SAFE INJECTION PRACTICES

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DISCLOSURES

» Employee of Medline Industries, Inc.

» Opinions expressed are my own and not necessarily representative of Medline Industries, Inc.
OBJECTIVES

» Define safe injection and other basic infection control practices, and be able to recognize and correct unsafe practices

» Describe the potential consequences of unsafe injection practices

» Understand the basic mechanisms of infectious agent transmission via unsafe injection practices

» Highlight best practices when performing point of care testing to reduce the risk of transmitting bloodborne pathogens

» Understand the need for monitoring injection safety and basic infection control practices in your facility
WHAT IS INJECTION SAFETY

» Measures taken to perform injections in a safe manner for patient and providers

» Prevent transmission of infectious diseases from:
  • Patient to Patient
  • Patient to Provider
  • Provider to patient
WHAT IS INJECTION SAFETY

» Prevents harms
  • Does not harm the recipient
  • Does not expose the provider to any avoidable risk
  • Does not result in waste that is dangerous for the community

» Part of the “standard precautions” that should be used on all patients/residents, in all settings, all the time.

2007 Guideline for Isolation Precaution

» The transition of healthcare delivery from primarily acute care hospitals to other settings (e.g., home care, ambulatory care, free-standing specialty care sites, long-term care)

» Standard Precautions, first recommended in the 1996 guideline, has led to a reaffirmation of this approach as the foundation for preventing transmission of infectious agents in all healthcare settings

» Strong evidence base: Outbreaks of hepatitis B and hepatitis C viruses in ambulatory settings indicated a need to re-iterate safe injection practice recommendations as part of Standard Precautions

State Stalls Trump Beach Project

8,500 More At Risk

Every patient doc treated for 5 years should be tested, health officials say

2001 Hepatitis Outbreak

DOCTOR DID IT

State: Anesthesiologist Contaminated Vial of Medication With Dirty Needle
Healthcare-Associated Hepatitis B and C Outbreaks Reported to the Centers for Disease Control and Prevention (CDC) 2008-2014

Forty-four outbreaks (two or more cases) of viral hepatitis related to healthcare reported to CDC during 2008-2014; of these, 42 (95%) occurred in non-hospital settings.

Detailed descriptions of these outbreaks and references are available from the CDC at: http://www.cdc.gov/hepatitis/statistics/healthcareoutbreaketable.htm
An Outbreak of Hepatitis C Virus Infections among Outpatients at a Hematology/Oncology Clinic

Alexandre Macedo de Oliveira, M.D., M.Sc; Kathryn L. White, RN, BSN; Dennis P. Leachinsky, BS; Brady D. Beeclean, BS; Tara M. Vogt, PhD; Ronald L. Moolenaar, MD, MPH; Joseph F. Penz, DrPH; and Thomas J. Safranek, M.D.

New York Times Reports on Hepatitis C Outbreak at Oklahoma Hospital Where Nurse Anesthetist Reused Needles

Nevada hepatitis C outbreak largest in U.S.
Health officials report 105 possible hepatitis C cases

By Mary Manning
Thursday, Oct. 23, 2008 | 10:25 a.m.
Unsafe Injections Put Patients in Peril

Insist on best practices before you’re stuck.

More than 150,000 people have been notified that they were potentially exposed to unsafe injection practices.

May 21, 2015
• One hundred sixty-three injection safety observations were performed that revealed medication vial rubber septums were disinfected with alcohol 78.4% (95% confidence interval [CI], 71.1%-84.7%) of the time before piercing.

• Three hundred thirty hand hygiene observations revealed 33.9% (95% CI, 28.8%-39.1%) use of alcohol-based handrub, 29.1% (95% CI, 24.2%-34.0%) use of soap and water, and 37.0% (95% CI, 31.8%-42.4%) use of no hand hygiene.
Unsafe Injection Practice Outbreaks

- Associated with a wide variety of procedures
  - Administration of anesthetics for outpatient surgical, diagnostic and pain management procedures
  - Administration of other IV medications including chemotherapy, cosmetic procedures and alternative medicine (e.g., chelation therapy; vitamins/steroids)
  - Flushing IV lines or catheters
  - Administration of IM vaccines
Unsafe Injection Practice Outbreaks

» Syringe reuse between patients during parenteral medication administration to multiple patients.

» Contamination of medication vials or intravenous (IV) bags

» Failure to follow basic injection safety practices when preparing and administering parenteral medications to multiple patients.

» Inappropriate use and maintenance of finger stick devices and glucometer
Can I use that when you’re done?

You wouldn’t share this with anyone.
Your provider shouldn’t share your syringe.

www.ONEandONLYcampaign.org
How have providers justified syringe reuse?

» Mistaken belief that the following prevent infection transmission risks

» Changing the needle

» Injecting through intervening lengths of intravenous tubing

» Presence of a check valve

» Always maintaining pressure on the plunger to prevent backflow of body fluids
What Can Happen When You Do Not Follow Safe Injection Practices?

» Transmission of disease to patients
  • Patients at risk for bacterial, fungal, viral, and parasitic infections
  • >50 outbreaks in the U.S. since 2001
    > 56% bacterial infections
    > 44% viral hepatitis (hepatitis B, hepatitis C)

» Notification of thousands of patients who have been exposed; recommendations to test

» Referral of providers to licensing boards for disciplinary action
» Malpractice lawsuits filed by the patient

» COSTLY TO PATIENTS, PROVIDERS, and HEALTH DEPARTMENTS
TRANSMISSION: UNDERSTANDING THE BASICS
Indirect Contact Transmission

» Transfer of an infectious agent through a contaminated intermediate object or person
  • Hands of healthcare personnel
  • Patient care devices (e.g., glucometers)
  • Instruments (e.g., endoscopes) that are not adequately reprocessed
  • Medications and injection equipment

Bloodborne Pathogens

- Unsafe injection practices expose healthcare workers, patients or residents to viruses in the blood that can cause illness.

  - Hepatitis B virus (HBV)
    - Risk of transmission from needlestick: 6-31%
  
  - Hepatitis C virus (HCV)
    - Risk of transmission from needlestick: 1.8%
  
  - Human immunodeficiency virus (HIV)
    - Risk of transmission from needlestick: 0.3%
Transmission Basics

**SOURCE**
Infectious person, e.g. chronic, acute

**CONTAMINATED EQUIPMENT OR MEDICATION**

**CASE**
Susceptible, non-immune person
TRANSMISSION

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.

Prevention: Safe Injection Practices
Basic Patient Safety

» Healthcare should not provide any avenue for transmission of bloodborne viruses
  - Basic patient safety / “red flag”
  - Risks of patient-to-patient spread on par with HCW and blood safety efforts

» Entirely preventable
Aseptic Technique

Handling, preparation, and storage of medications and all supplies used for injections and infusions in a manner that prevents microbial contamination
Medication Preparation

» Using standard precautions

» In a clean area free from contamination or contact with blood, body fluids, or contaminated equipment

» In general, any item that could have come in contact with blood or body fluids should be kept separate

» Need to prepared in a clean dry workspace that is free of clutter and obvious contamination sources like water, sinks
Medication Preparation

» Make sure only trained staff are preparing medications

» Medications should be stored in a manner to limit the risk of tampering

» Should verify the competency of those preparing medications and monitor compliance with aseptic technique
Single Dose Vials

» Use single dose vials (e.g., propofol) whenever possible.

» Use right-sized vials and prefilled syringes.
  • Pre-drawn syringes must include labeling: time, person’s initials, med name, dose, expiration date

» Size of vial does not indicate single or multi-dose
Multiple-Dose Vials

If multiple-dose ("multi-dose") vials must be used:

- Designate to a single person whenever possible.
- Both the needle and syringe used to access the vial must be sterile.

A needle should never be left inserted into a medication vial septum for multiple uses.
Before the Procedure

» Carefully read the label of the medication vial.

• Visually inspect the vial to ensure there is no visible contamination.

» Is it single-dose?

» Is it multi-dose?

• If so, double-check the expiration date and the beyond-use date if it was previously opened.

• Discard if either of those dates has passed.

» When in doubt, throw it out.
**Maintaining Sterility of Vials**

- Proper **hand hygiene** should be performed before handling medications.

- A **new sterile needle** and **syringe** should be used for each injection.

- Disinfect (scrub) all vial tops, IV hubs/ports with alcohol for 10 secs and **allow to dry** before accessing.

- After a syringe or needle has been used to enter or connect to a person’s IV, it is **contaminated** and should **not** be used on another person or to enter a medication vial.
Maintaining Sterility of Vials

» Medications should be **discarded upon expiration** or any time there are **concerns regarding the sterility** of the medication

» Leftover parenteral medications should **never** be pooled for later administration

» Never store or transport vials in clothing or pockets
Maintaining Sterility of the Vial

» If a multi-dose vial is used, it should **not** be kept or accessed in the immediate patient/resident treatment area.

  - This prevents accidental contamination of the vial.
  - If a multi-dose vial enters the immediate patient/resident area, it should be dedicated *to that person only* and discarded immediately after use.
**Infusions**

» Do not use bags or bottles of intravenous solution as a common source of supply for more than one patient

» Use fluid infusion and administration sets (i.e., IV bags, tubing, and connectors) for one person only and dispose appropriately after use.

» Begin administration within 1 hour of spiked IV bag (USP 797)

» Irrigation solutions should be discarded between patients
After the Procedure

» Appropriately discard all used needles, syringes, and SDVs after the procedure is over.
  • DO NOT save for the next patient

» Store used MDVs appropriately.

» Discard MDVs when:
  • The beyond-use date has been reached
    > Manufacturer’s date
    > Open vial date
  • Doses are drawn in a patient treatment area
  • Any time vial sterility is in question
OTHER BEST PRACTICES

» Wear a **surgical mask** when placing a catheter or injecting material into the **spinal canal or subdural space**.

» Administer all eye & ear drops/ointments using a “no touch” technique; if tip of container touches patient, dispose!

» Obtain topicals in smallest UOM; remove w/sterile applicator each time (no double-dip)
BLOOD GLUCOSE MONITORING & INSULIN PENS
POINT OF CARE (POC) DEVICE: UNSAFE PRACTICES

» Using Finger stick devices for more than one person

» Using Blood Glucose meters or other POC devices for more than one person without cleaning and disinfecting between uses per the manufacturer’s instructions.

» Using insulin pens or multi-dose insulin vials for more than one person.

» Failing to change gloves and perform hand hygiene between finger stick procedures.
POC: SAFE PRACTICES

Preparing to perform the procedure

- **Do Not** put supplies down on the bedside table or bed.
- Use a “clean field”, such as a paper towel on a medication cart to contain the equipment
  - Change the “clean field” between patients even if there is not visible blood
- Have all supplies easily accessible (sharps container, bandages etc...)

![Image of healthcare supplies]
POC: SAFE PRACTICES

» Perform Hand Hygiene
  • **Before** putting on gloves
  • **Immediately after** glove removal
  • Between patients

» Gloves
  • While performing finger stick or insulin injection
  • **Between** patient/resident contacts
  • **After** touching finger stick wounds or potentially contaminated objects/equipment
  • **Before** touching clean surfaces
  • Discard gloves in appropriate container
POC: SAFE PRACTICES

» Finger stick devices are not used on more than one person
» This includes both the lancet and the lancet holding device
» Select single-use devices that permanently retract upon puncture

» Insulin pens and other medication cartridges and syringes are for single-use only and should never be used for more than one person
**POC: SAFE PRACTICES**

» Dedicate **blood glucose meters** to a single patient if possible
  
  ◦ If shared, the device should be cleaned and disinfected after **every** use, per manufacturer’s instructions

» Blood can be transferred back to the glucometer when handled to obtain reading

» If manufacturer does not provide instructions for cleaning and disinfection, then the device should not be used for more than 1 patient

» Educate staff on blood glucose monitoring and safe injection practices
II. Injection Practices (injectable medications, saline, other infusates)
Observations are to be made of staff preparing and administering medications and performing injections (e.g., anesthesiologists, certified registered nurse anesthetists, nurses).
Unless otherwise indicated, a “No” response to any question below must be cited as a deficient practice in relation to 42 CFR 416.51(a).

If unable to observe is selected, please clarify in the surveyor notes box why it was not observed and attempt to assess by means of interview or documentation review.

NOTE: Some types of infection control breaches, including some specific to medication administration practices, pose a risk of bloodborne pathogen transmission that warrant engagement of public health authorities. When management review confirms that a survey has identified evidence of one or more of the breaches described in S&C: 14-36-All, in addition to taking appropriate enforcement action to ensure the deficient Medicare practices are corrected, the SA should also make the responsible State public health authority aware of the identified breach.

<table>
<thead>
<tr>
<th>Practices to be Assessed</th>
<th>Was Practice Performed?</th>
<th>Surveyor Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Needles are used for only one patient.</td>
<td>☐ Yes</td>
<td></td>
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<tr>
<td></td>
<td>☐ No</td>
<td></td>
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<tr>
<td></td>
<td>☐ Unable to observe</td>
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</table>
## CMS IC Surveyor Worksheet

<table>
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<tr>
<td>B. Syringes are used for only one patient <em>(this includes manufactured prefilled syringes).</em></td>
<td>○ Yes&lt;br&gt; ○ No&lt;br&gt; ○ Unable to observe</td>
<td></td>
</tr>
<tr>
<td>C. The rubber septum on a medication, whether unopened or previously accessed, vial is disinfected with alcohol prior to piercing.</td>
<td>○ Yes&lt;br&gt; ○ No&lt;br&gt; ○ Unable to observe</td>
<td></td>
</tr>
<tr>
<td>D. Medication vials are always entered with a new needle.</td>
<td>○ Yes&lt;br&gt; ○ No&lt;br&gt; ○ Unable to observe</td>
<td></td>
</tr>
<tr>
<td>E. Medication vials are always entered with a new syringe</td>
<td>○ Yes&lt;br&gt; ○ No&lt;br&gt; ○ Unable to observe</td>
<td></td>
</tr>
<tr>
<td>F. Medications that are pre-drawn are labeled with the date and time of draw, initials of the person drawing, medication name, strength and beyond-use date and time</td>
<td>○ Yes&lt;br&gt; ○ No&lt;br&gt; ○ Unable to observe</td>
<td><strong>NOTE:</strong> A “No” answer should result in citation as a deficient practice in relation to 42 CFR 416.48(a), Administration of Drugs</td>
</tr>
<tr>
<td>G. a. Single dose (single-use) medication vials are used for only one patient</td>
<td>○ Yes&lt;br&gt; ○ No&lt;br&gt; ○ Unable to observe</td>
<td></td>
</tr>
<tr>
<td>G. b. Bags of IV solutions are used for only one patient <em>(and not as a source of flush solution for multiple patients).</em></td>
<td>○ Yes&lt;br&gt; ○ No&lt;br&gt; ○ Unable to observe</td>
<td></td>
</tr>
<tr>
<td>G. c. Medication administration tubing and connectors are used for only one patient</td>
<td>○ Yes&lt;br&gt; ○ No&lt;br&gt; ○ Unable to observe</td>
<td></td>
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<tr>
<td>H. The ASC has voluntarily adopted a policy that medications labeled for multi-dose use for multiple patients are nevertheless only used for one patient. (Fill in N/A if no multi-dose medications/infusates are used).</td>
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<td>Yes</td>
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<td>No</td>
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<td></td>
<td>N/A</td>
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<td>(NOTE: a “No” answer to question H. does not indicate a breach in infection control practices and does not result in a citation. However, a “No” response to either or both of the related questions I and J should be cited). If YES, please skip to &quot;K&quot; If NO, you must also assess the practices at questions &quot;i&quot; and J):</td>
<td></td>
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</tr>
<tr>
<td>1. Multi-dose vials are dated 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 for the vial. The multi-dose vial can be dated with either the date opened or the beyond-use date as per ASC policies and procedures, so long as it is clear what the date represents and the same policy is used consistently throughout the ASC.</td>
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<td></td>
<td>Yes</td>
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<td></td>
<td>No</td>
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<td></td>
<td>Unable to observe</td>
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<tr>
<td>2. Multi-dose medication vials used for more than one patient are stored appropriately and do not enter the immediate patient care area (e.g., operating room, anesthesia carts).</td>
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<td>Yes</td>
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<td></td>
<td>No</td>
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<tr>
<td></td>
<td>Unable to observe</td>
<td></td>
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<tr>
<td>NOTE: If multi-dose vials enter the immediate patient care area, they must be dedicated for single patient use and discarded immediately after use.</td>
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<tr>
<td>3. All sharps are disposed of in a puncture-resistant sharps container.</td>
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<td></td>
<td>Yes</td>
<td></td>
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<td></td>
<td>No</td>
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<tr>
<td>4. Sharps containers are replaced when the fill line is reached.</td>
<td>Yes</td>
<td></td>
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<td></td>
<td>No</td>
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</tbody>
</table>
# CMS IC Surveyor Worksheet

## V. Point of Care Devices (e.g., blood glucose meter)

Observations are to be made of staff performing fingerstick testing (e.g., nurses) if unable to observe or N/A is selected, please clarify in the surveyor notes box why it was not observed or applicable and attempt to assess by means of interview or documentation review.

Unless otherwise indicated, a "No" response to any question below must be cited as a deficient practice in relation to 42 CFR 416.51(a).

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<tr>
<td>1. Does the ASC use a point-of-care testing device, such as a blood glucose meter?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
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<tr>
<td>A. Hand hygiene is performed before and after performing a finger stick procedure to obtain a sample of blood and using the point-of-care testing device.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
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<tr>
<td>B. Gloves are worn by health care personnel when performing a finger stick procedure to obtain a sample of blood, and are removed after the procedure (followed by hand hygiene).</td>
<td>Yes</td>
<td></td>
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<td></td>
<td>No</td>
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<tr>
<td>C. Finger stick devices are not used for more than one patient.</td>
<td>Yes</td>
<td></td>
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<td></td>
<td>No</td>
<td></td>
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<tr>
<td></td>
<td>Unable to observe</td>
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**NOTE:** This includes both the lancet and the lancet holding device.

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<tr>
<td>D. If used for more than one patient, the point-of-care testing device (e.g., blood glucose meter, INR monitor) is cleaned and disinfected after every use according to the manufacturer's instructions.</td>
<td>Yes</td>
<td></td>
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<td></td>
<td>No</td>
<td></td>
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<td></td>
<td>N/A</td>
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**NOTE:** If the manufacturer does not provide instructions for cleaning and disinfection, then the device should not be used for >1 patient.
SUMMARY

» Have a dedicated person responsible for infection prevention

» Include Safe Injection Practices in your risk assessment and Infection Prevention program

» Assure that existing policies reflect latest recommendations and guidelines

» Monitor what practices are occurring in your facility
  • Are they consistent with your policy
  • Consequence for not following policy
Summary

» Education and training is imperative to learn each person’s role in preventing infections

» Train staff based on policy, NOT what other staff have been doing
Resources

Injection Safety

Injected medicines are commonly used in healthcare settings for the prevention, diagnosis, and treatment of various illnesses. Unsafe injection practices put patients and healthcare providers at risk of infectious and non-infectious adverse events and have been associated with a wide variety of procedures and settings. This harm is preventable. Safe injection practices are part of Standard Precautions and are aimed at maintaining basic levels of patient safety and provider protections. 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. Visit the page on CDC’s role in safe injection practices.

[Image of injection safety resources]

http://www.cdc.gov/injectionsafety/
RESOURCES


RESOURCES

APIC POSITION PAPER: SAFE INJECTION, INFUSION, AND MEDICATION VIAL PRACTICES IN HEALTH CARE (2016)

http://www.apic.org/For-Media/Announcements/Article?id=58d91949-2465-46e8-b5c1-7c24bc0267eb
RESOURCES

ASC Quality Collaboration

Safe Injection Practices Toolkit

The resources in this toolkit may only be used for internal improvement and education efforts. They may not be used for commercial purposes.

Safe injection practices are crucial to basic levels of patient safety and provider protection. Hepatitis C virus, hepatitis B virus, and HIV can be spread from patient to patient when safe injection practices are not used.

The ASC Quality Collaboration has assembled a variety of resources and information that may be used to supplement your current processes to enhance existing injection practices.

The BASIC Safe Injection Practices Toolkit includes three essential resources:
- Safe Injection Practices: What CMS Surveyors Are Looking For
- One Needle, One Syringe, One Time Poster
- Injection Practices Policy and Procedure Template

The EXPANDED Safe Injection Practices contains both essential resources and a broader array of materials, including:
- Assessment Tools
- Implementation Aids
- Training Materials
- Monitoring Tools
- Workplace Reminders
- Guidelines from Leading Authorities

http://www.ascquality.org/SafeInjectionPracticesToolkit.cfm
Resources

Safe Injection Practices - How to Do It Right

www.youtube.com/watch?v=6D0stMoz80k&feature=youtu.b