient. Single-dose vials typically lack preservatives; therefore, using these vials more than once carries substantial risks for bacterial contamination, growth and infection. In attempts to avert waste and lower costs, some providers compromise safe infection control practices and draw up unused medication from a single-dose vial. However, adverse clinical outcomes can quickly offset any cost savings.

The development of, and adherence to evidence-based, organization-wide standardized policies and procedures can reduce the risk of negative outcomes when single- and multi-dose vials are used. These policies and procedures should include the following:

Single-dose vials:

- Single-dose/single-use vials should only be used for a single patient during a single patient encounter. Vials must be discarded after this single use. Never return vials after this single use to stock in medication rooms, to medication/drug carts, etc.
- A new needle and a new syringe must be used if a single-dose/single-use vial must be entered more than once during a single procedure for a single patient.
- Never pool, combine, or store the contents of single-dose/single-use vials.

Multi-dose vials:

- Only vials that are clearly labeled by the manufacturer as appropriate for multiple uses may be used more than once.

- Whenever possible, use multi-dose vials for only one patient to reduce the risk of contamination.
- Use a new needle and new syringe for every entry into a multi-dose vial.
    - Do not leave needles or other objects in vial entry diaphragms between uses. Doing so increases the risk of contamination.
- Using an alcohol pad, disinfect the rubber septum of vials before piercing by scrubbing vigorously.
    - Allow the septum to air dry before inserting a needle or other device into the vial.
- If a multi-dose has been opened or accessed (e.g., needle-punctured) the vial should be dated at the time it is opened or accessed and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial.
- Multi-dose vials should not enter the patient care area and should be stored outside the immediate patient care area and under manufacturer storage recommendations.

An injection safety checklist to evaluate safe injection practices is included in ***Appendix C.***

Glucose Monitoring and Insulin Administration [1, 2]

Monitoring of blood glucose levels is frequently performed to guide treatment for persons with diabetes. This may be performed in a variety of settings including assisted living or residential care facilities, clinics, health fairs, shelters, detention facilities, schools, and camps.

Blood glucose monitoring and insulin administration can be accomplished in two ways:

- Self-monitoring where the individual performs all steps of the testing and insulin administration themselves.
- Assisted monitoring where another person assists with or performs testing and insulin administration for an individual.

It is important to remember, any setting where fingerstick procedures are performed and/or insulin is administered, injection safety practices should be followed.

Fingerstick devices, also called lancing devices, are devices that are used to prick the skin and obtain drops of blood for testing. There are two main types of fingerstick devices.

- Reusable devices may resemble a pen and have a means to remove and replace the lancet after each use.
    - It is recommended these devices NEVER be used for more than one person.
- Single-use devices are disposable and prevent reuse by an auto-disabling feature.
- Dispose of used lancets at the point of use in an approved sharps container. Never reuse lancets.

Blood glucose meters are devices that measure blood glucose levels.

- Blood glucose meters should be assigned to an individual person and not shared if possible.
    - Should a glucose monitor be shared, the device should be cleaned and disinfected after every use, per manufacturer's instructions, to prevent carry-over of blood and infectious agents.
    - If the manufacturer does not specify how the device should be cleaned and disinfected, then it should not be shared.
    - If the device says single patient use only, it should not be shared.
- Unused supplies and medications should be maintained in clean areas separate from used supplies and equipment (e.g., glucose meters). Do not carry supplies and medications in pockets.

Insulin may be administered using a pen or with a syringe.

- Insulin pens should be assigned to individual persons and labeled appropriately. They should never be used for more than one person.
- Multi-dose vials of insulin should be dedicated to a single person whenever possible.
    - If the vial must be used for more than one person, it should be stored and prepared in a dedicated medication preparation area outside of the patient care environment and away from potentially contaminated equipment.
    - Medication vials should always be entered with a new needle and new syringe.
    - Dispose of used injection equipment at point of use in an approved sharps container. Never reuse needles or syringes.

A point of care observation/auditing tool is included in ***Appendix D.***

Sharps Injury Prevention

An effective sharps injury prevention program includes several components that must work in concert to prevent healthcare personnel from suffering needlesticks and other sharps-related injuries.

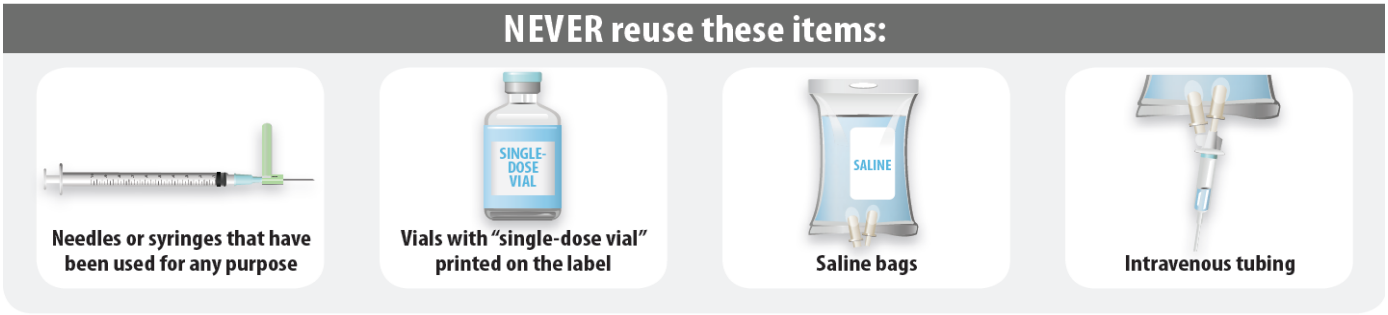
To access CDC's Workbook for Designing, Implementing, and Evaluating a Sharps Injury Prevention Program, please visit: www.cdc.gov/sharpssafety/tools.html

Safety Tips [1, 2, 3, 4, 5, 6]

Adherence to injection safety recommendations can prevent adverse events and outbreaks. Below are important safety tips.

- Perform hand hygiene prior to preparing and administering the injection.
- Prepare medications in a quiet, clean area to avoid contamination.

- Practice aseptic technique while preparing and administering injections.
- Disinfect the rubber septum of the vial using an alcohol pad each time it is accessed, including the initial access.
- Never administer medications from the same syringe to more than one patient
    - The needle and syringe should be changed each time.
- Use fluid administration sets for one patient only and dispose of them properly after use.
- Consider a syringe/needle contaminated once it has been used to enter or connect to a patient's IV bag or administration set.
- Use single-dose vials whenever possible.
- Do not use medications packaged as single-use for more than one patient.
    - Do not combine leftover contents of single-dose vials for later use.
- When multi-dose vials are used, both the needle and syringe should be sterile; multi-dose vials should not be taken into the patient treatment area.
- Date and label multi-dose vials when they are opened or accessed and discard within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial.
- Do not use bags or bottles of IV solution as a common source of supply for multiple patients.
- Use a surgical mask when placing a catheter or injecting material into the spinal canal or subdural space.



Competency [2]

Safe injection practices are a set of measures used to perform injections in a safe manner. Safe injection practices include the use of aseptic techniques to prevent the transmission of blood borne pathogens. Anyone who administers injections should receive comprehensive, competency-based training regarding policies and procedures for safe injections upon hire and annually thereafter including return demonstration. This competency-based training should be completed before administering any injections.

A competency template may be found in ***Appendix E***.

Drug Diversion [2, 4]

Drug diversion may occur in a variety of ways and is considered a criminal act. Drug diversion may cause patient harm through substandard care by an impaired provider, may prevent essential pain management, and/or pose the risk of infection.

Healthcare personnel may divert by:

- False documentation.
- Scavenging wasted medication, such as removal of residual medication from used syringes in the trash.
- Theft through tampering which includes substituting medication in a container or syringe with a similar looking substance.

Drug diversion can lead to exposure to infectious agents as safe injection practices may not be followed when diverting. The CDC reports from 2004 to 2014 close to 30,000 patients were notified of a possible infectious exposure or given recommendations for follow up testing as a precautionary measure. The Council of State and Territorial Epidemiologists developed a tool to assist in investigating drug diversions. For more information, please visit: www.cste.org/page/Drug-Diversion-Toolkit?&hhsearchterms=%22drug+and+diversion%22.

Injection Safety Breaches [2]

Some types of infection control breaches, including, but not limited to, medication injection practices pose a risk of bloodborne pathogen transmission that warrants the engagement of public health authorities to conduct risk assessment and, if necessary, to implement the process of patient notification.

Infection control breaches are divided into two categories based on the qualitative risk assessment:

- **Category A** errors correspond to gross mistakes in infection control practices, typically with identifiable risk. The risk assessment is based on documented bloodborne pathogen transmission in association with similar practices in the past, or the observed or very high likelihood of blood exposure as a result of the breach. Examples of Category A errors include: 1) reuse of needles or syringes between patients; and 2) reuse of contaminated syringes to access multi-dose medication vials or intravenous fluid bags.
- **Category B** errors correspond to breaches of infection control where the likelihood of blood exposure resulting from the breach is uncertain but thought to be less than would occur with a Category A breach.

An algorithm for injection safety breaches may be found in ***Appendix F.***

Note: Infection control breaches should be reported to your local health department.

Patient Notification [2,4]

When unsafe injection practices or other gaps in basic infection control occur in healthcare settings, patients are put at risk of infection. When this occurs, a patient notification process typically follows. To access the *Introduction to the Patient Notification Toolkit,* please visit: www.cdc.gov/injectionsafety/pntoolkit/index.html

One and Only Campaign [2, 3]

The *One & Only Campaign* is a public health effort led by the CDC and the Safe Injection Practices Coalition (SIPC) which seeks to raise awareness among patients and healthcare providers to eliminate unsafe medical injections. A good rule to remember is One Needle, One Syringe, and Only One Time.

Additional resources from the One and Only Campaign may be found in ***Appendix G.***

Project Firstline [3]

Project Firstline is an easily accessible infection control education collaborative for all frontline healthcare workers. There are a variety of educational resources including videos, interactive tools, toolkits, etc. designed to meet the needs of the frontline healthcare workforce. For information and access to Project Firstline training materials, please visit: www.cdc.gov/infectioncontrol/projectfirstline/index.html

Links and Training

- Injection Safety CDC - www.cdc.gov/injectionsafety/index.html
- One and Only Campaign - www.cdc.gov/injectionsafety/one-and-only.html
- Point of Care Testing- Glucose Monitoring - www.cdc.gov/injectionsafety/blood-glucose-monitoring.html
- Single-dose Vials - www.cdc.gov/injectionsafety/providers/provider_faqs_singlevials.html
- Multi-dose Vials - www.cdc.gov/injectionsafety/providers/provider_faqs_multivials.html
- Project Firstline Multi-dose Vials - www.cdc.gov/infectioncontrol/projectfirstline/videos/MultiDoseVial-LowRes.mp4
- Medication Preparation - www.cdc.gov/injectionsafety/providers/provider_faqs_med-prep.html
- Injection Safety Project Firstline Training Series - tceols.cdc.gov/Course/Detail2/8127
- Print Resources - www.cdc.gov/injectionsafety/one-and-only.html

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6. The Joint Commission; Sentinel Event Alert (2014, June 16) *Preventing infection from misuse of vials.* www.jointcommission.org/media/tjc/documents/resources/patient-safety-topics/sentinel-event/sea_52.pdf