



# Injection Safety Workshop 2

## Nov. 6, 2018

### Safe Injection Practices and Principles

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# Agenda

Topic(s)	Date
Injection Safety Introduction/Why	October 30, Webinar Session 1
Outbreaks, Outcomes, and Lessons Learned	October 30, Webinar Session 1
Safe Injection Practices and Principles	November 6, Webinar Session 2
Drug Diversion	November 13, Webinar Session 3
Setting Up Your Injection Safety Education and Training Program for Facility Staff	November 13, Webinar Session 3

You must register and complete the evaluations for each session in order to be eligible for CEUs.

**Register for the next webinar in this series:**

<http://www.health.state.mn.us/divs/idepc/dtopics/infectioncontrol/is/amb/index.html>

## Participants will be able to:

- Describe outbreaks that have occurred as a result of unsafe injection practices.
- Identify available resources to promote injection safety.
- **Describe the correct use of single-use and multi-dose vials and IV solution bags.**
- **Describe the importance of strict adherence to aseptic technique for preparing and administering medication using a syringe and needle.**
- Define drug diversion, describe outbreaks that have occurred as the result of these practices and lessons learned.
- Identify first steps to creating an injection safety program for education and competency testing for facility staff.

# Polling Question

1. It is not necessary to disinfect the rubber diaphragm after you take the cap off the vial.

❖ True

❖ False

2. When administering an injection and I don't aspirate, there is no risk of disease transmission so I can re-use the syringe.

❖ True

❖ False

# What is Injection Safety?

- As defined by the World Health Organization,
  - a safe injection does not harm the recipient, does not expose the provider to any avoidable risks, and does not result in waste that is dangerous for the community.
- Injection safety is a set of measures taken to perform injections in an optimally safe manner for patients, health care personnel, and others.

## 2011

- Survey of 5,500 U.S. health care professionals
- 1 percent “sometimes or always” reuse a syringe on a second patient
- 1 percent “sometimes or always” reuse a multi-dose vial for additional patients after accessing it with a used syringe
- 6 percent use single-dose/single-use vials for more than one patient

Pugliese G., Gosnell C., Bartley J., & Robinson S. (December 2010). Injection practices among clinicians in United States health care settings. *American Journal of Infection Control*, 38 (10), 789-798. Retrieved from <http://www.ajicjournal.org/article/PIIS0196655310008539/abstract>.

## 2017

“One needle, one syringe, only one time? A survey of physician and nurse knowledge, attitudes, and practices around injection safety”

- 12.5% of physicians and 3% of nurses indicate reuse of syringes for >1 patient occurs in their workplace.
- Nearly 5% of physicians indicated this practice usually or always occurs.

One needle, one syringe, only one time? A survey of physician and nurse knowledge, attitudes, and practices around injection safety ([www.ajicjournal.org/article/S0196-6553\(17\)30680-6/fulltext](http://www.ajicjournal.org/article/S0196-6553(17)30680-6/fulltext))

# Reasons for Unsafe Injection Practices

- Not using aseptic technique.
- Reuse of needles and syringes on multiple patients.
- Reuse of syringes, changing the needle, on multiple patients.
- Use of IV saline bags for a community saline source for multiple patients.
- Lack of knowledge.
- Lack of supplies.
- Misuse of single-dose vials and ampoules and multi-dose vials.
- Not cleaning and disinfecting blood glucose monitors between patient use.
- Not using single-use disposable lancets for blood glucose testing.
- Using insulin pens for multiple patients, even if the needle is changed.
- Drug addiction and drug diversion.
- Wanting to be good stewards of supplies and medications.

## Eight Things Every Provider Needs to Know About Injection Safety

1. Use aseptic technique when preparing and administering medications.
2. Cleanse the access diaphragms of medication vials with 70% alcohol before inserting a device into the vial.
3. Never administer medications from the same syringe to multiple patients, even if the needle is changed or the injection is administered through an intervening length of IV tubing.



## Eight Things Every Provider Needs to Know About Injection Safety (cont.)

4. Do not reuse a syringe to enter a medication vial or solution.
5. Do not administer medications from single-dose vials, ampoules, or bags or bottles of IV solution to more than one patient.
6. Do not use fluid infusion or administration sets (e.g., IV) for more than one patient.

## Eight Things Every Provider Needs to Know About Injection Safety (cont.)

7. Dedicate multi-dose vials to a single patient whenever possible. If multi-dose vials will be used for more than one patient, they should be restricted to a centralized medication area and should not enter the immediate patient treatment area (e.g., operating room, patient room/cubicle).
8. Dispose of used syringes and needles at the point of use in a sharps container that is closable, puncture-resistant, and leak-proof.

# More Things to Know

- Do not prepare medication in one syringe to transfer to another syringe (HCW draws up solution into a syringe and then transfers the solution to a syringe that has the plunger removed or injects it into the bevel of the syringe)
- Use a mask to contain respiratory droplets when preparing and injecting solution in an intracapsular space (joint), the spine, and during lumbar punctures
- Never withdraw medication from a manufacturer prefilled syringe barrel

# What is Aseptic Technique?

- Aseptic technique is a component of the Standard Precautions section of the CDC 2007 Guideline for Isolation Precautions
- The manner of handling medications and injection equipment to prevent microbial contamination
- It applies to the handling, preparation, and storage of medications as well as the handling of all supplies used for injection and infusion, including syringes, needles, and IV tubing.



# Standard Precautions

- Hand hygiene
- Use of personal protective equipment
- Respiratory hygiene and cough etiquette
- Safe injection practices
- Safe handling of potentially contaminated equipment or surfaces in the patient environment

# Single-dose Vials vs Multi-dose Vials

## Size Matters



Always read the label

# Single-dose Vials vs Multi-dose Vials

## Single-dose vials

- Single-dose vials are to be used a single time for a single patient.
- Single-dose vials **must** be disposed of immediately after drawing up a dose.
- Single-dose vials **do not** contain a preservative and/or antimicrobial.
- Do not combine (pool) leftover contents of single-dose or single-use vials or store single-dose or single-use vials for later use.

# Single-dose Vials vs Multi-dose Vials

## Multi-dose vials

- Multi-dose vials can be used with multiple patients and should be dedicated to one patient if possible.
- Multi-dose vials contain a preservative and/or antimicrobial.
- Multi-dose vials should **never** be entered with a used syringe and/or needle.
- Multi-dose vials should not enter patient care areas; they should remain in clean medication areas.



# Single-dose Vials vs Multi-dose Vials

## Multi-dose vials

- Multi-dose vials must be dated when opened.
- Discarded within 28 days of opening or the manufacturer's expiration date, whichever comes first.
- Multi-dose vials of vaccine are exempt from the 28 day rule, but **not** the expiration date. Read the package insert for instructions.
- Multi-dose vials may not have a sterile needle inserted into the rubber diaphragm and left in place to draw other doses throughout the day.

# New Labeling Recommendations

New terminology recommendations from FDA for labeling vials; single-use, single-patient-use, and multi-dose vials for clarity

1. **Single-use vials** are a single dose in a single vial for one patient. This does not imply the entire contents of the container constitutes a single dose. Does not contain an antimicrobial.
2. **Single-patient-use vials** contain multiple doses intended to be used multiple times for a **single patient**. Contains an antimicrobial.
3. **Multi-dose vials** contain multiple doses to be used for multiple patients. Contains an antimicrobial.

<https://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM468228.pdf>

# Safe Handling of Medication Vials

- Check the vial for the manufacturer's expiration date, the date when an opened or unopened vial must be discarded.
- Check the vial for the beyond use date (BUD), the date when an opened multi-use vial must be discarded. This is the manufacturer's expiration date or 28 days after the date the vial was dated as opened, whichever comes first, unless stated by the manufacturer's instructions.
- Prepare all injections in a well lit, clean area away from the sink, dirty equipment, and used supplies.

# Safe Injection Practices

Medications prepared, but not immediately administered must be administered within one hour of preparation must be labeled with the following:

- Patient identification information
- Names and amounts of all ingredients
- Name/initials of the person who prepared the medication
- Date and time the medication was prepared
- The beyond use date and time

# The Rights of Medication Administration

- Right patient
- Right medication
- Right time
- Right dosage
- Right manner/route
- Right documentation

# Lancets and Insulin Pens

- A new disposable lancet is used for each finger stick
- Insulin pens are labeled and used for only one patient, even if the needle is changed
- Insulin vials are marked with an individual patient's name and used only for that patient

- Glucometers intended for use with multiple patients **will have** accompanying directions from the manufacturer for cleaning/disinfecting between patients
- If the glucometer has no written instructions for cleaning/disinfection between patients, it **cannot** be used for more than one patient

# Medication Storage

- Maintain the viability of medication by storing them properly
- Do they need to be refrigerated? Frozen? Protected from light?





# Medication Storage and Handling

- Pneumovax Prescribing Information

## 16 HOW SUPPLIED/STORAGE AND HANDLING

PNEUMOVAX 23 is supplied as follows:


NDC 0006-4739-00 — one 5-dose vial, color coded with a purple cap and stripe on the vial labels and cartons.

NDC 0006-4943-00 — a box of 10 single-dose vials, color coded with a purple cap and stripe on the vial labels and cartons.

NDC 0006-4837-03 — a box of 10 single-dose, pre-filled Luer-Lok™ syringes with tip caps, color coded with a violet plunger rod and purple stripe on the syringe labels and cartons.

NDC 0006-4837-02 — a box of 1 single-dose, pre-filled Luer-Lok™ syringe with tip cap, color coded with a violet plunger rod and purple stripe on the syringe label and carton.

### Storage and Handling

- 
- Store at 2-8°C (36-46°F).
  - All vaccine must be discarded after the expiration date.

The vial stoppers, syringe plunger stopper and syringe tip cap are not made with natural rubber latex.

# Medication Storage and Handling

20 15 10 5  
(Approximate mL)

**GensiaSicor**  
PHARMACEUTICALS

NDC 0703-2866-01 *Rx only*

**Propofol**  
Injectable Emulsion 1%  
200 mg/20 mL propofol  
Contains a Sulfite

- Use strict aseptic technique.
- Contamination can cause fever, infection/sepsis, and/or other life-threatening illness.
- Single patient use.
- Contains no preservative.
- CONTAINS A SULFITE; microbial growth may still be supported.
- Begin use promptly after opening. Discard within specified time limit (See package insert).
- Do not use if contamination is suspected.

**FOR I.V. ADMINISTRATION**  
*Sterile, nonpyrogenic*  
**SHAKE WELL BEFORE USE.**  
20 mL single dose **SYRINGE**

**Usual Dosage:** See Insert.  
Each mL contains: 10 mg propofol, 100 mg soybean oil, 22.5 mg glycerol, 12 mg egg yolk phospholipid and 0.25 mg **SODIUM METABISULFITE** with sodium hydroxide to adjust pH to 4.5-6.6.  
Store between 4°-22°C (40°-72°F). Do Not Freeze. Discard unused portion.

Gensia Sicor Pharmaceuticals, Inc.  
Irvine, CA 92618 Y29-286-601



# Medication Storage and Handling

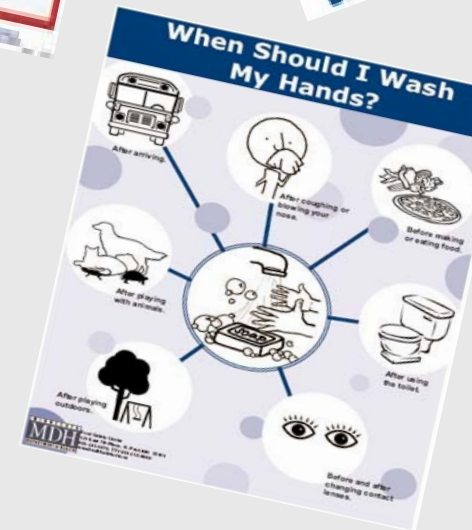
- Examine the contents of every vial looking for color change, turbidity, and particulate matter.
- If there are any concerns about the viability of a medication, including injectable medication, call the manufacturer.
- Ask to speak to a medical consultant or quality assurance professional. This person would have access to viability data.
- Improperly stored medication can be non-viable, of no value to the patient and a wasted expense.

# Hand Hygiene

- Hand hygiene is the number one action health care workers can take to prevent the spread of pathogens.
- Worldwide compliance with hand hygiene guidelines is estimated at 40 – 60 percent.<sup>1</sup>
- One study found 38 percent compliance in the U.S.<sup>2</sup>



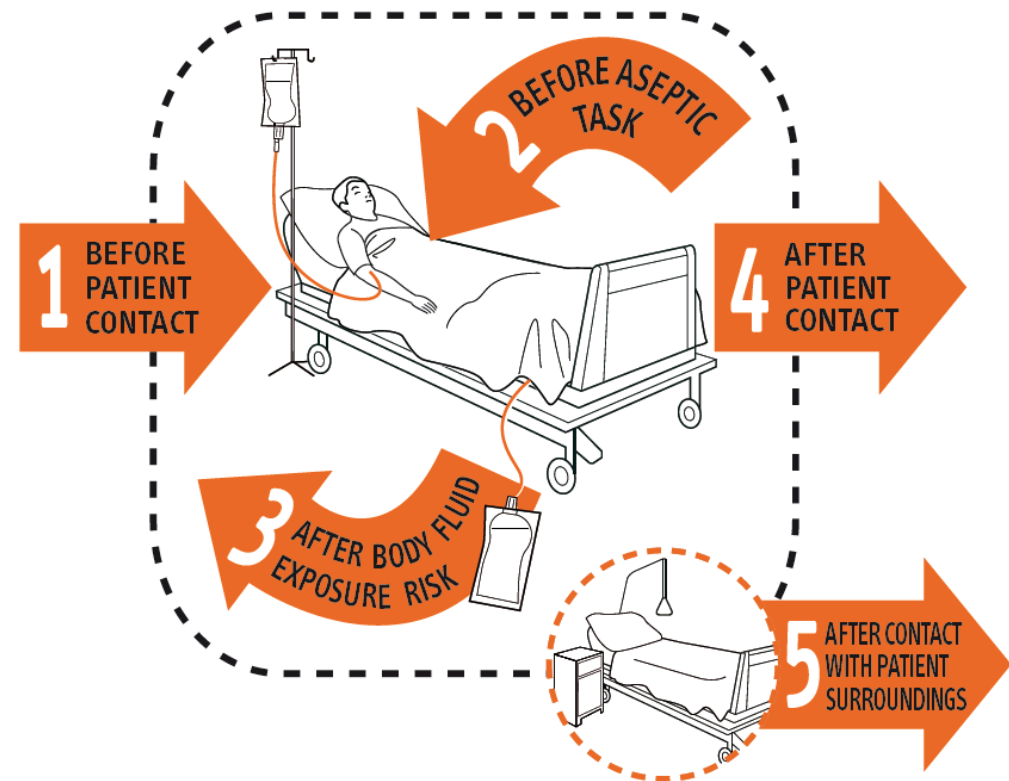
# Hand Hygiene



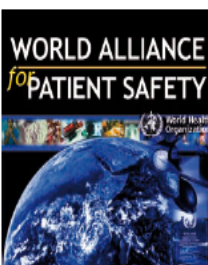
# 5 Moments for Hand Hygiene

- World Health Organization (WHO) Hand Hygiene Program
- More health care workers are familiar with the program than any other

## Your 5 moments for **HAND HYGIENE**



<b>1 BEFORE PATIENT CONTACT</b>	<p><b>WHEN?</b> Clean your hands before touching a patient when approaching him or her</p> <p><b>WHY?</b> To protect the patient against harmful germs carried on your hands</p>
<b>2 BEFORE AN ASEPTIC TASK</b>	<p><b>WHEN?</b> Clean your hands immediately before any aseptic task</p> <p><b>WHY?</b> To protect the patient against harmful germs, including the patient's own germs, entering his or her body</p>
<b>3 AFTER BODY FLUID EXPOSURE RISK</b>	<p><b>WHEN?</b> Clean your hands immediately after an exposure risk to body fluids (and after glove removal)</p> <p><b>WHY?</b> To protect yourself and the health-care environment from harmful patient germs</p>
<b>4 AFTER PATIENT CONTACT</b>	<p><b>WHEN?</b> Clean your hands after touching a patient and his or her immediate surroundings when leaving</p> <p><b>WHY?</b> To protect yourself and the health-care environment from harmful patient germs</p>
<b>5 AFTER CONTACT WITH PATIENT SURROUNDINGS</b>	<p><b>WHEN?</b> Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving - even without touching the patient</p> <p><b>WHY?</b> To protect yourself and the health-care environment from harmful patient germs</p>



WHO acknowledges the Hôpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.



October 2006, version 1.

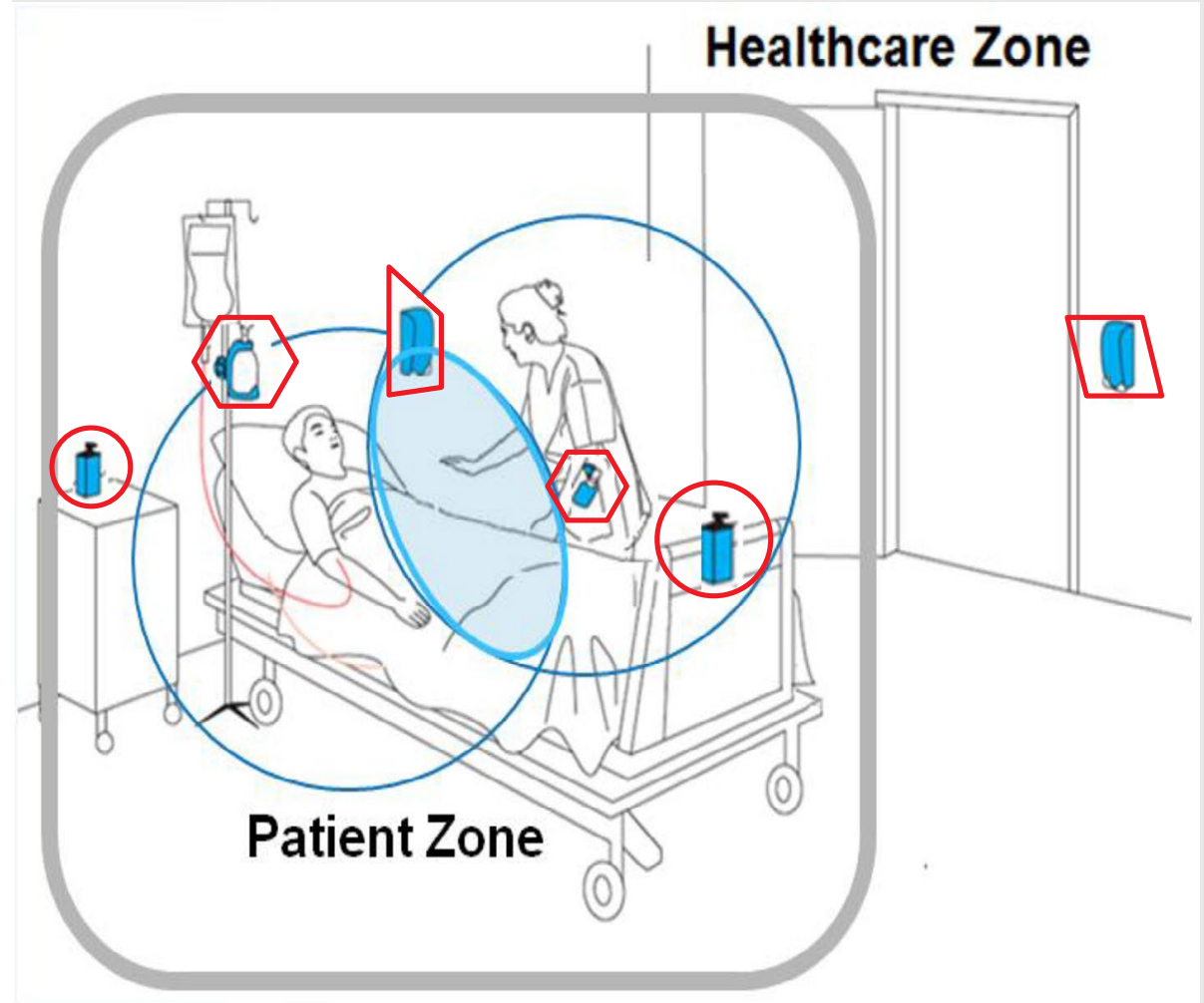
# Point of Care Hand Hygiene

- Point of care is defined as:
  1. Patient
  2. Health care worker
  3. Provision of care or treatment area
- Hand hygiene products must be within arms reach



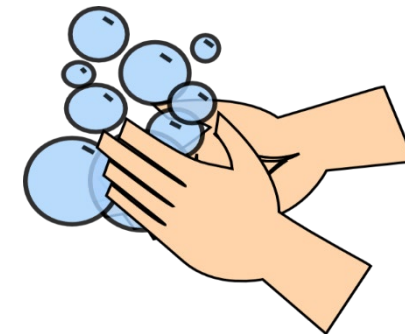
# Geographic Zones within the Health Care Setting

- The patient zone includes:
  - a patient's intact skin
  - his/her immediate surroundings
  - the area of treatment
- Alcohol-based hand rubs should be within arms reach in the patient zone



# Why Don't Health Care Workers Wash Their Hands?

- Cleaning hands causes skin irritation and dryness
- Sink location/accessibility
- Lack of soap or hand rub
- Too busy/lack of time
- Patient needs take priority
- Don't think it is important
- Other



# Why Alcohol-based Hand Rubs?

- Kill more effectively and quickly
- Cause less dryness and irritation to skin
- Longer and more thorough scrub time
- Bottles/dispensers can be placed at the point of care so they are more accessible



# Questions To Ask

- Are “Wash Your Hands” messages effective?
- Would the message “Hand washing protects patients by preventing the transmission of germs and microorganisms” be more effective?
  - Is providing the “why” for the task we are repetitively asking to be done more effective?



[http://www.ajicjournal.org/article/S0196-6553\(16\)00135-8/fulltext](http://www.ajicjournal.org/article/S0196-6553(16)00135-8/fulltext) - Are we sending the wrong message

- Gloves are **not required** to be worn when giving an injection as long as hand contact with blood or other potentially infectious materials is not reasonably anticipated or the health care professional does not have open wounds on their hands
- Gloves should be changed between patients and hand hygiene performed
- Gloves cannot be washed and reused

# Worker Safety, Work Environment, and Injection Safety

- Dispose of used syringes and needles:
  - At the point of use
  - In a sharps container that:
    - Is puncture-resistant and leak-proof
    - Can be sealed when the fill line is reached
- Maintain physical separation between clean and contaminated equipment and supplies
- Call time-out during a procedure for proper accountability and disposal of sharps, etc.

# Keep the Work Environment Safe

- Use barriers to protect surfaces from blood contamination when blood samples are obtained
- Clean and disinfect blood-contaminated equipment and surfaces in accordance with recommended guidelines
- Do not prepare medications near the splash zone of a sink



# Injection Safety Team in a Large Institution

- Doctors and other clinical staff
- Clinical microbiologist
- Infection control practitioner
- Representatives from all relevant departments:
  - Outpatient clinics
  - Environmental services
  - Pharmacy and central supply
  - Administration





# Training and Competency Testing

- Staff should be assessed upon hire and at least annually for competencies in the following categories (as applicable):
  - ✓ Gloving and hand hygiene (all staff).
  - ✓ Catheter dressing change technique.
  - ✓ Vascular access technique.
  - ✓ Safe injection/safe medication practices.

# Injection Competency Training Skills

- ✓ Proper hand hygiene, using alcohol-based hand rub or soap and water, is performed prior to preparing and administering medications.
- ✓ Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids, or contaminated equipment.
- ✓ Needles and syringes are used for only one patient (this includes manufactured prefilled syringes and cartridge devices, such as insulin pens).

# Injection Competency Training Skills

- ✓ The rubber septum on a medication vial is disinfected with alcohol prior to piercing.
- ✓ Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same patient.
- ✓ Single-dose or single-use medication vials, ampules, and bags of intravenous solution are used for **only one patient**.
- ✓ Medication administration tubing and connectors are used for only one patient.

# Injection Competency Training Skills

- ✓ Multi-dose vials are dated by health care worker when they are first opened and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial.
  - **Note:** This is different from the expiration date printed on the vial.
- ✓ Multi-dose vials are dedicated to individual patients whenever possible.
  - **Note:** If multi-dose vials enter the immediate patient treatment area, they should be dedicated for single-patient use and discarded immediately after use.

# INJECTION SAFETY CHECKLIST

The following Injection Safety checklist items are a subset of items that can be found in the *CDC Infection Prevention Checklist for Outpatient Settings: Minimum Expectations for Safe Care*.

The checklist, which is appropriate for both inpatient and outpatient settings, should be used to systematically assess adherence of healthcare providers to safe injection practices. Assessment of adherence should be conducted by direct observation of healthcare personnel during the performance of their duties.

Injection Safety	Practice Performed?	If answer is No, document plan for remediation
Proper hand hygiene, using alcohol-based hand rub or soap and water, is performed prior to preparing and administering medications.	Yes No	
Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids, or contaminated equipment.	Yes No	
Needles and syringes are used for only one patient (this includes manufactured prefilled syringes and cartridge devices such as insulin pens).	Yes No	
The rubber septum on a medication vial is disinfected with alcohol prior to piercing.	Yes No	
Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same patient.	Yes No	
Single-dose or single-use medication vials, ampules, and bags or bottles of intravenous solution are used for only one patient.	Yes No	
Medication administration tubing and connectors are used for only one patient.	Yes No	
Multi-dose vials are dated by healthcare when they are first opened and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial. Note: This is different from the expiration date printed on the vial.	Yes No	
Multi-dose vials are dedicated to individual patients whenever possible.	Yes No	
Multi-dose vials to be used for more than one patient are kept in a centralized medication area and do not enter the immediate patient treatment area (e.g., operating room, patient room/cubicle). Note: If multi-dose vials enter the immediate patient treatment area, they should be dedicated for single-patient use and discarded immediately after use.	Yes No	

The *One & Only Campaign* is a public health effort to eliminate unsafe medical injections. To learn more about safe injection practices, please visit [OneandOnlyCampaign.org](http://OneandOnlyCampaign.org).

For the latest news and updates, follow us on Twitter @injectionsafety and Facebook/OneandOnlyCampaign.



This material was developed by CDC. The *One & Only Campaign* is made possible by a partnership between the CDC Foundation and Lilly USA, LLC.

# Questions?



# Thank you!

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