

Protect the most valuable asset at your facility—**YOUR PEOPLE**, by taking the next step in preventing occupational sharps injuries. The Pharmaceutical Biosafety Group has created a **FREE** on-line sharps safety training program. This program is easily customizable for use at your institution. The information is applicable to all industries and work environments where sharps devices are used, including those in an international setting.

On-line Sharps Safety Training Program

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Sharps-borne Hazard Exposure!

Worker was pricked in the arm by a needle from a metallics waste container. The result:

- Wound slow to heal
- Possible infection
- Skin burning

Was the contaminant chemical or biological?

In this program, you will find the answer, plus how to **PROTECT** yourself from sharps-borne hazards!

It's the law. Both the European Union and the United States have passed laws to protect workers from exposure to sharps-borne hazards. The European authorities passed EU Council Directive 2000/54/EC. The United States passed the Needlestick Safety and Prevention Act in November of 2000.

The financial cost of an exposure to sharps-borne hazards can be significant. In the U.S., the Government Accounting Office (GAO) estimates that the cost per exposure ranges from \$500 to \$3,000 US.

How can I protect myself from sharps-borne hazards?

- **Avoid use of sharps.** The best way to avoid a sharps injury is to eliminate their use altogether; e.g., if a needle and syringe is used to transfer a sample, replace it with a non-sharps device such as a plastic-tipped pipettor, a blunt needle, or a plastic transfer pipette.
- **Sharps safety technologies.** A seven year study conducted in France demonstrated how needlesticks dramatically decreased by 48% after implementation of two safety devices.
- **Safe work practices.** Do not clip, recap, or separate needles from syringes; deposit them directly into sharps containers.
- **Observe strict disposal guidelines.**
 1. Proper handling and disposal of needles and other sharps can help prevent injuries.
 2. Broken glassware must be picked up by mechanical means (e.g., with forceps)—never directly with the hands.
- **HBV vaccination.** While HBV vaccine has proven to be highly effective in preventing infection, *no vaccine exists to prevent HCV or HIV infection!*
- **Sharps Safety Devices.** Sharps injuries should not be a “reasonable expectation” of a worker! Review the following devices and plan to implement those which are effective and appropriate for your facility.

Sharps Safety Devices

2ml polystyrene pipettes should be used in place of glass Pasteur Pipettes.

YES—2ml polystyrene pipettes in place of glass Pasteur Pipettes used for tissue culture work and fluid aspiration. Plastic pipettes can't break and thus are not a sharps hazard.

A glass pipette can get stuck in the vacuum tube used to hold it for aspiration. They often break upon removal and cut the users palm. Do not use glass pipettes.

NO! Glass Pipettes

Mylar-wrapped hematocrit tubes should be used in place of glass capillary tubes.

YES—Mylar-wrapped hematocrit tubes in place of glass capillary tubes. Accidental breakage is significantly reduced, particularly when pressing the tube into sealing clay. In the event of breakage, the Mylar® wrapping will help contain the sample (blood) and provide an added layer of protection against cuts from broken glass.

NO! Non-clad hematocrit tube

Plastic inoculation loops should be used in place of self-made glass loops.

YES—plastic disposable inoculation loops in place of flame-forming glass Pasteur Pipettes into inoculation loops. Used to spread colonies on agar plates.

Glass pipettes can break, causing injury and exposure to pathogens. Flaming, to bend pipette, can aerosolize contaminants.

NO! Glass Pipettes

Blades

Disposable scalpels or the **QuickSmart** system in place of removing blades by hand.

YES—Disposable scalpels or QuickSmart in place of removal of scalpel blades by hand. After each use, the scalpel is inserted blade first into the QuickSmart. The blade is automatically removed with no need to touch the contaminated blade with hands.

NO! Hand removal of blade

Disposable microtome blades—in place of reusable microtome blades.

YES—Disposable microtome blades. Greatly reduces the amount of hand contact with the blade. No need to sharpen, just dispose when dull. No need to clean in between use, just replace blade. Blade dispenser allows for installing and removing blade without touching it.

Blades come with several coatings depending on need: ultra-thin sectioning, longevity cutting edge, or hard tissue decalcified bone.

NO! Reusable microtome blade

Holders for razor blades in place of loose razor blades.

YES—Holders for razor blades in place of loose razor blades left laying on counter tops.

NO! Loose razor blades

Needles

Safety needle in place of standard needle.

YES—Venipuncture Needle-Pro in place of standard needle and vacuum tube holder used for phlebotomy. The needle sheath snaps over the needle protecting the user and downstream handlers.

NO! Standard needle

Safety needle in place of standard needle.

YES—SafetyGlide BD in place of standard needle used for transfer and injection of hazardous materials.

This gliding sheath safety needle can be used on any syringe and comes separate from the syringe.

I.V. Catheter safety system in place of standard I.V. Catheter.

YES—Saf-T-Intima I.V. catheter safety system in place of standard I.V. Catheter. Reduced vein irritation for humans and animals. Needle completely removed once vein is accessed.

Point Lok safety system—for use with any needle

YES—Point-Lok. Locks onto and contains any contaminated needle.

For use with any needle that does not have a built in safety feature.

Safety needle and syringe in place of standard needle.

YES—Vanish Point® Safety Needle System—in place of standard needle and syringe.

The VanishPoint® syringe, unlike any other syringe on the market, retracts its needle directly from the patient into the barrel of the device, once the injection is complete.

Consider how you would answer the following questions...

What sharps are used in your workplace?

What are the potential contaminants these sharps are used with?

What are some sharps hazard controls that are presently in use at your facility?

Sharps injuries can be life threatening.

The following documented cases (Ippolito, 1999) are a sobering reminder that *all* individuals working with human blood are at risk.

Country	Occupation	Exposure circumstance	Time between exposure and becoming HIV antibody positive
United States	Lab worker	Cut by a vial containing blood	7 weeks
France	Cleaner	Needle injury from abandoned needle	253 days
United States	Pathologist	Deep scalpel injury with profuse bleeding while performing autopsy	6 weeks
Italy	Housekeeper	Mucous contamination of the conjunctiva with residual blood samples from chemistry lab (six samples were from HIV infected patients)	53 days
United States	Lab Worker	<i>First incident: laceration</i> of the hand while handling blood sample of a multi-transfused leukemia patient. <i>Second incident: laceration</i> from a capillary tube containing platelets from a pooled sample from 16 donors.	Individual was HIV positive upon subsequent testing (seroconversion event not observed)
Canada	Lab worker (biochemist)	During a long career, worked with blood and blood products in several laboratories; recalled numerous incidents that could have resulted in HIV infection	Individual was HIV positive upon subsequent testing (seroconversion event not observed)

Conclusion

The worker whose arm was exposed to a chemical sharps-borne hazard (shown in the first picture) was not properly protected from sharps-borne hazards. Don't let this happen to a worker at your facility. Can you identify sharps-borne hazard controls or devices from this program that you can use at your facility? *Update* your Sharps-Borne Hazard Control Program to protect the most valuable asset at your facility— **YOUR PEOPLE!**

References

1. Giuseppe Ippolito, et al. Occupational Human Immunodeficiency Virus Infection in Health Care Workers: Worldwide Cases Through September 1997. *Clinical Infectious Diseases* 1999;28:365-83.
2. James D. Ramsey. Needlestick Injuries – The scope of the problem and possible solutions. *Professional Safety* December 2004; 20-25.
3. ALERT Preventing Needlestick Injuries in Health Care Settings. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH). DHHS (NIOSH) November 1999; Publication No. 2000-108.
4. Safer Needle Devices: Protecting Health Care Workers. Prepared by the Occupational Safety and Health Administration (OSHA) Directorate of Technical Support, Office of Occupational Health Nursing October 1997.