OSHA and Bloodborne Pathogens
A Training Module
In this Module You will Learn:

- Hand Hygiene
- General OSHA Safety Standards
- Bloodborne Pathogen Standards
- Management of Exposure to Bloodborne Pathogens
- Hazard Communication Standard
Hand Hygiene
Importance

The U.S. Centers for Disease Control and Prevention’s Hand Hygiene Guidelines Fact Sheet notes that using gloves:

- reduces hand contamination by 70-80%
- prevents cross contamination
- protects patients and healthcare personnel from infection
- is NOT ENOUGH to prevent transmission of pathogens in healthcare settings
- DOES NOT eliminate need for good hand hygiene
<table>
<thead>
<tr>
<th>Method</th>
<th>Agent</th>
<th>Purpose</th>
<th>Duration (minimum)</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine handwash</td>
<td>Water and non-antimicrobial soap (e.g., plain soap)</td>
<td>Remove soil and transient microorganisms</td>
<td>15 seconds</td>
<td>Before and after treating each patient (e.g., before glove placement and after glove removal). After barehanded touching of inanimate objects likely to be contaminated by blood or saliva. Before leaving the dental operatory or the dental laboratory. When visibly soiled.</td>
</tr>
<tr>
<td>Antiseptic handwash</td>
<td>Water and antimicrobial soap (e.g., chlorhexidine, iodine and iodophors, chloroxylenol [PCMX], triclosan)</td>
<td>Remove or destroy transient microorganisms and reduce resident flora</td>
<td>15 seconds</td>
<td></td>
</tr>
<tr>
<td>Antiseptic hand rub</td>
<td>Alcohol-based hand rub</td>
<td>Remove or destroy transient microorganisms and reduce resident flora</td>
<td>Rub hands until the agent is dry</td>
<td></td>
</tr>
<tr>
<td>Surgical antisepsis</td>
<td>Water and antimicrobial soap (e.g., chlorhexidine, iodine and iodophors, chloroxylenol [PCMX], triclosan)</td>
<td>Remove or destroy transient microorganisms and reduce resident flora (persistent effect)</td>
<td>2–6 minutes</td>
<td>Before regloving after removing gloves that are torn, cut, or punctured.</td>
</tr>
<tr>
<td></td>
<td>Water and non-antimicrobial soap (e.g., plain soap) followed by an alcohol-based surgical hand-scrub product with persistent activity</td>
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</tr>
</tbody>
</table>
**HANDWASHING**

1. Wet hands with water.
2. Apply soap.
3. Rub hands together for at least 15 seconds, covering all surfaces, focusing on fingertips and fingernails.
4. Rinse under running water and dry with disposable towel.
5. Use the towel to turn off the faucet.

**HAND RUB**

(foam and gel)

1. Apply to palm of one hand (the amount used depends on specific hand rub product).
2. Rub hands together, covering all surfaces, focusing in particular on the fingertips and fingernails, until dry. Use enough rub to require at least 15 seconds to dry. Then put on your gloves. If your hands dry in less than 15 seconds, you most likely have not applied enough of the product.
General Hand Hygiene Terms

Hand Hygiene applies to either handwashing, antiseptic hand wash, antiseptic hand rub, or surgical hand antisepsis

- Visibly soiled hands show visible dirt or visibly contaminated with proteinaceous material, blood, or other bodily fluids
- Handwashing is washing hands with plain (i.e., non-antimicrobial) soap and water
- Hand antisepsis refers to either antiseptic hand wash or antiseptic hand rub
- Surgical hand antisepsis is an antiseptic hand wash or antiseptic hand rub performed preoperatively by surgical personnel to eliminate transient flora and reduce resident hand flora for the duration of a procedure to prevent the introduction of organisms in the operative wound, if gloves become torn or punctured

Alcohol based hand rub is an alcohol-containing preparation designed for application to the hands for reducing the number of viable microorganisms on the hands
Compounds that possess a cleaning action:

- Have both hydrophilic and lipophilic parts
- Can be divided into four groups:
  - Anionic
  - Cationic
  - Amphoteric
  - Nonionic

In health-care settings, the term “soap” is used to refer to various detergent types in the [CDC] guideline:

- Antimicrobial Soap contains an antiseptic agent
- Plain Soap refers to detergents that do not contain antimicrobial agents or contain low concentrations of antimicrobial agents that are effective solely as preservatives
Antiseptic Agent

Antimicrobial substances applied to the skin reduce the number of microbial flora

<table>
<thead>
<tr>
<th>Alcohols</th>
<th>Chlorhexidine</th>
<th>Chlorine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexachlorophrene</td>
<td>Iodine</td>
<td>Chloroxylenol (PCMX)</td>
</tr>
<tr>
<td>Quaternary Ammonium Compounds</td>
<td>Triclosan</td>
<td></td>
</tr>
</tbody>
</table>

- Washing hands with water and soap containing an antiseptic agent is an antiseptic hand wash.
- Applying an antiseptic hand-rub product to all surfaces of the hands to reduce the amount of microorganisms present is an antiseptic hand rub.
- Waterless antiseptic agents do not require exogenous water. After applying such an agent, the hands are rubbed together until the agent has dried.
Persistent Activity

• Prolonged or extended antimicrobial activity that prevents or inhibits the proliferation or survival of microorganisms after application of the product

• May be demonstrated by sampling a site several minutes or hours after application and demonstrating bacterial antimicrobial effectiveness when compared with a baseline
  • Property referred to as “residual activity”

• Substantive and non-substantive active ingredients can show persistent effect if they substantially lower the number of bacteria during the wash period
Methods of Implementation and Control

- Universal Precautions
  - All staff

- Exposure Control Plan
  - Available for all staff to review at any time during their work shifts by contacting the Clinical Director

- Personal Protective Equipment
  - Eyewear with shields or full face shields
  - Masks
  - Gloves
  - Lab coat with long sleeves

- Work Practices
  - Removing the sharps to the sharps container ASAP after use
  - Careful instrument passing
  - Know where your sharps are
  - Use cotton pliers and hemostats to handle sharps
General Safety Standards and OSHA Overview
Pathway to Health’s Responsibilities

Provide reasonable protections against known workplace hazards

• Training specific to any significant hazards to which you are exposed i.e., bloodborne pathogens or hazardous chemicals
  • This training will be provided at no cost to the volunteer by someone who is familiar with the standards in the dental industry

• Personal Protective Equipment

• Exposure Control Plan that is accessible to volunteers
State Laws and Regulations

State plan requirements must be at least as stringent as federal OSHA regulations. Twenty-six states and territories have their own OSHA plans in addition to the federal OSHA regulations.
Dental and Medical Directors/Logistics Director
Responsibilities

• Make sure OSHA standards are being kept
  • General Safety Standards (common sense such as)
    • First aid trained individuals
    • Compressed gas cylinders secured to prevent being knocked over
    • Eyewash station
    • Machines that create potential hazards adequately guarded
    • Electrical outlets/appliances properly grounded
    • Volunteers know how to evacuate the building in case of an emergency
Bloodborne Pathogens Standard
Infectious Disease Process

To be transmitted, infectious diseases need:

- a causative agent
- a susceptible host
- a mode of transmission

Causative agent - any microorganism capable of causing disease

Susceptible host - a person who lacks effective resistance to a particular pathogenic agent

- Every volunteer is a potential host

Modes of transmission - the way that an infectious agent is transferred to a susceptible host

- parenteral exposure (piercing skin barrier)
  - poses greatest risk of infection
- contact with mucous membranes such as eyes
- contact with skin
Precautions and Practice Controls

Application of standard precautions reduces the risk of transmission of bloodborne pathogens. Aspects include:

- frequent handwashing
- proper handling and disposal of contaminated needles
- use of gloves and other Personal Protective Equipment

- Engineering and Work Practice Controls
  - Sharps containers
  - Safer needle devices
  - Rubber dams
  - High-volume evacuators
  - Positioning patient properly to minimize splashing/spraying
Personal Protective Equipment

• Includes, but is not limited to:
  • Gloves
  • Gowns
  • Laboratory coats/Clinic jackets
  • Face shield/mask
  • Eye protection

• Staff members are provided with appropriate PPE at no cost
Gloves

Gloves must be worn whenever you anticipate contact with:

- Blood
- Saliva
- Mucous membranes
- Blood-contaminated objects or surfaces

Types of Gloves

- Disposable latex gloves
  - Sterile and non-sterile
- Disposable vinyl gloves
  - Sterile and non-sterile
- Utility gloves
Face Personal Protective Equipment

Masks must be worn whenever splashes, spray, spatter, or droplets of blood/other potentially infectious materials may be generated and nose/mouth contamination can reasonably be anticipated.

Protective eyewear with solid side shields must be worn to shield the mucous membranes of the eyes from projectiles and spatter of blood and saliva.

Chin length face shields may be worn in place of eyewear.

If the amount of spatter is anticipated to be great, goggles may be preferred over traditional eyewear.

The Bloodborne Pathogens Standard specifies that if prescription glasses are worn as protective eyewear, they should be fitted with solid side shields.

Eyewear should be cleaned as necessary.
Gowns and Other Protective Clothing

Additional personal protective clothing, such as surgical caps or boots, may be required when gross contamination can be reasonably anticipated.

Although clothing has not been shown to transmit bloodborne infections, you should change your gown whenever it has been sprayed with saliva, blood, or is visibly soiled.

All PPE must be removed before volunteers leave the dental or medical/surgical area.
Housekeeping

Cleaning and decontamination of all equipment and environmental/work surfaces after contact with blood or other potentially infectious materials.

Contaminated work surfaces must be decontaminated with an appropriate disinfectant after completion of procedures.

Reusable bins, pails, cans, and other similar receptacles contaminated with blood or other potentially infectious materials must be inspected and decontaminated.

Spills of blood or other potentially infectious materials must be wiped up immediately.

Disinfectants are chemical germicides that are approved for use as hospital disinfectants and are tuberculocidal when used at recommended dilutions.

Volunteers must wear utility gloves when cleaning contaminated equipment/surfaces.

Broken/contaminated glassware may NEVER be picked up by hand, even if gloves are used.

All regulated waste is disposed of according to applicable local, state, and federal laws, and to be handled by licensed provider ONLY.
Eating and Drinking

Activities prohibited in work areas with a reasonable likelihood of occupational exposure:

- Eating
- Drinking
- Smoking
- Applying cosmetics/lip balm
- Handling contact lenses
Hepatitis B Virus

Hepatitis B is a hazard for health care workers and is of particular concern to dental staff. Although the rate of HBV infection is low among adults in the United States (1%-2%), surveys have indicated that approximately 8.5% of dental workers show evidence of past or present HBV infection.

Pathway to Health is mandated to offer the hepatitis B vaccine to volunteers who are potentially exposed to blood or other potentially infectious materials at work.
Management of Exposure
Management of Occupational Blood Exposures

- Inform Department Director, Report to Medical Director for Evaluation.
- Provide immediate care to exposure site
- Evaluate exposure
- Give post-exposure prophylaxis (PEP) for exposures posing risk of infection transmission
- Perform follow-up testing and provide counseling
## Recommended HBV PEP

<table>
<thead>
<tr>
<th>Vaccination and antibody response status of exposed worker</th>
<th>Treatment when source is found to be:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HBsAg Positive</td>
<td>HBsAg Negative</td>
</tr>
<tr>
<td>Unvaccinated</td>
<td>HBIGx1 and initiate hepatitis B vaccine series</td>
<td>Initiate hepatitis B vaccine series</td>
</tr>
<tr>
<td>Previously vaccinated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Known responder</td>
<td>No treatment</td>
<td>No treatment</td>
</tr>
<tr>
<td>Known non-responder</td>
<td>HBIGx1 and initiate re-vaccination or HBIGx2</td>
<td>No treatment</td>
</tr>
<tr>
<td>Antibody response unknown</td>
<td>Test exposed for anti-HBs:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. If adequate, no treatment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. If inadequate, HBIGx1 and vaccine booster</td>
<td></td>
</tr>
</tbody>
</table>


### Recommended HIV PEP

#### Percutaneous injuries

<table>
<thead>
<tr>
<th>Exposure type</th>
<th>Infection status of the source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HIV-positive, Class 1 Asymptomatic HIV infection or known low viral load</td>
</tr>
<tr>
<td>Less severe (solid needle, superficial injury)</td>
<td>Recommend expanded 2-drug PEP</td>
</tr>
<tr>
<td>More severe (large-bore hollow needle, deep puncture, visible blood on device, or needle used in patient's artery or vein)</td>
<td>Recommend expanded 3-drug PEP</td>
</tr>
<tr>
<td></td>
<td>Source of unknown HIV status (deceased source person with no samples available for HIV testing)</td>
</tr>
<tr>
<td></td>
<td>Unknown source (a needle from a sharps disposal container)</td>
</tr>
<tr>
<td></td>
<td>HIV-negative</td>
</tr>
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#### Mucous membrane exposures and non-intact skin exposures

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<td></td>
<td>Source of unknown HIV status (deceased source person with no samples available for HIV testing)</td>
</tr>
<tr>
<td></td>
<td>Unknown source (splash from inappropriately disposed blood)</td>
</tr>
<tr>
<td></td>
<td>HIV-negative</td>
</tr>
</tbody>
</table>

| Small volume (few drops)                          | Recommend expanded 2-drug PEP                                                               |
|                                                   | Generally, no PEP warrented                                                               |
|                                                   | No PEP warrented                                                                           |

| Large volume (major blood splash)                 | Recommend expanded 2-drug PEP                                                               |
|                                                   | Generally, no PEP warrented                                                               |
|                                                   | No PEP warrented                                                                           |
Volunteers who have had an exposure incident must be offered a prompt post-exposure evaluation and follow-up, free of charge, from Pathway to Health.

This is to be handled by the Logistics Manager, Dental Director, Medical Director, and Event Director.

There is also a risk of HIV exposure for dental workers, though the is lower than the risk of contracting hepatitis B.
When Involved in Exposure Incident:

• Make a written report of the incident
• Refer the exposed volunteer to a qualified healthcare professional for post-exposure evaluation and follow-up
• Attempt to identify the source individual
• Provide healthcare professional with copy of incident report
• Obtain from healthcare professional a statement that the evaluation was completed and that the exposed volunteer were informed of any necessary follow-up
• If post-exposure evaluation and follow-up were refused, the refusal will be documented
• The circumstances of the exposure incident will be reviewed to determine if procedures, protocols, and/or training need to be revised to prevent the incident from happening again
Biohazard Labels

• Labels are provided by the logistics manager

• Labels should be affixed/attached as closely as possible to the container, so that there is no possibility of loss. Alternatively, labels can be imprinted on the container or bag

• Red bags or red containers may be substituted for labels

• Regulated waste that has been decontaminated need not be labeled or placed in red bags
  • Autoclaved waste would not be labeled

• Place biohazard labels on containers of regulated waste (i.e., sharps containers)

• Label or color-code laundry contaminated with blood or other potentially infectious materials
Hazard Communication Standard
A Material Safety Data Sheet (MSDS) is a detailed information bulletin prepared by the manufacturer or importer of a product that contains a chemical considered hazardous. It describes, among other things:

- physical and chemical properties of chemical
- physical and health hazards associated with its use
- routes of exposure
- precautions for safe handling and use
- emergency and first aid measures
- spill and leak procedures and control measures

Your supervisor must obtain and maintain an MSDS for EACH product that contains a hazardous chemical used in the workplace. Supervisors can expect to receive this information the first time they purchase the material containing this chemical and with the first shipment after the MSDS is updated.

All dental staff should know where the event’s MSDSs are kept, and supervisors must ensure that MSDSs are readily accessible during each work shift to volunteers when they are in their work area(s).

Electronic MSDSs are permitted as long as volunteers can still access the sheets immediately in the workplace.
OSHA requires that Pathway to Health’s Directors or compliance manager develop a list of the hazardous chemicals known to be present at the event.

This information should be taken from the MSDSs in your files.

This list of chemicals will be part of the event’s written hazard communication program.

Products containing hazardous chemicals must be labeled unless the chemical is transferred to a secondary container for immediate use.