Minimum Standards for Infection Control

Appplies to all dental healthcare personnel (DHCP)
- “...DHCP includes dentists, dental hygienists, dental assistants, dental laboratory technicians, students and trainees, contractual personnel, and other persons not directly involved in patient care but potentially exposed to infectious agents (e.g.; administrative, clerical, housekeeping, maintenance or volunteer personnel).”
Standard Precautions

Blood and all body fluids, excretions, secretions except sweat considered potentially infectious

The same infection control procedure for all patients every time

Includes hand hygiene, PPE, handling of sharps, sterilization and disinfection

Infection Control Strategies

Vaccinations
Safer work practices
Safer devices

Standard precautions
- Personal protective equipment
- Sterilization
- Disinfection

Vaccinations

- Hepatitis B
- Measles/Mumps/Rubella
- Varicella
- Tdap
- Polio
- Influenza

Other vaccines recommended for locations where diseases not common in US are prevalent (e.g., yellow fever, typhoid)
Hepatitis B Vaccine

A series of three injections
- 0, 1, and 6 months

Post-immunization

HbsAb Anti-body Test
>10 mili – International Units
Consider a booster, repeating the series, or checking for past infection if no antibodies are detected

Booster Injections

CDC does not recommend boosters
- Immune memory remains intact
- Even if antibodies fall below detectible levels
- Only applies to individuals that had post-vaccine testing indicating immune response to the vaccine

Bloodborne Diseases Modes of Transmission

Direct contact with blood and body fluids

Indirect contact with contaminated instruments or surfaces

Contact of mucosa of the eyes, nose or mouth with droplets or spatter
Personal Protective Equipment

Worn whenever there is a potential for:
- Aerosol spray
- Splashing or spattering of:
  - Droplet nuclei
  - Blood
  - Chemical or germicidal agents
  - OPIM

Masks and Protective Eyewear

- Surgical facemasks in combination with face shields or protective eyewear
- Change masks between patients
- Clean and disinfect or reusable face/eye protection between patients

Attire

- Reusable or disposable gown or lab coat
- Under same conditions as other PPE and for disinfection, sterilization and housekeeping procedures involving germicides or contamination
- Changed daily or between patients if moist or soiled
- Remove before leaving patient care or laboratory areas
- Discarded or laundered as per Cal/OSHA
Contaminated Laundry

“Laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.”

- Cal/OSHA Bloodborne Pathogens Rule

Cal/OSHA Laundry Requirement

The employer shall clean, launder, and dispose of personal protective equipment at no cost to the employee
Placed in containers that are labeled or color-coded
Transported in containers that are labeled or color-coded
May be done onsite (by trained employees) or by a professional service (ensure the use of Standard Precautions)

Exam Gloves

For contact with mucous membranes, blood, OPIM
During pre-clinical, clinical, post-clinical and laboratory procedures

Remove and discard gloves that are torn, cut or punctured
Do not wash gloves before or after use
Heavy-duty Gloves

“Chemical-resistant utility gloves when handling hazardous chemicals (in addition to appropriate, task-specific PPE), and when processing contaminated sharp instruments, needles and devices.”

Hand Hygiene – Soap and Water

At the start and end of each workday
If contaminated or visibly soiled
Before placing and after removing gloves (unless using hand sanitizer)

Alcohol-based Hand Sanitizers

Alternative to soap and water
For hands free of debris
Good antimicrobial
Not a cleaning agent

Patient Care Restrictions

Refrain from direct patient care and handling patient care equipment if:
- Weeping dermatitis
- Exudative lesions
- Hand condition making DHCP or patient more susceptible to opportunistic infection or exposure
Needle and Sharp Safety
Post-exposure management

Use Scoop Technique or...

Mechanical Device

Mechanical Devices
Sharps Containers

Disposable needles, syringes, scalpels, ends of orthodontic wires, broken glass, etc.

Close as possible to point of use

Do not bend or break needles for disposal

Evaluate Work Practices

SEEK SAFER WAYS OF DOING THINGS

Placement of sharp items

Retracting tissues with fingers
Handling sharps

Instrument transfers

Exposure Incident
Percutaneous injury
Splash to mucous membrane or nonintact skin
- involving a patient’s blood or saliva

Post-exposure Management
Prompt reporting of injuries
Interview of patient
Testing of patient and exposed worker
Referral for medical counseling
Written report documenting details of incident, including whether or not a safety device was involved
**Postexposure Management for HIV**

- Collect source patient information
  - Types of medications if patient is HIV-positive
- Testing of exposed worker
  - Baseline, 4-6 weeks, 12 weeks, 6 months
- Risk assessment by qualified healthcare professional
- Post-exposure prophylaxis, if indicated by assessment

**Postexposure Management for HBV**

- Vaccinated responders
  - No PEP
- Unvaccinated person
  - HBIG
  - Begin vaccine series
- Vaccinated nonresponder
  - HBIG x2 (or more, if recommended by healthcare provider)

**Postexposure Management for HCV**

- IG, antivirals not recommended for prophylaxis
- Follow-up after needlesticks, sharps, or mucosal exposures to HCV-positive blood
  - Test source for anti-HCV
  - Test worker if source anti-HCV positive
  - Anti-HCV and ALT at baseline and 4-6 months later
  - For earlier diagnosis, HCV RNA at 4-6 weeks
  - Confirm all anti-HCV results with RIBA
- Refer infected worker to specialist for medical evaluation and management

**Instrument Processing**
Spauldings Classification of Instruments

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Reprocessing</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical</td>
<td>Penetrate soft tissue or bone</td>
<td>Sterilization</td>
<td>Surgical instruments, periodontal scalers,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>surgical dental burs</td>
</tr>
<tr>
<td>Semicritical</td>
<td>Contact mucous membranes or non-intact skin</td>
<td>Sterilization or high-level disinfection</td>
<td>Dental mouth mirrors, amalgam condensers,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Handpieces and handpiece components</td>
</tr>
<tr>
<td>Noncritical</td>
<td>Contact intact (unbroken) skin</td>
<td>low-to intermediate-level disinfection</td>
<td>X-ray headzone, facebow</td>
</tr>
</tbody>
</table>

Sterilization of Instruments

Critical and semicritical instruments
- Cleaned
- Heat sterilize
- High level disinfect or sterilize using chemical germicides
- Only if item cannot be heat sterilized
- Discard if disposable

Heat sterilize all high-speed handpieces, low-speed handpieces, rotary components and all other attachments (e.g.: reusable air/water syringe tips, ultrasonic scaler tips, etc.)

Single-use Items

Used for one patient and discarded appropriately
- Disposable prophy angles, prophy cups and brushes,
- Plastic high speed evacuator tips, saliva ejectors,
- Disposable a/w syringe tips, gloves

Instrument Processing Flow

Receiving, cleaning, and decontamination
Preparation and packaging
Sterilization
Storage
Cleaning Before Sterilization
Place instruments in a basket
Cover ultrasonic when in use

Washer/Disinfectors
Suitable for cassettes or baskets

Hand Scrubbing

Drying Instruments
Dry instruments carefully
Remove debris that was not cleaned mechanically
Wear heavy-duty gloves to process instruments
Packaging Instruments

Carefully place instruments in pouch or wrap
Use materials compatible with type of sterilizer

Dating Packs

Critical and semicritical instruments or containers must be wrapped or packaged
Date each package and indicate the specific sterilizer if more than one is used
Remain sealed and stored in a manner that prevents contamination.

Marking Sterilization Packs

Printed Tags: Sharpie Industrial Pen (13601 or 13602)

SPSmedical.com

Loading Sterilizer

Courtesy of Dori Bird
Some common packaging and sterilizer loading practices that are not best practices!

Heat-Based Sterilization

Moist heat (steam) under pressure
- Autoclaving

Dry heat
- Static air (convection, oven-type)
- Forced air (rapid heat transfer)

Unsaturated chemical vapor
- Proprietary formula of alcohol/formaldehyde

Issues with Spaulding’s Classification

“If a semi-critical item is heat sensitive, it shall, at minimum, be processed with high level disinfection and packaged or wrapped upon completion of the disinfection process.” – California Dental Practice Act

Liquid Chemical Sterilant/Disinfectants

“If a semi-critical item is heat sensitive, it shall, at minimum, be processed with high level disinfection and packaged or wrapped upon completion of the disinfection process.” – California Dental Practice Act

Heat tolerant or disposable alternative available for most items
Low Temperature Sterilization

 Chemical sterilization
 Low temperature/low moisture
 Vaporized sterilizing agent
   - Hydrogen peroxide
   - Nitrogen dioxide

Biologic Monitoring (Spore Test)

 Contain bacterial spores resistant to heat sterilization
 Highest level of confirmation for sterilization
 Required at least weekly for all sterilizers
 Maintain records for 12 months

Chemical Indicators

 Measure key parameters of the sterilization process (e.g. time, temperature)
 Visual change when the desired parameter has been achieved
 Single parameter indicators, multi-parameter integrators
 Not required by DPA
  - Recommended by CDC

Disinfection

 CLINICAL CONTACT SURFACES
 HOUSEKEEPING SURFACES
Survivability of Organisms on Surfaces

<table>
<thead>
<tr>
<th>Organism</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>• Hours</td>
</tr>
<tr>
<td>HSV</td>
<td>• Hours</td>
</tr>
<tr>
<td>Rhinovirus</td>
<td>• 14 Hours</td>
</tr>
<tr>
<td>Staph</td>
<td>• 5 Days</td>
</tr>
<tr>
<td>HBV</td>
<td>• 7 Days</td>
</tr>
<tr>
<td>HCV</td>
<td>• 6 Weeks</td>
</tr>
<tr>
<td>TB</td>
<td>• 6 to 8 Months</td>
</tr>
</tbody>
</table>

Resistance to Chemical Germicides

<table>
<thead>
<tr>
<th>Germicidal Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial spores</td>
</tr>
<tr>
<td>Mycobacterium</td>
</tr>
<tr>
<td>Nonlipid or small virus</td>
</tr>
<tr>
<td>Fungi</td>
</tr>
<tr>
<td>Vegetative bacteria</td>
</tr>
<tr>
<td>Lipid or medium size virus</td>
</tr>
</tbody>
</table>

Disinfectants

Cal/EPA Registered Hospital disinfectant

- Low-level
  - Effective against HBV and HIV
  - Acceptable for disinfection if no visible contamination with blood/OPIM

- Intermediate Level
  - Effective against mycobacterium tuberculosis
  - Must be used for visible contamination with blood or OPIM

Cleaning must precede disinfection

Clinical Contact Surfaces
Housekeeping Surfaces

For items or surfaces difficult or impossible to clean and disinfect
Changed when visibly soiled or damaged and between patients

Spray – Wipe - Spray
1. Spray on cleaner (or cleaner disinfectant)
2. Wipe to clean
3. Spray on disinfectant and then WAIT – follow label directions for contact time

Wipe – Throw - Wipe
1. Wipe on cleaner (or cleaner/disinfectant) (Pre-moistened towelette)
2. Throw away wipe (multiple surfaces will require multiple towelettes)
3. Wipe with fresh towelette(s) and WAIT – allow surface to remain wet for time indicated on the label
Limitations of Surface Disinfectants

Must ensure surfaces remain wet for indicated contact time

Dilution may affect efficacy

Contact with some materials may decrease efficacy

Subject to ineffectiveness due to user error

Clean Thoroughly Before Disinfecting

Dental Waterlines

DENTAL TREATMENT WATER

STERILE WATER FOR SURGICAL PROCEDURES

Dental Unit Waterline Biofilm
Dental Unit Water Lines

Water lines shall be anti-retractive
Flush lines with water or purge with air for at least two minutes at the beginning of the day before attaching devices
Flush between patients for 20 seconds (with devices attached)

Surgical procedures involving soft tissue or bone

Use Sterile Coolants/Irrigants
Use Sterile Delivery System

http://airforcemedicine.afms.mil/decs

Dental Lab
Lab Equipment
Splash and equipment guards on lathes.

- Fresh pumice and a sterilized or new rag wheel for each patient

Disinfection of Devices
Intraoral items such as impressions, bite registrations, prosthetic and orthodontic appliances shall be cleaned and disinfected (intermediate-level disinfectant) before manipulation in the laboratory and before insertion in the patient’s mouth.
Rinsed before inserting in patient’s mouth

Dental Laboratory
Clean and heat sterilize heat-tolerant items used in the mouth
Heat sterilize, high-level disinfect or discard laboratory equipment that touches contaminated appliances

Contaminated Wastes
Disposed of according to local state and federal standards
Sharps and red bags
Other Regulated Medical Waste

- Pharmaceutical waste
- Collect separately from biohazard waste
- Medical waste treatment facility for destruction

Dental Radiology

- Wear gloves and other appropriate personal protective equipment as necessary
- Heat sterilize heat-tolerant radiographic accessories

Dental Radiographic Sensors

- Use fluid-proof barriers

http://www.dbc.ca.gov
Thank you