Overview of Safe Injection Practices

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Objectives

- Define unsafe injection practices and their relationship to disease transmission
- Explain how to safely handle medications
- Describe how to promote injection safety
- Become familiar with the Oregon Health Authority’s One & Only Campaign
What are safe injection practices?

Safe injections protect:
• The patient
• The provider
• The community

Where injections may go wrong:
• Vials
• Needle
• Syringes
• Preparation
Steps Every Healthcare Provider Should Take

- Follow proper infection control practices and maintain aseptic technique during the preparation and administration of injected medications (e.g., perform hand hygiene).

- Never administer medications from the same syringe to more than one patient, even if the needle is changed.

- Never enter a vial with a used syringe or needle.

- Do not use medications packaged as single-dose or single-use for more than one patient.

- Do not use bags of intravenous solution as a common source of supply for more than one patient.

- Limit the use of multi-dose vials and dedicate them to a single patient whenever possible.

- Always use facemasks when injecting material or inserting a catheter into the epidural or subdural space.
Why worry about injection practices?

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

1998

33 hepatitis B and C outbreaks

448 infected patients

2009
Injections are complex and mistakes are easy!

- Hand hygiene
- Personal protective equipment
- Safe injections
- Aseptic technique
- Equipment
- Medication
- Documentation
Why worry about injection practices?

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

<table>
<thead>
<tr>
<th>Unsafe Injection Practices Have Devastating Consequences¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syringe reuse and misuse of medication vials have resulted in dozens of outbreaks and THE NEED TO ALERT MORE THAN 150,000 PATIENTS...</td>
</tr>
<tr>
<td>...to seek testing for bloodborne pathogens such as HEPATITIS B, HEPATITIS C AND HIV,² and have led to...</td>
</tr>
<tr>
<td>Patient illness and death</td>
</tr>
<tr>
<td>Loss of clinician licenses</td>
</tr>
<tr>
<td>Legal charges/malpractice suits</td>
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<tr>
<td>Criminal charges</td>
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</tbody>
</table>

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. 1000 = patients notified 50,000 PEOPLE EXPOSED TO INFECTION $16-$20 MILLION IN COSTS

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¹ Oregon Health Authority
² Oregon Health Authority
Patient impact

Bloodborne viral pathogens
- Human immunodeficiency virus
- Hepatitis B virus
- Hepatitis C virus

Other pathogens
- Bacterial
- Fungal
- Parasitic
- Other viral pathogens
Patient impact

1. Clean needle and syringe are used to draw medication.
2. When used on an HCV-infected patient, backflow from the injection or removal of the needle contaminates the syringe.
3. When again used to draw medication, a contaminated syringe contaminates the medication vial.
4. If a contaminated vial is subsequently used for other patients, they can become infected with HCV.

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.)
What kind of care is implicated?

- Anesthesia
- Endoscopy
- Point-of-care testing
- Pain management
- Steroid injection
- Microinjection
- Sedation
- Dialysis
- Chelation
- Biopsy
- Dentistry
- Fingerstick
- Dry needling
- Specimen collection
- Collagen & fillers
- Imaging
- Pain management
- Transfusion
- Surgery
- Orthodontia
- IV injection & infusion
- Sedation
- Microinjection
- Acupuncture
- Allergy injection
- Botox
- Blood glucose monitoring
- Insulin administration
- Immunization
- Anesthesia
- Prolotherapy
- Phlebotomy
- Oregon Health Authority
What kind of care is implicated?

Any care involving injections or needles
Perceptions about injection practices

Changing the needle makes a syringe safe for reuse.
Perceptions about injection practices

Once used, both needle and syringe are contaminated and must be discarded. A new sterile needle and new sterile syringe must be used for each injection and each entry into a medication vial.
Perceptions about injection practices

If you don’t see blood in the IV tubing or syringe, it means those supplies are safe for reuse.
Perceptions about injection practices

Pathogens are invisible to the naked eye, but can easily infect patients even when present in microscopic quantities. Do not reuse syringes, needles, or IV tubing.
Perceptions about injection practices

It’s okay to use leftover medication from used single-dose or single-use vials for more than one patient.
Perceptions about injection practices

Single-dose or single-use vials should not be used for more than one patient regardless of how much medicine is remaining.
Perceptions about injection practices

Syringes can be reused as long as an injection is administered through IV tubing.
Syringes and needles should never be reused. IV tubing, syringes, and other components represent a single, interconnected unit. Distance from patient, gravity, and infusion pressure don’t ensure that small amounts of blood won't contaminate the syringe once it has been connected to the unit.
Practice requirements

  - [https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html](https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html)

- OHA’s OAR 333-019-0061
  - effective 1/1/18
  - requires all licensed healthcare providers to adhere to standard precautions defined in the CDC guideline
  - [https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=239050](https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=239050)
What practices might lead to infection?

- Poor medication handling
- Poor hand hygiene
- Inappropriate disposal
- Drug Diversion
Medication handling

- Clean hands
- New, sterile equipment
- Examine and disinfect vial
- Draw up medication safely
- Never place in pockets
- Multi- vs single-dose vials
Insulin administration

- Dedicate vial and pen to a single patient
- Always use new equipment
- Store and prepare vial appropriately
- Dispose of used needles appropriately
Fingerstick devices and blood glucose meters

- Dedicate to one person
- Choose single use lancets
- Dispose of used lancets appropriately
Drug diversion

• Removal or use of medications intended for patients
• Mechanisms of diversion
  – False documentation
  – Scavenging of wasted medication
  – Theft by tampering
• Harms to patients
  – Failure to receive prescribed medications
  – Exposure to substandard care from an impaired HCW
  – Exposure to potentially life-threatening infections
U.S. Outbreaks Associated with Drug Diversion by Healthcare Providers, 1983-2013

- **1985:** 3 cases of *Pseudomonas pickettii* bacteremia associated with a pharmacy technician at a Wisconsin hospital

- **1992:** 45 cases of HCV infection associated with a surgical technician at a Texas ambulatory surgical center

- **1999:** 26 cases of *Serratia marcescens* bacteremia associated with a respiratory therapist at a Pennsylvania hospital

- **2004:** 16 cases of HCV infection associated with a certified-registered nurse anesthetist at a Texas hospital

- **2006:** 9 cases of *Achromobacter xylosoxidans* bacteremia associated with a nurse at an Illinois hospital

- **2008:** 5 cases of HCV infection associated with a radiology technician at a Florida hospital

- **2009:** 18 cases of HCV infection associated with a surgical technician at a Colorado hospital

- **2011:** 25 cases of gram-negative bacteremia associated with a nurse at a Minnesota hospital

- **2012:** 45 cases of HCV infection associated with a radiology technician at hospitals in New Hampshire, Kansas, and Maryland
Drug diversion prevention & response

**Prevention**
- Support for affected staff
- Limit access
- Improve processes
- Enhance accountability

**Response**
- Protect patients
- Assess damage
- Communicate
  - Partners
  - Regulatory

**Make a plan**
What can facilities do to promote injection safety?

- Designate staff member to oversee injection safety
- Develop written policies
- Provide competency-based training/education (at hire and ongoing)
- Conduct quality assurance assessments and quality improvement projects
- Think outside the box
- Communicate about possible issues early and often
- Constant vigilance!
CDC’s One & Only Campaign

Raise awareness and prevent outbreaks
Free online and print resources via CDC-INFO
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.

<table>
<thead>
<tr>
<th>Injection Safety</th>
<th>Practice Performed?</th>
<th>If answer is No, document plan for remediation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper hand hygiene, using alcohol-based hand rub or soap and water, is performed prior to preparing and administering medications.</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids, or contaminated equipment.</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>Needles and syringes are used for only one patient (this includes manufactured prefilled syringes and cartridge devices such as insulin pens).</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>The rubber septum on a medication vial is disinfected with alcohol prior to piercing.</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same patient.</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>Single-dose or single-use medication vials, ampules, and bags or bottles of intravenous solution are used for only one patient.</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>Medication administration tubing and connectors are used for only one patient.</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Yes, No</td>
<td>Note: This is different from the expiration date printed on the vial</td>
</tr>
<tr>
<td>Multi-dose vials are dedicated to individual patients whenever possible.</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>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).</td>
<td>Yes, No</td>
<td>Note: If multi-dose vials enter the immediate patient treatment area, they should be dedicated for single-patient use and discarded immediately after use.</td>
</tr>
</tbody>
</table>
Injection safety and needle use toolkit

https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/HAI/PREVENTION/Pages/one-and-only.aspx
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. Sign up to join the Oregon One and Only Campaign mailing list! Email Roza.P.Tammer@state.or.us for more information.
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.
Toolkit Evaluation

1. This toolkit is helpful.
   – Agree, neutral, disagree
2. What section or aspect of the toolkit did you find useful?
   – Checkbox list + comment box
3. What would improve this toolkit? Are we missing anything?
   – Open ended
4. Do you have other comments?
For Health Professionals

Guidelines and Recommendations

- **CDC's One & Only Campaign**
  - **Toolkit**: A collection of injection and needle safety resources that includes free print materials, multimedia materials and additional resources.

- **WHO Injection Safety Campaign**
  - **Toolkit**: A collection of best practice resources that provides guidelines, educational and evaluation tools and print materials.

- **Safe Injection Practices Overview (pdf)**
  - **PowerPoint**: HAI Program presentation that describes the impact of unsafe needle and injection practices, CDC recommendations for best practice, and how health professionals can champion needle and injection safety in their facilities.

- **CDC and CMS: Nursing Home Infections Preventionist Training, Module 8 - Injection Safety** (relevant to a broad audience)
  - **Online Training Module**: Provides an overview of injection safety, along with a review of recommended practices and consequences of failure to follow safe injection practices. This module is organized into five lesson and will take approximately 55 minutes to complete.

- **CDC Grand Rounds: Preventing Unsafe Injection Practices in the U.S. Health-Care System**
  - **MMWR**: CDC overview of the impact of unsafe injection practices, state and federal government response, public health's role, and an illustrative case study.

  - **Guidelines**: The CDC summary of recommendations for infection control in healthcare settings, guidelines that, as of 1/1/18, are required for licensed health professionals in Oregon (see above).
Tools for Facility Assessment

- **One and Only Campaign: Insulin Pen Safety 60 Second Check (pdf)**
  Checklist: Colorado, a partner state of the One and Only Campaign, provides a 60-second checklist for assessing insulin pen safety practices.

- **One & Only Campaign Finger-stick Lancing Device Safety 60 Second Check (pdf)**
  Checklist: Colorado, a partner state of the One and Only Campaign, provides a 60-second checklist for assessing finger-stick lancing device safety practices.

- **One & Only Campaign Blood Glucose Meter Safety 60 Second Check (pdf)**
  Checklist: Colorado, a partner state of the One and Only Campaign, provides a 60-second checklist for assessing blood glucose meter safety practices.

- **One & Only Campaign Injection Safety Checklist (pdf)**
  Checklist: CDC-recommended minimum standards for care involving injections checklist for inpatient and outpatient settings.

- **CDC’s Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care - Fillable Checklist**
  This guide has been created to help you evaluate Infection Prevention at your facility. This interactive PDF document is best viewed with Adobe Acrobat Reader.

- **APIC Preventing Infection in Ambulatory Care - Winter 2011/2012 (part I p. 4-8)**
  **APIC Preventing Infection in Ambulatory Care - Spring 2012 (part II p. 9-14)**
  **APIC Preventing Infection in Ambulatory Care - Summer 2012 (part III p. 10-15)**
  **Checklists:** Infection Prevention and Control Clinic Survey Tool (parts I, II and III) assesses compliance with needle and injection safety standards in ambulatory care settings.

- **Centers for Medicare and Medicaid Services: Ambulatory Surgical Center (ASC) Infection Control Surveyor Worksheet (pdf)**

- **Centers for Medicare and Medicaid Services: Hospital Infection Control Worksheet (pdf)**
  Checklist: Survey to assess infection control compliance in the hospital setting.

- **National Nursing Home Quality Improvement Equipment Cleaning Assessment Tool (pdf)**
  Checklist: Assessment for the appropriate cleaning and disinfection of equipment and environment.

- **The Minnesota Hospital Association Road Map to Controlled Substance Diversion Prevention 2.0 (pdf)**
  Checklist: An assessment tool for evaluating drug diversion prevention measures in place at a healthcare facility.
Aseptic Technique

Skin Preparation

- CDC: Safe Practices for Medical Injections (FAQs)
  FAQs: A question and answer forum for medication preparation, medication administration, single-dose/single-use vials, multidose vials, and general information including aseptic technique practices.
  Toolkit Section: General guidelines for aseptic preparation and administration of injections, hand hygiene, vial management, and guideline tables.

Rubber Septum

- CDC Safe Practices for Medical Injections (FAQs): Medication Preparation
  FAQs: A brief question and answer forum for safe injection preparation.

Accessing Central Lines

- CDC Central Line-associated Bloodstream Infections: Resources for Patients and Healthcare Providers
  Informational Webpage: CDC addresses the definition of a central line-associated bloodstream infection and basic guidelines for aseptic technique surrounding central line management.
- CDC and CMS: Nursing Home Infection Preventionist Training, Module 10b - Central Venous Catheters (relevant to a broad audience)
  Online Training Module: Discuss central venous catheters and recommended practices for their use. Module 10B is organized into two lessons; it will take you approximately 30 minutes to complete.
Join the Oregon One & Only Campaign

Who can be a member? Anyone!
- Professional and nonprofit organizations
- Healthcare systems and facilities
- Provider groups
- Private companies
- Individuals interested in promoting injection safety

What do members do?
- Raise awareness
- Share materials
- Receive updates

To join, email roza.p.tammer@state.or.us
Welcome to Oregon Health Authority

In this issue:

- Happy birthday to Oregon Administrative Rule 333-019-0061!
- Free injection safety resource highlight
- HAI Lunch and Learn Series
- Updates to our Safe Injections and Needle Use Toolkit
- Membership update
- Contact us

Happy birthday to Oregon Administrative Rule 33-0190-0061!

On January 1, 2018, we authored a rule requiring all licensed healthcare providers to adhere to standard precautions. Find the rule here.

Free injection safety resource highlight

This Injection Safety Checklist is a great resource from the CDC’s One and Only Campaign to help assess facility practices. Consider printing a few copies for your facility or sharing with your infection prevention colleagues.

Access the checklist here!

More from the Oregon Health Authority

More information on infection control and injection settings, policy, and oncology. Browse our website.

Membership update

We now have 86 members including you! Please share this resource with your colleagues.

Contact us

Roza Tammer
HAI Reporting Epidemiologist

Find us online

Injection safety website
One and Only campaign page or Facebook

Email Roza to join the list!
More opportunities

• Read the injection safety CD Summary
  – www.healthoregon.org/cdsummary

• Follow us on Facebook
  – https://www.facebook.com/Oregon.aware
Resources & references

- Centers for Disease Control and Prevention
  - One and Only Campaign: http://www.oneandonlycampaign.org
  - Info on Demand: https://wwwn.cdc.gov/pubs/cdcinfoondemand.aspx
  - Injection safety website: https://www.cdc.gov/injectionsafety/index.html
- Oregon Health Authority
  - Oregon’s One and Only Campaign partner state web page: http://www.oneandonlycampaign.org/partner/oregon
  - Injection safety website: http://www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/HAI/PREVENTION/Pages/one-and-only.aspx
- Oregon Patient Safety Commission
  - Video: Preventing Infection During Blood Glucose Monitoring and Insulin Administration: https://www.youtube.com/watch?v=dddSV0Tu_AE
- United States Pharmacopeia General Chapter 797: https://www.sefh.es/fichadjuntos/USP797GC.pdf
Resources & references

• Severe bloodstream infections: A population-based assessment

• Overall burden of bloodstream infection and nosocomial bloodstream infection in North America and Europe
  – https://www.sciencedirect.com/science/article/pii/S1198743X1461507X#bib1

• Outbreaks of Infections Associated with Drug Diversion by US Health Care Personnel
  – http://www.mayoclinicproceedings.org/article/S0025-6196(14)00342-5/fulltext

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

• US Outbreak Investigations Highlight the Need for Safe Injection Practices and Basic Infection Control

• Nonhospital Health Care-Associated Hepatitis B and C Virus Transmission: United States, 1998-2008
Questions & discussion

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