

Slide 1 — Welcome to Safe Injection Practices: Protecting Yourself and Your Patients. A Bloodborne Pathogens Training Activity.

This training will provide you with important injection safety information and resources that will help you, your colleagues, and your patients avoid the risk of infection from bloodborne pathogens. Click on the bracketed reference numbers to view the references for this module. Click the “Next” button to advance the lesson.

Slide 2 — This training activity is supplemental to the required annual bloodborne pathogens training for physicians, nurses, emergency and other medical technicians, aides, and assistants who are charged with the care of patients. The material reviewed here is especially important for any healthcare provider who prepares or administers injections to patients.

The Occupational Safety and Health Administration, or OSHA, requires training in the epidemiology of bloodborne pathogens and mitigating healthcare personnel exposures. Healthcare provider and patient protections go hand in hand—measures that healthcare providers take to protect themselves from bloodborne pathogens and other infection exposures also protect patients from healthcare-associated infections.

Slide 3 — Unsafe injection practices pose risks to both patients and healthcare providers. Bloodborne pathogens and other serious infections are readily spread by the improper use of syringes, needles, and medication vials. This has been demonstrated time and again in outbreak investigations conducted by the Centers for Disease Control and Prevention, or C-D-C, and state and local health departments. This map displays over 40 outbreaks associated with unsafe injection practices in U.S. healthcare settings from 2001 through June 2012. Many hundreds of patients were documented as having become infected in these outbreaks. Many more outbreaks likely go unrecognized, and the problem is suspected to be more widespread than is currently understood.

Unsafe injection practices put patients and healthcare providers at risk of infectious and non-infectious adverse events. These practices have been identified in a wide variety of procedures and settings. Two points bear emphasis here: First, this harm is entirely preventable. Second, injection safety is every provider's responsibility. Keep yourself, your peers, and your patients safe.

Slide 4 — Patient and provider impacts go beyond the identified outbreaks and documented infections.

Improper use of syringes and needles has also resulted in: (1) subsequent notification of thousands of patients of their potential exposure to bloodborne pathogens, advising that they undergo testing for hepatitis B, hepatitis C, and H-I-V; (2) referral of providers to licensing boards for disciplinary action; (3) malpractice suits filed by patients; and (4) the loss of public confidence in healthcare institutions.^{[1][2]} These unfortunate events serve as a reminder of the serious consequences of the failure to maintain strict adherence to safe injection practices during patient care.

Slide 5 — Let's review some terms and definitions that are used throughout this training module. Click on an image or term to read its definition.

Bloodborne pathogens are infectious microorganisms that may be present in human blood and that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus, or H-B-V; hepatitis C virus, or H-C-V; and human immunodeficiency virus, or H-I-V. Infections can be transmitted when human blood or body fluid comes in contact with the bloodstream, mucous membranes, or non-intact skin as a result of an injection, infusion, splash, needlestick, cut, or sharps injury.

Healthcare providers are healthcare workers and personnel charged with the care of patients, including those providing injections to patients. Healthcare providers include physicians, nurses, medical technicians, aides, attendants, and other medical professionals, as well as students in training and volunteers.

Safe injection practices are a set of measures to perform injections in an optimally safe manner for patients, healthcare providers, and others. 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.

Slide 6 — Safe injection practices are integral to **Standard Precautions**, a set of guidelines issued by C-D-C.

Standard Precautions are the minimum infection prevention practices that apply to all patient care, regardless of the suspected or confirmed infection status of the patient, in any setting where healthcare is delivered.^[3] These practices are aimed at protecting patients—as well as healthcare providers—from the spread of infections. Standard Precautions include hand hygiene; use of personal protective equipment, such as gloves, gowns, and masks; safe injection practices; safe handling of potentially contaminated equipment or surfaces in the patient environment; and respiratory hygiene and cough etiquette.

Slide 7 — Across healthcare, the greatest risks for transmission of bloodborne pathogens occur in association with equipment such as medication vials, syringes, and needles that are used during the administration of parenteral medications. Intravenous injections and infusions involve contact with a patient's bloodstream. Thus, all materials that are used to deliver the medication—such as syringes, needles, and I-V tubing—are prone to blood contamination. Examples of procedures that fall into this category include flushing I-V lines or catheters and administering I-V medications such as chemotherapy and anesthesia. Reuse of contaminated equipment, whether intentional or not, can expose patients to infectious blood. Bloodborne pathogen risks are also present with other types of injection procedures, including those involving intramuscular, subcutaneous, or other administration routes, as well as in blood collection procedures, including capillary fingerstick blood sampling.

Slide 8 — Healthcare personnel may be exposed to bloodborne pathogens when they administer injections; for example, as a result of a needlestick injury. In general, risks increase with the volume of blood involved with the exposure. It is important to note, however, that even microscopic, invisible quantities of blood may be capable of causing an infection.

C-D-C has estimated that each year, 385,000 needlesticks and other sharps-related injuries are sustained by hospital-based healthcare personnel.

To help healthcare facilities prevent needlesticks and other sharps-related injuries to healthcare personnel, C-D-C has developed the *Workbook for Designing, Implementing, and Evaluating a Sharps Injury Prevention Program*.^[4] The workbook can be used by healthcare organizations to help design, launch, and maintain a sharps injury prevention program or to enhance existing activities and programs.

Slide 9 — Another significant—but under-recognized—workplace hazard pertains to injectable narcotics. Hundreds of patients worldwide have become infected with hepatitis C as a result of narcotics tampering by addicted healthcare providers. In the U.S., outbreaks have been traced to swapping a used “decoy” syringe for an unused patient syringe filled with Fentanyl ahead of the patient’s procedure. Believe it or not, some healthcare providers have become infected with bloodborne pathogens after they accessed used patient narcotics; for example, from diverting controlled substances such as Fentanyl following patient administration, even scavenging biohazardous waste.

All healthcare personnel must be vigilant for signs of possible diversion and do their part to maintain strict narcotics security along the entire supply chain, including safe, secure disposal.^{[5][6]}

Slide 10 — OSHA issued a Bloodborne Pathogens Standard in 1991 to support prevention of occupational exposure to bloodborne pathogens among healthcare personnel.^[7] This regulation requires that all providers establish a bloodborne pathogens exposure control plan and update the plan annually. This entails a detailed review of procedures and care practices that could expose personnel to blood or other blood-contaminated fluids, substances, equipment, or materials. While not required, facilities may wish to consider integrating narcotics security into exposure control plans.

The OSHA Standard also requires that all providers implement the use of Standard Precautions and treat all potentially infectious body fluids as if a bloodborne pathogen is present.

In November 2000, OSHA revised the Bloodborne Pathogens Standard to include the “Needlestick Safety and Prevention Act” passed by Congress. This amendment mandates that employers must identify and use engineering controls, such as sharps with engineered sharps injury protection and needleless systems.

Both CDC’s Standard Precautions and the OSHA Bloodborne Pathogens Standard emphasize the use of personal protective equipment, such as gloves, gowns, eye protection, and masks. It is important for providers to remember that appropriate and consistent use of personal protection equipment is essential for their self-protection AND their patient’s protection. An obvious example pertains to changing gloves (and performing hand hygiene) between patient encounters. Healthcare providers may feel that so long as they are wearing gloves, they are protected and may lose sight of the need to change gloves between patients. Another example was highlighted in a recent CDC Clinical Reminder stating spinal injection procedures performed without a facemask pose a risk for bacterial meningitis in patients undergoing the procedure.^[8]

The OSHA Standard requires that all healthcare employers offer hepatitis B vaccinations to all healthcare providers with potential occupational exposure to blood or other potentially infectious material and make

available post-exposure evaluation and follow-up to any healthcare provider after a blood or other potentially infectious material exposure incident.

Adherence to the OSHA Standard protects you—the healthcare provider—and your patients.

Slide 11 — Over the past few years, experts representing all facets of healthcare—from nurses to product engineers—have been discussing the question “Can we make the systems failsafe to eliminate human error?” In April 2011, a meeting titled *Safer Designs for Safer Injections: Innovations in Process, Products and Practices* brought together nearly 200 stakeholders representing government, public health, clinicians, patients, product manufacturers and suppliers, and professional, accreditation, and other healthcare-related organizations.^[9]

Stakeholders recommended that healthcare facilities connect injection safety for patients, needlestick injury prevention for healthcare providers, including the adoption and use of needleless connector technology, and reduction of medication errors into an overall effort to build safer delivery systems. Components of safer systems could include right-sized medication vials, prefilled syringes, and other measures to reduce the need for handling and sharing medication containers in the patient care environment.

Slide 12 — Bloodborne pathogens can be spread from patient to patient when simple precautions are not followed. The reuse of syringes and needles can transmit infectious diseases such as hepatitis C virus. The syringe does not have to be used on multiple patients for this to occur.^[10]

This visual helps review how bloodborne pathogens can be spread. First, a new needle and syringe are used to draw medication. When used on an H-C-V-infected patient, backflow from the injection contaminates the syringe. Changing the needle does not prevent contamination of the syringe. When reused to obtain medication, the contaminated syringe transfers H-C-V to the medication vial. If the contaminated vial is used for other

patients, they can become infected with H-C-V. Keep in mind that changing the needle is also unsafe for healthcare providers, as it increases the chances of needlestick injury.

Slide 13 — As we've seen, injection safety and other basic infection prevention and control practices are central to patient and healthcare provider safety. As a healthcare provider, you are urged to carefully review your injection practices as well as the practices of all staff under your supervision. This is absolutely essential if you have delegated any aspect of medication preparation or administration to staff members. They need to practice in a manner that does not expose themselves—or your patients—to any avoidable harm.

In particular, you should ensure that your staff never administers medications from the same syringe to more than one patient.

Let your staff know that after a syringe or needle has been used to enter or connect to a patient's I-V, it is contaminated and should not be used on another patient or to enter a medication vial.

Separating needles from syringes after administering an injection is rarely indicated and puts staff at risk for needlestick injury.

The use of sharps with engineered sharps injury protection should also be included as a safe injection practice.

Slide 14 — Remind staff that medications packaged as single-dose vials should not be used for more than one patient.

Whenever possible, assign medications packaged as multi-dose vials to a single patient.

Bags or bottles of intravenous solution should not be used as a common source of supply for more than one patient.

Slide 15 — Remind staff to perform hand hygiene prior to preparing or administering injections, maintaining good aseptic technique throughout.

Staff should wear a surgical mask when placing a catheter or injecting materials into the spinal canal or subdural space.

Finally, all healthcare institutions should have a system to identify suspected drug diversion in addition to an effective protocol to respond to any confirmed cases of drug diversion.

Slide 16 — You've just learned some very important information about safe injection practices. How well do you know the facts? Indicate whether the following statements are fact or fiction.

Standard Precautions, a set of C-D-C guidelines, includes the minimum infection prevention practices for patient care in any healthcare setting.

FACT: Standard Precautions include hand hygiene; use of personal protective equipment; safe injection practices; safe handling of potentially contaminated equipment or surfaces in the patient environment; and respiratory hygiene and cough etiquette.

Slide 17 — Appropriate and consistent use of personal protection equipment is essential for healthcare providers' self-protection and patient protection.

FACT: Proper use of healthcare provider personal protection equipment protects both healthcare providers and patients from disease transmission. Examples include appropriate use of gloves and facemasks. Healthcare providers may feel that so long as they are wearing gloves, they are protected and may lose sight of the need to change gloves between patients.

Slide 18 — Never prepare or store medication where injection equipment is discarded or injections are being administered.

FACT: There is a risk of contamination when medications are prepared or stored where injection equipment is discarded or injections are being administered.

Slide 19— Narcotics diversion in healthcare settings poses a significant hazard to healthcare providers and patients.

FACT: While under-recognized, injectable narcotics are a significant workplace hazard. All healthcare personnel should report their observations to the appropriate person according to their institutional policy and must be vigilant for signs of possible diversion. Healthcare personnel should do their part to maintain strict narcotics security along the entire supply chain, including safe, secure disposal. In fact, more than 4 percent of healthcare providers have acknowledged illicit drug use,^[6] so if you see a healthcare professional engaging in suspicious activity, stop the immediate practice and report the incident.

Slide 20 — Healthcare facilities may wish to include information about narcotics security and safe vial handling in exposure control plans for healthcare provider bloodborne pathogens exposures.

FACT: Bloodborne pathogens exposure control plans are a requirement under OSHA. Updated annually, these plans document a detailed review of procedures and care practices that could expose healthcare personnel to blood or other blood-contaminated fluids, substances, equipment, or materials. The risk of bloodborne pathogen disease transmission to healthcare personnel and patients when healthcare personnel divert narcotics should not be minimized. While not required, facilities may wish to consider integrating narcotics security into exposure control plans.

Slide 21 — You have just learned important information about safe injection practices. In addition to the resources cited throughout this training, check out the many useful training resources and materials available at the *One & Only Campaign's* Web site: www.oneandonlycampaign.org

The *One & Only Campaign* is a public health campaign, led by C-D-C and the Safe Injection Practices Coalition, to raise awareness among patients and healthcare providers about safe injection practices.^[11] The campaign aims to eradicate outbreaks resulting from unsafe injection practices.

Slide 22 — Remember: One needle, one syringe, only one time.