The Puzzle of OSHA Compliance and Infection Control in the Dental Laboratory

• The Bloodborne Pathogen Standard:
  29 CFR 1910.1030
  1991/2001

• The Hazard Communication Standard:
  29 CFR 1910.1200

• The “Hazard Assessment” Standard(s):
  29 CFR 1910.132-138

• Infection Control Recommendations
Rules vs. Recommendations

• Federal Laws = Rules
  Ø OSHA
  ✓ Protect Employees

• Infection Control Recommendations = Standards of Care
  Ø Centers for Disease Control and Prevention
  Ø American Dental Association
  ✓ Protect Patients/Employees

Dental Laboratory Infection Control

Lab Personnel
  • Set the policy
  • Enforce the policy
  • Communicate the policy

Lab Customer
  • Know the policy
  • Comply with the policy
  • Communicate about the policy
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Laboratory Policies

The standard infection control procedures in a dental laboratory must be known to the clients using the facility.

Likewise, the laboratory must be aware of the infection control philosophy used by its clients.

Dental laboratories should ensure that clients receive a written guide on the requirements for submitting work to the laboratory.

Communication is essential because, while infection control is very important, most materials should be handled and/or disinfected only once to prevent damage and possible distortion of prosthodontic materials.
At the same time, infection control procedures cannot become one of the “Its Not My Job” categories in the office or the lab.

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Specific Problems

- Dental Materials
- Equipment in Lab and Operatory
- Sterilization v.s. Disinfection
- Use of Laboratory
- Recommendations v.s. Regulations and Laws
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Sources of Contamination

- Prostheses
  - Repairs
  - Adjustments
- Impressions
- Clinicians and Staff
- Dental Laboratory

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Dental Materials

- Wax
- Stone
- Acrylic
- Metals
- Hydrocolloids
- Vinyl Polysiloxanes
- Polyether
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Equipment

- Articulators
- Lathe
- Water Bath
- Facebows
- Shade & Mold Guides
- Impression Trays
- Rag Wheels
- Flame Sources

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Basic Laboratory Operations

Dental Laboratories can be operated as:

Clean Labs - All infection control procedures done in the patient care area or clinic

Dirty Labs - All infection control procedures done in the laboratory
“Dirty” Laboratory Operation

A case receiving area is designated for infection control procedures.

All materials entering the production area must be properly disinfected prior to using the laboratory’s production facilities.
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“Dirty” Laboratory Operation

- Personnel in the case receiving area must use gloves and other proper personal protective equipment (PPE)
- If work is done in the production area on any case that may be “dirty” employees must wear proper PPE

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“Dirty” Laboratory Operation

- Receiving areas should be disinfected before using the same area for packing and shipping
- Permanent receiving areas should be cleaned and disinfected daily
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“Dirty” Laboratory Operation

Large commercial laboratories and laboratories receiving work of an unknown contamination status should use the “dirty” concept of Infection Control.
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“Clean” Laboratory Operation

• All items entering laboratory are cleaned and disinfected before arrival (in the operatory)

• Enforcement - Bare Hands Concept
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Definitions

- **STERILIZATION**: Destruction of all microbial life forms to include spores
- **DISINFECTION**: Inhibition or destruction of most microbial pathogens
- **CLEANING**: Removal of visible contamination

EPA/FDA Registered As:
- tuberculocidal*
- virucidal**
- hospital level***

* kills mycobacterium tuberculosis
** kills hydrophilic & lipophilic viruses
*** kills staff aureus, salmonella typhimurium, & pseudomonas aeruginosa

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Chemical Disinfectants

- EPA/FDA Registered As:
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Disinfectants and the Dental Laboratory

- EPA registered/number on label
- Use according to the manufacturer's instructions
- Hazard Communication Training

[Image of disinfectant product with EPA registration number and instructions]
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Disinfectant Effectiveness

- Concentration and nature of the contaminant and microorganism
- Concentration of chemical
- Length of exposure time
- Amount of bio-burden
- Preparation of surface to be disinfected

The "Ideal" Chemical Disinfectant

- Non-Toxic
- Broad Spectrum = Kills Everything
- Rapid and Lethal
- Easy to Use
- Odorless
- Fast
- Surface Compatibility
- Cheap
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Disinfectant Choice

- **Chlorines**
- **Phenols**
- **Quats**
- **Other**

**CHLORINES**

- Sodium Hypochlorite
- Chlorine Dioxide
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IODOPHORS

• Other Iodine Products

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PHENOLS

• Alcohol Based Phenols

Water Based
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OTHER CHEMICALS

New Generation Quats
Dual or Synergized plus alcohol

Accelerated Hydrogen Peroxide

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Hydrocolloid Impressions

- Time is critical
- Detergent/Camel Hair Brush
- Scrub with Stone
- Disinfect
- Use disinfectant with contact time less than 10 minutes
- Chlorine or Idophor


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Hydrocolloid Impressions

- Scrub with detergent and stone,
- spray with appropriate disinfectant*

Other Impression Materials

- Time is not so critical:
  - Detergent/Camel Hair Brush
  - Scrub with Stone
  - Disinfect
- Use disinfectant compatible with material
- Polyether probably should not be immersed
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Restorations and Interim Objects

- Detergent and brush
- Use disinfectant compatible with material
- Spray and hold or soak* for proper time
- Non-heated ultrasonic cleaner OK (not wax)
  *even preferred for acrylics


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Exceptions to the Rules

Paper towel reline
This is not custom acrylic tinting
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Exceptions to the Rules

- Isolated and ready for ultrasonic
- Soaking after proper cleaning

Dental Casts

- Careful handling to avoid surface damage
- Spray with disinfectant, drain, cover
- Soak in clear slurry water with sodium hypochlorite added
- Disinfect impression is the better option
- Barrier protect cast
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Prosthodontic Restorations

• Chemical disinfection before placing in patient’s mouth
• Use aseptic technique during chairside adjusting

• Clean and disinfect before using laboratory equipment
• Clean/disinfect before placing back in patient’s mouth

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But what about?

• New v.s. disinfected cases and pumice
• Pumice in general
• Polishing machines
• Pressure pots
• Lab benches
• Personal Protective Equipment
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Shipping

- All items should be wrapped or bagged to prevent contact with shipping materials
- Disinfection is not needed before shipping from lab
- Shipping documents should state cleaning and disinfection is required before placing in patient’s mouth

Accidental Contamination

- First Aid
- Decontaminate Area
- Decontaminate Prosthesis
- Disinfect
- Handle Normally