

Injection Safety Part 1

Guide to infection prevention for outpatient settings: Minimum expectations for safe care

Lunch and Learn educational series on
Healthcare-Associated Infection Prevention

January 17, 2019 - 12pm-1pm

Roza Tammer, MPH, CIC
Healthcare-Associated Infections Epidemiologist

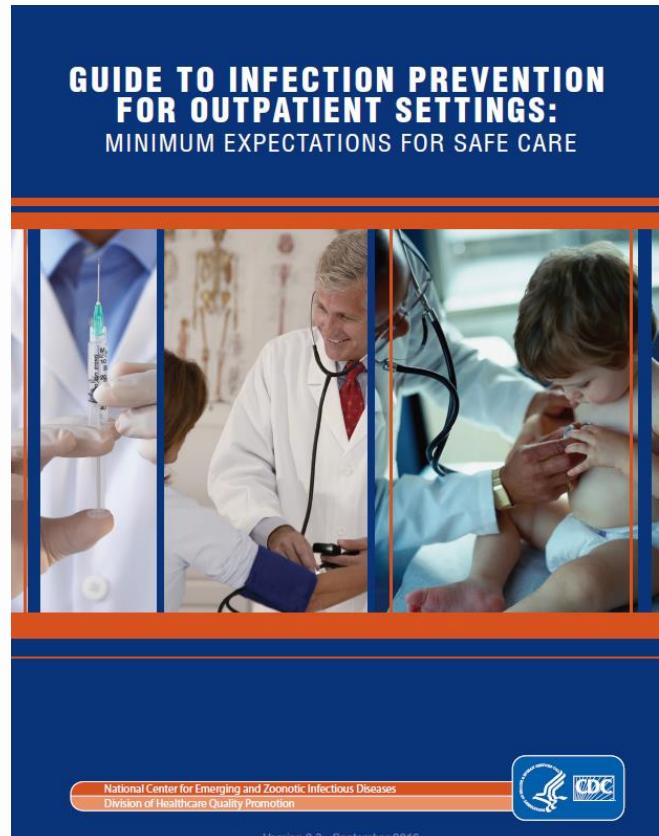


Selected key terms and abbreviations

- Bloodborne pathogen (BBP)
- Centers for Disease Control and Prevention (CDC)
- Environmental Protection Agency (EPA)
- Healthcare personnel (HCP)
- Healthcare-associated infection (HAI)
- Infection prevention
- Multi-dose vial (MDV)
- Personal protective equipment (PPE)
- Single dose/single use vial (SDV)
- Standard Precautions

Scope of the guidance

- Summary guide of infection prevention recommendations for outpatient/ambulatory care settings
 - Reflects existing evidence-based guidelines from the Centers for Disease Control and Prevention (CDC) and the Healthcare Infection Control Practices Advisory Committee (HICPAC)
 - Based on elements of Standard Precautions
 - Represents minimum infection prevention expectations for safe care
- Companion checklist
- References and resources



Elements of a safe injection

- CDC's One and Only Campaign provides information about safe injection practices
- Checklist is specific to injection safety but overlaps with information presented in the guidance document

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.

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



http://www.oneandonlycampaign.org/sites/default/files/upload/pdf/SIPC_InjectionSafetyChecklist.pdf

Elements of a safe injection



- Hand hygiene performed prior to preparing/administering injections
- Aseptic technique used to prepare injections in an area free of contamination, blood, or other body fluids
- Needles/syringes used for only one patient
- Rubber septum on medication vial disinfected prior to piercing
- Medication vials always entered with a new needle and syringe
- Single-dose vials (SDVs) of medication used for only one patient

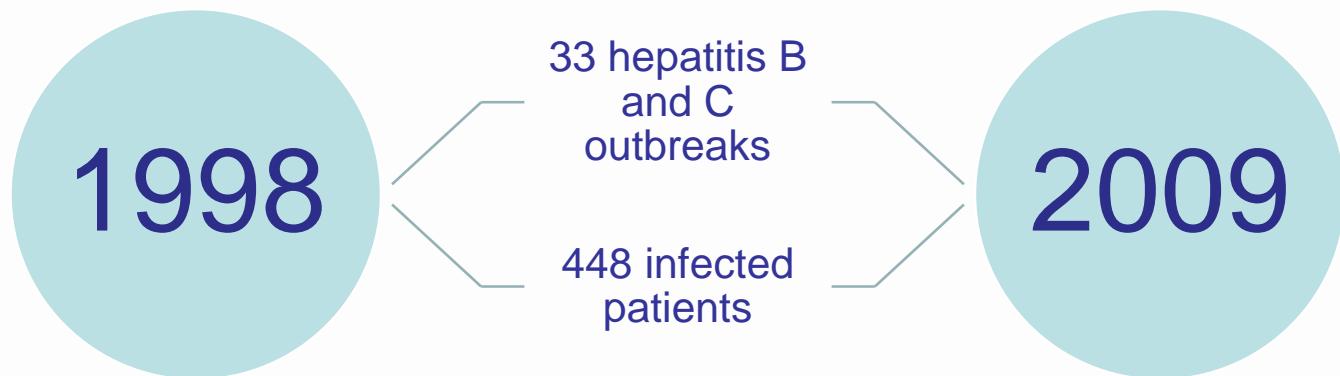
Elements of a safe injection

- Tubing and connectors used to administer medication are used for only one patient
- Multi-dose vials (MDVs) dated when first opened and discarded within 28 days unless otherwise specified by the manufacturer or required by the expiration date
- MDVs dedicated to individual patients whenever possible
- MDVs used for more than one patient kept in a centralized medication area and do not enter immediate patient treatment area



Why worry about injection practices?

Survey of US clinicians: 12% of physicians and 3% of nurses report that syringes reuse occurs in their workplace



<http://annals.org/aim/article-abstract/744175/nonhospital-health-care-associated-hepatitis-b-c-virus-transmission-united?volume=150&issue=1&page=33>

Why worry about injection practices?

THE IMPACT OF UNSAFE MEDICAL INJECTIONS IN THE U.S.

Unsafe Injection Practices Have Devastating Consequences¹

Syringe reuse and misuse of medication vials have resulted in dozens of outbreaks and
THE NEED TO ALERT MORE THAN 150,000 PATIENTS...

...to seek testing for bloodborne pathogens such as **HEPATITIS B, HEPATITIS C AND HIV,²** and have led to...



Patient illness and death



Loss of clinician licenses



Legal charges/malpractice suits



Criminal charges

In just one clinic, syringe reuse to access medication vials for multiple patients resulted in an outbreak and one of the largest public health alerts in U.S. history.



50,000 PEOPLE EXPOSED TO INFECTION

\$\$\$\$\$\$ = 1 million
\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$\$\$\$ \$16~\$20 MILLION IN COSTS

http://www.oneandonlycampaign.org/sites/default/files/upload/pdf/SIPC_infographic.pdf

Patient impact

Bloodborne
viral
pathogens
(BBP)

- Human immunodeficiency virus
- Hepatitis B virus
- Hepatitis C virus

Other
pathogens

- Bacterial
- Fungal
- Parasitic
- Other viral pathogens

Patient impact

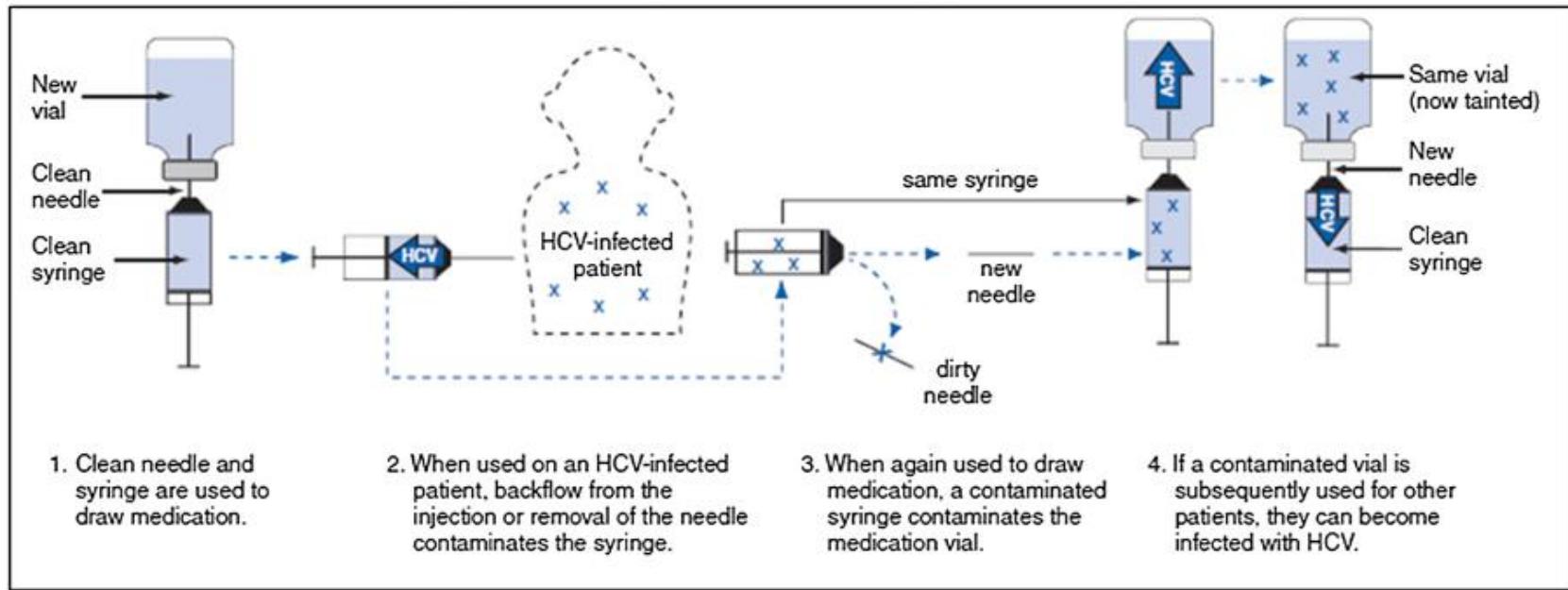


Fig. 1. Illustration of how indirect syringe reuse can lead to HCV contamination of a shared medication vial. (Data from Centers for Disease Control and Prevention (CDC). Acute hepatitis C virus infections attributed to unsafe injection practices at an endoscopy clinic—Nevada, 2007. MMWR Morbid Mortal Weekly Rep 2008;57:513–7.)

Why focus on outpatient settings?

- Shift in healthcare delivery from acute, inpatient setting to variety of outpatient and community-based settings
 - Ambulatory surgery centers, physician offices, outpatient clinics, etc.
- Provide care to patients with chronic conditions
 - Dialysis, chemotherapy, radiation therapy, etc.
- Outpatient settings often have less infrastructure and resources for infection prevention and healthcare-associated infection (HAI) surveillance

Outbreaks in the outpatient setting

- Outbreak reports have described transmission of numerous types of organisms
 - Gram-negative and gram-positive bacteria, mycobacteria, viruses, parasites
 - Often associated in breakdowns (“breaches”) of basic infection prevention practice
- 2017: 41 cases of septic arthritis associated with intra-articular injections at an outpatient practice in New Jersey
 - Multiple breaches during preparation and administration of pharmacy bulk packaged products, including use as multiple-dose containers outside of pharmacy conditions
 - Other breaches included lack of hand hygiene and personal protective equipment (PPE), medications drawn up to four days in advance of administration, and re-use of injection equipment

<https://www.cdc.gov/mmwr/volumes/66/wr/mm6629a3.htm>

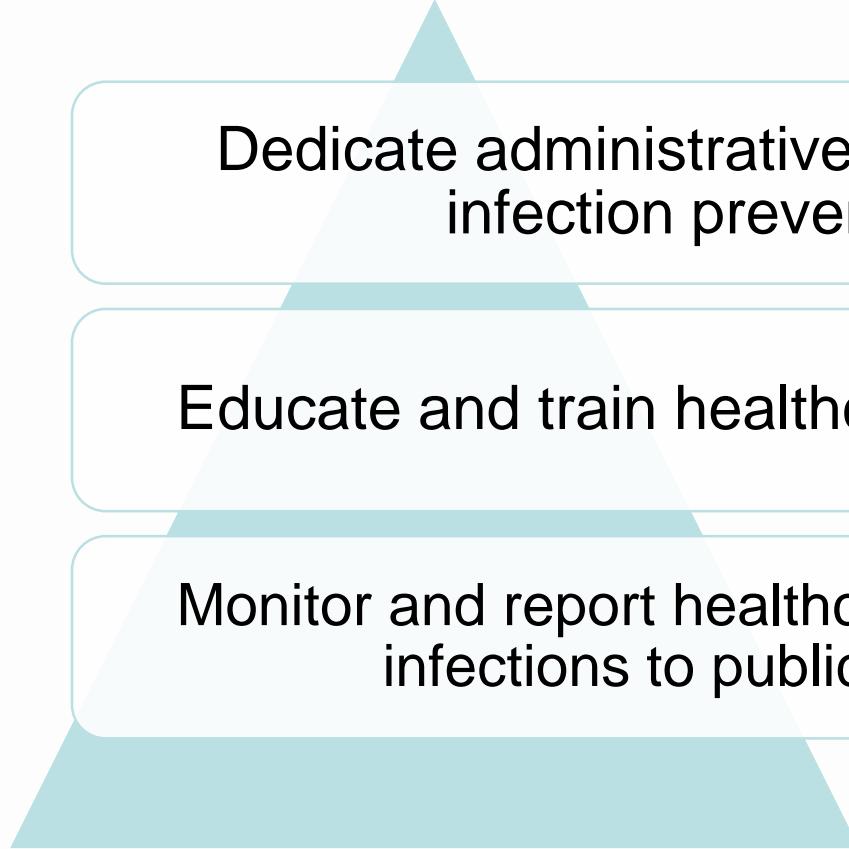
Practice requirements for Standard Precautions

- CDC's Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007) – III.A.1.b, IV.H (1-8)
 - <https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>
- This guide is based primarily on elements of Standard Precautions from this guideline, with a focus on
 - Minimum infection prevention expectations for safe care
 - Outpatient settings
- Oregon Health Authority's OAR 333-019-0061
 - Effective 1/1/18
 - Requires all licensed healthcare providers to adhere to Standard Precautions as defined in the CDC guideline
 - <https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=239050>

OBJECTIVES

By highlighting existing CDC and HICPAC recommendations, this summary guide: 1) provides basic infection prevention recommendations for outpatient (ambulatory care) settings; 2) reaffirms Standard Precautions as the foundation for preventing transmission of infectious agents during patient care in all healthcare settings; 3) provides links to full guidelines and source documents, which readers can reference for more detailed background and recommendations.

Key recommendations



Dedicate administrative resources to infection prevention

Educate and train healthcare personnel

Monitor and report healthcare-associated infections to public health

Administrative recommendations

Key administrative recommendations for outpatient settings:

1. Develop and maintain infection prevention and occupational health programs.
2. Assure availability of sufficient and appropriate supplies necessary for adherence to Standard Precautions (e.g., hand hygiene products, personal protective equipment, injection equipment).
3. Assure at least one individual with training in infection prevention is employed by or regularly available (e.g., by contract) to manage the facility's infection prevention program.
4. Develop written infection prevention policies and procedures appropriate for the services provided by the facility and based upon evidence-based guidelines, regulations, or standards.

- Have sufficient equipment on hand to deliver injections safely (enough needles and syringes to use on each patient only one time; preferentially purchase SDVs; hand hygiene supplies)
- Policies should cover injection practices, particularly when they are an important aspect of services delivered
- Occupational health programs often involve routine vaccination for healthcare personnel (HCP) as well as needlestick response protocols

Educational and training recommendations

Key recommendations for education and training of healthcare personnel in outpatient settings:

- 1.** Provide job- or task-specific infection prevention education and training to all HCP.
 - a.** This includes those employed by outside agencies and available by contract or on a volunteer basis to the facility.
- 2.** Training should focus on principles of both HCP safety and patient safety.
- 3.** Training should be provided upon hire and repeated annually and when policies or procedures are updated/revised.
- 4.** Competencies should be documented following each training.

- Education and training topics should encompass safe injection practice and needle use
- Occupational Safety and Health Administration (OSHA) BBP training is part of HCP safety
- Training should focus on important tasks to the practice, including those related to injections and needle use
- Competencies for delivering injections safely helps reinforce good practice and serves as a refresher for those who do this infrequently

Monitor and report HAI recommendations

Key recommendations for HAI surveillance and reporting in outpatient settings:

1. Educate patients who have undergone procedures at the facility regarding signs and symptoms of infection that may be associated with the procedure and instruct them to notify the facility if such signs and symptoms occur.
2. Adhere to local, state and federal requirements regarding HAI surveillance, reportable diseases, and outbreak reporting.
3. Perform regular audits of HCP adherence to infection prevention practices.

- Surveillance can apply to both outcome measures (HAIs, incident BBPs) and process measures (elements of providing injections safely, such as hand hygiene)
- State requirements in Oregon regarding adherence to Standard Precautions apply to injection safety
- Audits and practice surveys can cover topics such as medication handling

Adherence to Standard Precautions

- Minimum infection prevention practices that apply to all patient care
 - Regardless of suspected or confirmed infection status of the patient
 - In any setting where healthcare is delivered
 - Protect both HCP and patients
- Training HCP on principles and rationale behind Standard Precautions supports good decision making and adherence to recommendations
- Elements of Standard Precautions
 - Hand hygiene
 - Use of PPE
 - Safe injection practices
 - Safe handling of potentially contaminated equipment or surfaces in the patient environment
 - Respiratory hygiene/cough etiquette

Hand hygiene

- Key situations where hand hygiene should be performed include
 - Before contact with patient
 - Before performing an aseptic task (e.g., insertion of an IV, preparing an injection)
 - After contact with the patient or objects in the immediate vicinity of the patient
 - After contact with blood, body fluids, or contaminated surfaces
 - If hands will be moving from a contaminated body site to a clean body site during patient care
 - After removal of PPE
- Select the appropriate method for hand hygiene
 - Soap and water when hands are visibly soiled or after caring for patients with known or suspected *Clostridioides difficile* or norovirus
 - Otherwise, the preferred method is use of an alcohol-based hand rub

Hand hygiene and injection safety

- Perform hand hygiene before and after administering an injection or using a needle on a patient, or after contact with objects in the patient's immediate vicinity
- Perform hand hygiene before aseptic tasks, including preparing and administering injections or using needles
- If contact with blood or body fluids occurs
- After removal of PPE, such as gloves use during routine injection or mask during aerosolizing procedures
- Typically alcohol-based hand rub is sufficient since norovirus and *C. difficile* are not often transmitted during injections

Proper hand hygiene, using alcohol-based hand rub or soap and water, is performed prior to preparing and administering medications.

Personal protective equipment

- Assure sufficient and appropriate PPE is available and accessible to HCP
- Educate HCP on proper selection and use of PPE
 - PPE, other than respirators, should be removed and discarded prior to leaving the patient's room or care area.
- Hand hygiene should be performed immediately after removal of PPE
- Wear gloves for potential contact with blood, body fluids, mucous membranes, non-intact skin or contaminated equipment
 - Do not wear the same pair of gloves for the care of more than one patient
 - Do not wash gloves for the purpose of reuse
- Wear a gown to protect skin and clothing during procedures or activities where contact with blood or body fluids is anticipated
 - Do not wear the same gown for the care of more than one patient
- Wear mouth, nose, and eye protection during procedures that are likely to generate splashes or sprays of blood or other body fluids

Personal protective equipment and injection safety



- Protect against exposure to blood or body fluids
- Use of gloves is a key element of PPE when delivering injections
- Other PPE can be used (gown, face protection) if the procedure is expected to cause splashes or sprays of blood or body fluid
- Facility should have appropriate PPE on hand for routine care and for unexpected events

Injection safety

- Use aseptic technique when preparing and administering medications
- Cleanse access diaphragms of medication vials with alcohol before inserting a device
- Never administer medications from the same syringe to multiple patients, even if needle is changed or the injection is administered through IV tubing
- Do not reuse a syringe to enter a medication vial or container
- Do not administer medications from SDVs, ampoules, or bags or bottles of IV solution to more than one patient
- Do not use fluid infusion/administration sets (e.g., IV tubing) for more than one patient
- Dedicate MDVs to a single patient whenever possible. If MDVs will be used for more than one patient, do not bring them into immediate patient treatment area
- Dispose of used sharps at the point of use in a sharps container that is closable, puncture-resistant, and leak-proof
- Wear a facemask when placing a catheter/injecting material into the epidural or subdural space (e.g., during myelogram, epidural anesthesia)

Injection safety

Multi-dose vials are dedicated to individual patients whenever possible.

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).

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 or bottles of intravenous solution are used for only one patient.

Medication administration tubing and connectors are used for only one patient.

- Similar to the steps in the One & Only Campaign checklist
- Guideline mentions additional issues
 - Disposal of used sharps reduces risk of equipment reuse, tampering, and needlestick
 - Face masks are used to protect both patient and HCP

Environmental cleaning

- Establish policies and procedures for routine cleaning and disinfection of environmental surfaces in the facility
 - Policies and procedures should also address prompt and appropriate cleaning and decontamination of spills of blood or other potentially infectious materials
- Select Environmental Protection Agency (EPA)-registered disinfectants or detergents/disinfectants with label claims for use in healthcare
- Follow manufacturer's recommendations for use of cleaners and EPA-registered disinfectants (e.g., amount, dilution, contact time, safe use, and disposal)



Environmental cleaning and injection safety

- Clean environment promotes safe injections and needle use by preventing contamination of equipment, the patient care area, and HCP hands and clothing
 - Selection of appropriate cleaning and disinfection products helps to ensure removal of environmental pathogens
- Policies and procedures also address spills of blood or other potentially infectious materials that may arise as a result of injections or needle-based services

Medical devices

- Ensure that reusable medical devices are cleaned and reprocessed appropriately prior to use on another patient
- Clean, reprocess, and maintain reusable medical devices according to manufacturer's instructions. If the manufacturer does not provide such instructions, the device may not be suitable for multi-patient use
- Assign responsibilities for reprocessing of medical devices to HCP with appropriate training
 - Maintain copies of manufacturer's instructions for reprocessing of devices
 - Post instructions where reprocessing is performed
 - Provide competency-based, hands-on training
- Assure HCP access and wear appropriate PPE when handling and reprocessing contaminated medical devices

Medical devices and injection safety

- Cleaning and reprocessing reusable medical devices appropriately prevents transmission of pathogens between patients, including when these devices play a role in needle-based care
- Review the manufacturer's instructions; certain devices can never be shared between patients (e.g., certain glucometers, insulin pens) even if they are reprocessed
- Appropriate competency-based training of HCP and availability of PPE helps ensure that cleaning and reprocessing is effective, and reduces transmission to HCP if they are handling contaminated sharps

Respiratory hygiene/Cough etiquette

- Post signs at entrances with instructions to those with respiratory symptoms to:
 - Inform HCP of symptoms of a respiratory infection when they first register for care
 - Cover mouths/noses when coughing or sneezing
 - Use and dispose of tissues appropriately
 - Perform hand hygiene after hands have been in contact with respiratory secretions
- Provide tissues and no-touch receptacles for disposal of tissues
- Provide resources for performing hand hygiene in or near waiting areas
- Offer masks to symptomatic persons upon entry to the facility, at a minimum, during periods of increased respiratory infection activity in the community
- Provide space for persons with respiratory symptoms to sit as far away from others as possible. If available, place these patients in a separate waiting area
- Educate HCP on the importance of infection prevention measures to contain respiratory secretions to prevent the spread of respiratory pathogens

Medication management

Medication management is not covered by these recommendations but is an essential component of safe injection practices

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.

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.

Transmission-Based Precautions

- Majority of outpatient settings are not designed to implement all isolation practices and Transmission-Based Precautions
- Syndromes including rash, influenza-like illness, and diarrhea are routinely encountered in outpatient settings and should be triaged
- Systems for early detection and management of potentially infectious patients should be implemented at points of entrance to the facility
- Place patients in a single room and notify the receiving facility of patient status
 - OHA requires that any facility transferring a patient infected or colonized by a multi-drug resistant organism or pathogen warranting Transmission-Based Precautions must notify the receiving facility in writing (<https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/HAI/PREVENTION/Pages/Interfacility-Communication.aspx>)

Risk assessment

- Use the accompanying checklist to periodically assess facility practices and ensure minimum expectations for safe care are met
- If lapses are identified, educate HCP and determine reason for lapse
 - In some cases, risk posed to the patient must also be assessed
 - Consult with the HAI Program regarding need for notification and testing
 - Evaluation and management of infection control breaches, including those related to injection safety, are available in CDC's Steps for Evaluating an Infection Control Breach
 - In cases where patient notification is warranted, see CDC's Patient Notification Toolkit
 - Consider requesting a free, on-site visit to assess your facility's practices

- https://www.cdc.gov/hai/outbreaks/steps_for_eval_IC_breach.html
- <https://www.cdc.gov/injectionsafety/pntoolkit/index.html>

Checklist

- Ensure the facility has appropriate infection prevention policies and procedures in place and supplies to allow HCP to provide safe care
- Systematically assess HCP adherence to correct infection prevention practices via direct observation

Overview

Section 1: Facility Demographics

Section 2: Infection Control Program and Infrastructure

Section 3: Direct Observation of Facility Practices

Section 4: Infection Control Guidelines and Other Resources

Infection Control Domains for Gap Assessment

- I. Infection Control Program and Infrastructure
- II. Infection Control Training and Competency
- III. Healthcare Personnel Safety
- IV. Surveillance and Disease Reporting
- V.a/b. Hand Hygiene
- VI.a/b. Personal Protective Equipment (PPE)
- VII.a/b. Injection Safety (if applicable)
- VIII.a/b. Respiratory Hygiene/Cough Etiquette
- IX.a/b. Point-of-Care Testing (if applicable)
- X.a/b. Environmental Cleaning
- XI.a/b. Device Reprocessing
- XII. Sterilization of Reusable Devices (if applicable)
- XIII. High-level Disinfection of Reusable Devices (if applicable)

VII.a. Injection Safety (This element does not include assessment of pharmacy/ compounding practices)

If injectable medications are never prepared or administered at the facility check **O Not Applicable** here and skip to Section VIII.a. Respiratory Hygiene/Cough Etiquette.

Elements to be assessed	Assessment	Notes/Areas for Improvement
<p>A. HCP who prepare and/or administer parenteral medications receive training on safe injection practices:</p> <ul style="list-style-type: none">i. Upon hire, prior to being allowed to prepare and/or administer parenteral medicationsii. Annuallyiii. When new equipment or protocols are introduced	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No	
<p>B. HCP are required to demonstrate competency with safe injection practices following each training.</p>	<input type="radio"/> Yes <input type="radio"/> No	
<p>C. Facility routinely audits (monitors and documents) adherence to safe injection practices.</p>	<input type="radio"/> Yes <input type="radio"/> No	
<p>D. Facility provides feedback from audits to personnel regarding their adherence to safe injection practices.</p>	<input type="radio"/> Yes <input type="radio"/> No	
<p>E. Facility has policies and procedures to track HCP access to controlled substances to prevent narcotics theft/diversion.</p> <p><i>Note: Policies and procedures should address: how data are reviewed, how facility would respond to unusual access patterns, how facility would assess risk to patients if tampering (alteration or substitution) is suspected or identified, and who the facility would contact if diversion is suspected or identified.</i></p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not applicable (Facility does not prepare or administer controlled substances)	

OHA's Injection and Needle Safety Toolkit

Goals

- Share resources on injections and needle use

- Encompass diverse practice settings and care types

Injection and Needle Safety Toolkit

Although injections and needle use in professional settings are generally safe, unsafe practices do happen and may cause serious harm.

Unsafe practices, like reusing vials or syringes, have the potential to spread disease by cross-contaminating body fluids. Since 2001, more than 150,000 people in the U.S. have been notified of potential exposure to viral hepatitis and HIV due to lapses in injection and needle safety.

Do your part. Three ways to help stop these infections!

1. **Join the One & Only Campaign!** This campaign is led by the Centers for Disease Control and Prevention (CDC) and the Safe Injection Practices Coalition (SIPC) and raises awareness about safe injection practices.
2. Learn about best practices by using this toolkit.
3. Share what you learn from the toolkit with those in your workplace.

Disclaimer: The resources below contain overlapping information on best practices, but are by no means comprehensive, as new resources continually emerge. In addition, the links provided do not serve as an endorsement of the organizations.



Toolkit Contents

For the Public

- What to know about receiving healthcare involving needles
- At-home injections and needle use

For Health Professionals

- Guidelines and Recommendations
- Aseptic Technique
- Needle Safety
- Medication and Treatment Management
- Diabetes Care
- Reports of Disease Transmission
- Specialty Specific Resources
- Additional Resources
- References

Feedback

- We want to hear from you! Let us know what you think about this toolkit by completing this quick feedback form.

<https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/HAI/PREVENTION/Pages/one-and-only.aspx>

Join Oregon's One and Only Campaign

- Become a member to receive brief, periodic messages with important updates regarding injection safety and needle use in Oregon and beyond
 - News, recommendations, resources
- Share this information with your patients and colleagues as applicable

Email roza.p.tammer@state.or.us to join!

More opportunities

- Read the injection safety Communicable Disease Summary (July 2017)
 - www.healthoregon.org/cdsummary
- Follow us on Facebook
 - <https://www.facebook.com/Oregon.aware>



Questions & discussion

Roza Tammer, MPH, CIC

(971) 673-1074

Roza.p.tammer@state.or.us

Sign up for upcoming Lunch and Learn sessions on injection safety!

<https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/HAI/PREVENTION/Pages/lunch-and-learn.aspx>

