SHARPS SAFETY & SAFE INJECTION

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Nebraska Infection Control Network

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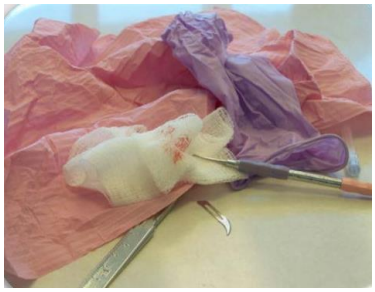
What is wrong with this picture?

2

Do you encounter sharps in your day-to-day practice?



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Background

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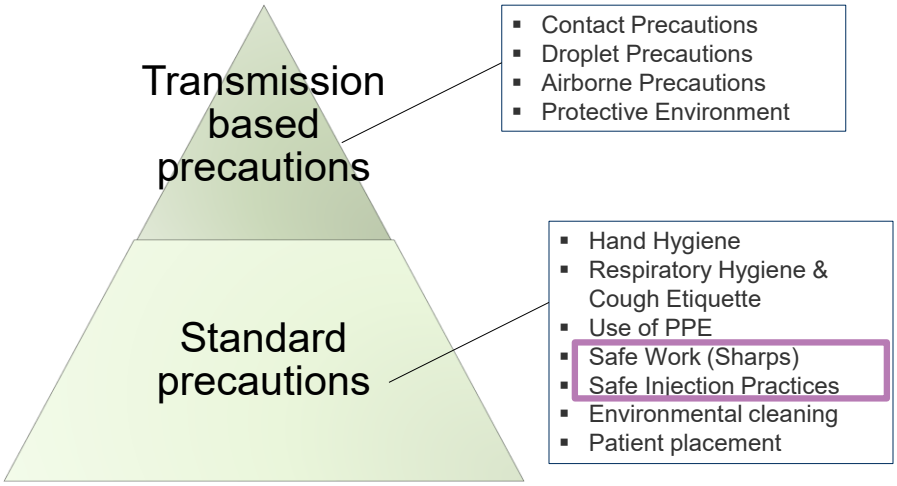

Figure is presenter's own, adapted from
Wiksten, T. Standard Precautions. In Boston K.M., et al, eds. APIC Text. 2014. Available at https://text.apic.org/toc/basic-principles-of-infection-prevention-practice/standard-precautions Acessed September 2,2022 and Berends, C. Isolation Precautions (Transmission-based Precautions). APIC Text. 2014. Available https://text.apic.org/toc/basic-principles-of-infection-prevention-practice/isolation-precautions-transmission-based-precautions Accessed September 2,2022

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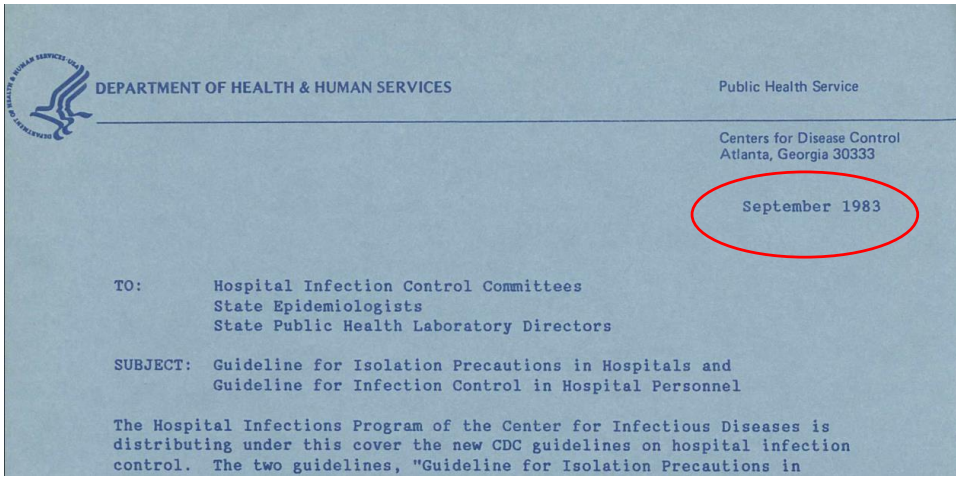
Standard precautions, aka Universal Precautions,



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
Atlanta, Georgia 30333

September 1983

TO: Hospital Infection Control Committees
State Epidemiologists
State Public Health Laboratory Directors

SUBJECT: Guideline for Isolation Precautions in Hospitals and
Guideline for Infection Control in Hospital Personnel

The Hospital Infections Program of the Center for Infectious Diseases is distributing under this cover the new CDC guidelines on hospital infection control. The two guidelines, "Guideline for Isolation Precautions in

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Sharp devices include any pointed instruments, cutting tools, and breakable supplies

- Needles
- Scalpel blades
- Lancets
- Surgical instruments
- Guidewires
- Lab equipment

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Regulation and Research

OSHA

- Responsible for setting and enforcing workplace safety standards

Occupational Safety and Health Administration

NIOSH

- Focuses on research, standards development, recommendations, and education
- Responsible for testing and approval of devices, for example respirators
- Part of the CDC

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Device Selection and Engineering Controls

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Engineering Controls and Device Selection Overview

- The OSHA Bloodborne Pathogens Standard requires employers to use engineering controls, such as appropriate "safety engineered" sharps
- Controls are selected to remove or isolate a hazard
- Frequently technology-based
  - Self-sheathing anesthetic needles
  - Safety scalpels
  - Needleless IV ports
  - Sharps containers
  - Needle recapping devices

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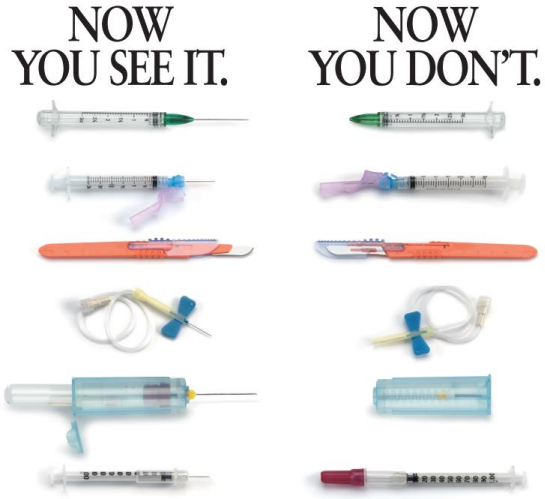
More on safer medical devices



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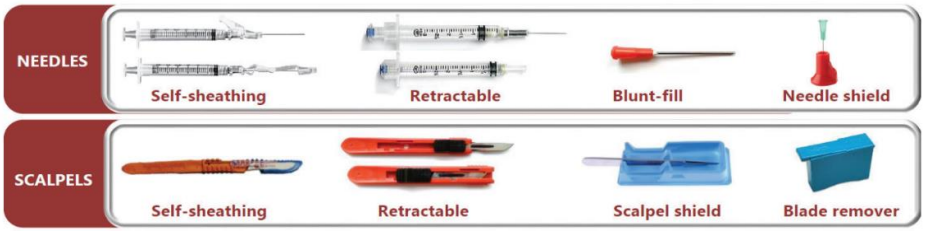

Image from The University of Utah
https://ibc.utah.edu/library/sharps-protection-for-researchers.php

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Safer Medical Device Selection

Clinical and Safety Evaluation

- [ ] Is the device FDA-approved for its intended use?
- [ ] Does it reduce risk of exposure to bloodborne pathogens?
- [ ] Has it been evaluated for sharps injury prevention?
- [ ] Are there documented safety outcomes or clinical studies?

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Safer Medical Device Selection

Staff Involvement

- [ ] Have frontline staff provided input on device selection?
- [ ] Was a trial or pilot conducted with end users?
- [ ] Are staff trained in proper use and disposal?

- [ ] Are incident reports reviewed to guide future selections?
- [ ] Is there a regular review cycle for device effectiveness?

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Safer Medical Device Selection

Usability and Ergonomics

- ☐ Is the device intuitive and easy to use?
- ☐ Does it minimize user error?
- ☐ Is it compatible with existing workflows?

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Safer Medical Device Selection

Support and Supply Chain

- ☐ Are instructions for use and maintenance clear?
- ☐ Is technical support available from the manufacturer?
- ☐ Is the device durable and easy to clean or dispose of?

- ☐ Is it available through reliable suppliers or GPOs?
- ☐ Is there a backup supply plan in case of shortages?

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Devices to assist with one-handed capping of needles, especially intraoral injection

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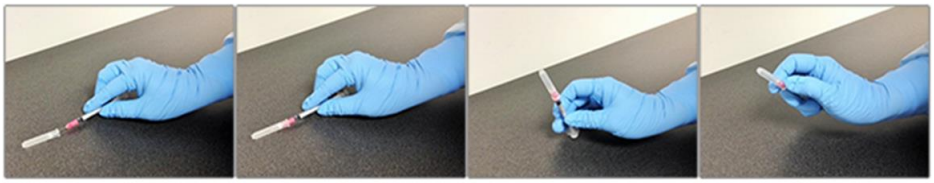
One Handed Scoop Method



First, place cap on a level horizontal surface; gently slide needle half-way into cap...

Then, slowly tip up needle end of the device and allow cap to slide over needle...

Finally, use the thumb of the hand holding the device to secure the cap on the syringe.

Video:
https://youtu.be/kYfy5xHa8G4?si=sQdkdcNKTORI796N

Vanderbilt University Medical Center, Using Sharps Safely in the Lab
https://www.vumc.org/safety/bio/using-sharps-in-lab

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Safe Disposal

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- Contaminated needles and other disposable sharps (e.g., scalpel blades, orthodontic wires, and broken glass) must be placed into a sharp's container at point of use
- The sharps container must be puncture-resistant, closable, leak-proof, and color-coded or labeled with the biohazard symbol
- Sharps containers must be located as close as possible to the place of immediate disposal
- Do not cut, bend, or break the needles before disposal
- Never attempt to remove a needle from a disposable syringe

Robinson, D.S. (2024). Modern dental assisting (14th ed.). Elsevier.

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Selecting, Evaluating, and Using Sharps Disposal Containers

U.S. Department of Health and Human Services
Public Health Service
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health
Atlanta, Georgia

January 1998

DHHS (NIOSH) Publication No. 97-111

Selecting, Evaluating, and Using Sharps Disposal Containers, NIOSH January 1998 https://stacks.cdc.gov/view/cdc/6386

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If eye level equals 57 inches and the modified MTTR is used,

fixture height = 57 inches – (.2679)(18.7 inches)
and
fixture height = 57 inches – (.2679)(3.7 inches)

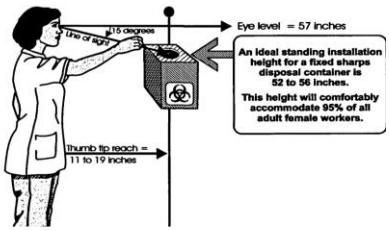
Therefore,

fixture height = 57 inches – 5 inches = 52 inches
and
fixture height = 57 inches – 1 inch = 56 inches

The optimal installation heights for fixed, wall-mounted sharps disposal containers are

Standing workstation:[†,‡]
52 to 56 inches above the standing surface of the user (Figure 1)

Seated workstation:[‡]
38 to 42 inches above the floor on which the chai



MTTR= the distance from the tip of the thumb to the shoulder

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OSHA FactSheet

Protecting Yourself When Handling Contaminated Sharps

OSHA: Employers must ensure that contaminated sharps are disposed of in sharps disposal containers immediately or as soon as feasible after use.
https://www.osha.gov/sites/default/files/publications/bbfact02.pdf

This presenter is of the opinion that this should be interpreted as in the operatory, or at the point of use.

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Work Practice Controls

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Basics of Sharps Awareness

<u>During a procedure:</u>

Maintain visual contact with sharps

Be aware of nearby personnel

Control the location of sharps to avoid injury

Activate the safety feature of devices as soon as procedure is completed

<u>After the procedure</u>:

Check procedure trays and waste materials for exposed sharps before handling (remove and dispose properly)

Transport <u>reusable</u> sharps in a closed, labeled container

Secure the container to prevent spilling contents.

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Use of Neutral Zone

- Teamwork is essential in any operatory
- Hand-to-hand passing has been associated with scalpel blade injuries
- The Neutral Zone is a designated area where sharps only may be placed and retrieved
- Reduces the occurrence of percutaneous injuries

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Criteria of a Neutral Zone

- Select and designate a Neutral Zone before the first incision/injection is made
- The Neutral Zone is reserved for sharps only
- Only one sharps at a time should occupy the Neutral Zone
- The assistant announces the sharp by name and leaves it in the Neutral Zone in a position ready for use
- The Neutral Zone may be relocated to accommodate the surgeon's needs

CDC Neutral Zone: Transferring Sharps Safety
https://archive.cdc.gov/www_cdc_gov/nora/councils/hcsa/stopsticks/pdfs/wk-3-newsletter-neutral-zone-final.pdf

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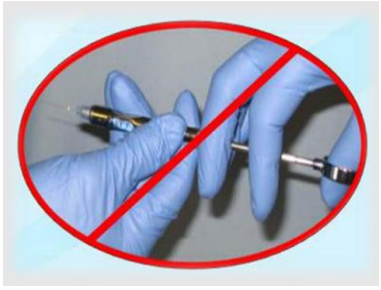
Managing the injection/ anesthetic



Do not pass a syringe with an unsheathed needle

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Injection Safety

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What are safe injection practices?

- Safe injection practices are actions healthcare providers should follow when performing medical injections. A safe injection does not harm the recipient or expose the healthcare provider to avoidable risks.
- Healthcare providers should never reuse a needle or syringe on more than one patient. Providers must discard both needles and syringes once used. Reusing the needle and/or syringe is unsafe and can spread disease.
- Unsafe injection practices can occur during:

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Recognize Situations That Can Lead to Unsafe Injection Practices

- Administration of anesthetics (drugs to decrease the feeling of pain or eliminate it) for outpatient surgical, diagnostic and pain management procedures.
- Administration of intravenous (IV) medications for chemotherapy, cosmetic procedures and alternative medicine therapies.
- Use of saline to flush IV lines and catheters.
- Administration of vaccines

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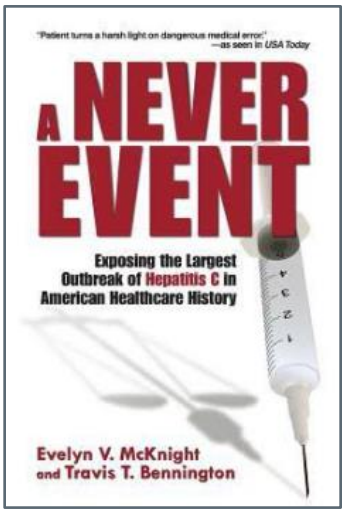
Why?

Unsafe injections can spread diseases like hepatitis C, hepatitis B, bacterial and fungal diseases, and possibly HIV if injection equipment, like needles or syringes, is reused on more than one patient or to access vials that are shared between patients.



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Injection Safety	Practice Performed?
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

Safe Injection Checklist, CDC https://www.cdc.gov/injection-safety/media/pdfs/Safe-Injection-Checklist-P.pdf

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SUMMARY

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Work practices associated with the risk of sharps-related injury:
BAD

- Not using safety-engineered sharps or using them incorrectly
- Recapping needles
- Transferring a body fluid between containers
- Failing to dispose of used needles properly in puncture-resistant sharps containers

https://archive.cdc.gov/www_cdc_gov/niosh/newsroom/feature/needlestick_disposal.html

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Work practices to prevent sharps-related injury: **GOOD**

- Avoid the use of needles when safe and effective alternatives are available
- Help your employer select and evaluate devices with safety features that reduce the risk of needlestick injury
- Use devices with safety features provided by your employer
- Avoid recapping needles
- Plan for safe handling and disposal of needles before using them
- Promptly dispose of used needles in conveniently placed and appropriate sharps disposal containers
- Report all needlestick and sharps-related injuries promptly to ensure that you receive appropriate follow-up care
- Tell your employer about any needlestick hazards you observe and promptly reporting any needlesticks and near-misses
- Participate in training related to infection prevention
- Get a hepatitis B vaccination

https://archive.cdc.gov/www_cdc_gov/niosh/newsroom/feature/needlestick_disposal.html

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Bloodborne Pathogens - Overview | Occupational Safety and Health Administration

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Questions?

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