HAZARD CONTROL

in the

DENTAL ENVIRONMENT

University of Washington
School of Dentistry

2009

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Chapter 1

INTRODUCTION TO HAZARD CONTROL

Concerns over disease transmission and chemical hazards in the dental setting have escalated. Local, state, and national regulations have been enacted to reduce the threat to health care workers and patients of acquiring an infectious disease, or being injured as a result of exposure to hazardous chemicals in a medical or dental setting.

The objective of hazard control at the University of Washington School of Dentistry is to protect all patients, students, staff, and faculty from contracting an infectious disease, or being injured by exposure to hazardous chemicals during the course of their treatment, education, or employment.

I. OVERVIEW

A. Occupational Safety and Health Programs: General Requirements for Compliance

The Washington Industrial Safety and Health Act (WISHA, Chapter 49.17 RCW) and related standards[1] requires all state employers to maintain work practices and work environments which do not endanger the health or safety of employees and others who may have legitimate entry into the work site. In the case of educational Institutions, this means the safety of faculty, staff, students, volunteers and visitors. The policy of the University of Washington and the School of Dentistry is to achieve compliance with these state (and national) standards by instituting occupational safety and health programs in all departments and service units. In addition, faculty, staff and students are required to cooperate by using safe work habits so that accidents and job/activity related illness and accidents are prevented.

For purposes of compliance with WISHA and related standards, and to provide a safe and healthful environment, the University has assigned responsibility for occupational health and safety as follows:

1. Vice President and Deans – These individuals are responsible for directing all units within their respective areas to establish and administer occupational safety and health programs. Assistance may be obtained from the Environmental Health and Safety Department.

2. Deans, Directors, Chairs and Supervisors – Each of these individuals is responsible for safety performance in their respective units (as referenced in the University Administrative Policy 12.5 section 1).

[1] See Appendix A for a list of related standards and on-line resources

3. Department Heads – These individuals are advised to designate one person, plus an alternate, to act as a department coordinator for health and safety. This individual is to be responsible for implementing department safety and health programs and for acting as liaison between the department and EH&S.

4. Employees – University safety policy states that faculty and staff are responsible for using required safety equipment and for following safe work practices, and for the safety of other employees and students under their supervision. WISHA standards require that employees:

   - Coordinate and cooperate with all other employees in an attempt to eliminate accidents
   - Study and observe all safe practices governing their work
   - Offer safety suggestions which may contribute to a safety work environment
   - Apply the principles of accident prevention in their daily work and use proper safety devices and equipment as required by their employment and/or discipline or profession. In Dentistry, this includes the practice of ***Universal Precautions***.
   - Properly use and care for all personal protective equipment
   - Promptly report to their immediate supervisor or other designated person each work-related injury to themselves, their colleagues or staff, their students, and their patients.

B. Hazard Control Documents

There are four documents that have been approved by the Dean for the purpose of providing standards for hazard control in the School of Dentistry. They are as follows:

1. The Infection Control Policy (found in the *Clinic Policy Manual, section 4 F*)

2. The Hazard Control Policy (found in the *Clinic Policy Manual, section 4 C*)

3. The Exposure Control Plan document

4. The manual entitled *Hazard Control In The Dental Environment*

II. HAZARD CONTROL

A. Purpose

To create policies regarding hazard control at the University of Washington School of Dentistry for minimizing risk to patients, students, residents, staff, and faculty while engaging in clinical care, laboratory procedures, and in laboratory research.

B. Policy Statement

All patient care, laboratory procedures, and equipment management in the School of Dentistry are to be carried out in an environment and with techniques consistent with guidelines set forth by the Washington State Dental Quality Assurance Commission, US Public Health Service Centers for Disease Control (CDC), the Occupational Safety and Health Administration (OSHA), the Washington Industrial Safety and Health Act (WISHA), as well as state and local regulatory boards.

It is the policy of the University of Washington School of Dentistry that all students, faculty, and staff care for patients within their level of competence without discrimination based on a patient's infectious disease status. Specific strategies for treatment of individuals with an infectious disease should be discussed with the supervisory faculty member prior to treatment.

C. The Medical History and Universal Precautions

It is not possible to determine the infectious disease status of individuals through a review of the medical history alone. Patients may be unaware of their condition or the mechanism of disease transmission. Others may choose not to reveal a known condition to health care workers. Furthermore, the infectious disease status of patients may change with time, and assumptions made about disease status may not be valid over time.

Proper review of the health history is imperative to insure that patients receive appropriate care for their condition, but since not all transmissible conditions may be disclosed with this review, it is essential that *Universal Precautions* be employed for all care.

Universal Precautions is defined as a strategy to be used in patient care that assumes that ***all*** body fluids from ***all*** patients be considered infectious and that ***all*** patients be treated with the same high standard of infection control practice. The infection control standards outlined in this manual are designed to prevent transmission of Hepatitis B, which are also effective in preventing transmission of other diseases, such as HIV, Hepatitis C, and other bloodborne diseases.

D. Accountability

It is ultimately the responsibility of the individual providing care, whether it be student, resident, faculty, or staff, to adhere to the health and safety protocols of the School during patient care. All care providers must insure that

appropriate care is rendered in a safe environment with appropriately processed and handled instruments and materials to minimize chances of contamination and subsequent disease transmission. This applies not only to clinical procedures, but also to those procedures performed in the laboratory. The laboratory phase of care should also be done on appropriately processed appliances and impressions, and performed with aseptic technique. It is also the responsibility of all faculty and staff associated with patient care to monitor compliance with the standards for care outlined in this manual. Staff in sterilization facilities and dispensaries are likewise charged with the obligation to insure strict compliance with protocols for prevention of cross contamination. Individuals who are found to be in violation of these standards are subject to sanctions defined by the Personnel and Professional Conduct Policy of the University of Washington. (http://www.washington.edu/faculty/facsenate/handbook)

III. CHEMICAL HAZARDS: HAZARD COMMUNICATION STANDARD

The federal *Hazard Communication Standard* (Appendix A) requires the development of a written hazard communications program for all employers. It is designed to ensure that the hazards of all chemicals used in the workplace are evaluated and that information concerning such hazards are transmitted to both the employer and employees.

The School of Dentistry has a written hazard communication program in compliance with University and Washington State regulations (http://www.washington.edu/admin/adminpro/APS/12.05.html and WAC 296–62–054 through –05425). The document must be maintained at the workplace and is to include provisions for; container labels, collection and availability of material safety data sheets, and the employee training program. This manual constitutes that written program. The implementation of this program is described below.

IV. IMPLEMENTATION

A. Training

Training shall be managed as described in Chapter 3, “Bloodborne Pathogen Management.”

B. Chemical Inventory and Container Labeling

1. An inventory list of all chemicals used in the clinics and laboratories shall be established for each work site and maintained by the supervisor responsible for that work area.

2. Material Safety Data Sheets (MSDS) for each hazardous chemical in the inventory are to be placed in a binder along with the inventory list and stored at the work site to facilitate access by employees. An MSDS binder should be available in each reference station, research lab, and dispensary.

3. Container Labeling Requirements

   a. All containers must be labeled with the identity of their contents and must show hazard warnings which are appropriate for employee protection, including target organ information.

   b. Most manufacturers provide appropriate labeling on the original container, but it must be verified as to the following:
      - Chemical name
      - Trade name or code number that corresponds to an MSDS on file
      - Appropriate hazard warnings

      If an appropriate label is not provided by the manufacturer then an appropriate warning label must be attached to the container.

   c. Most custom labeling will be limited to "end user" containers. Such containers are those used when a chemical is transferred from its original container to a secondary one for the convenience of the user (i.e., household bleach purchased in a gallon container which is diluted and dispensed into smaller bottles to be used as a disinfectant).

4. There is no standard label format required.

   a. A common file label (e.g., Avery) will be used. The label must contain at least the following information as shown in Figure 1-1.

      - Identification of the hazardous product/chemical
      - Appropriate hazard warning
      - Reference number to the MSDS chemical inventory.
      - Target organ information

   b. Safety information posters can be substituted for individual container labeling if the poster is current and placed in a standard location in the workplace.

Hydrogen Peroxide (#0145) Slightly Hazardous, Oxidizer Unstable if heated.
Eyes and Skin

Figure 1-1 Labeling for containers

5. Source of Hazard Information

   The MSDS sheets for each chemical provide the information necessary for proper labeling using the NFPA symbol.

6. Exemptions from the Labeling Requirement

   The following items do not require the labeling described above since they are regulated under separate OSHA standards and can be used as labeled from the manufacturer:

   a. Drugs and medical/dental devices regulated by the Food and Drug Administration and labeled in accordance with FDA requirements

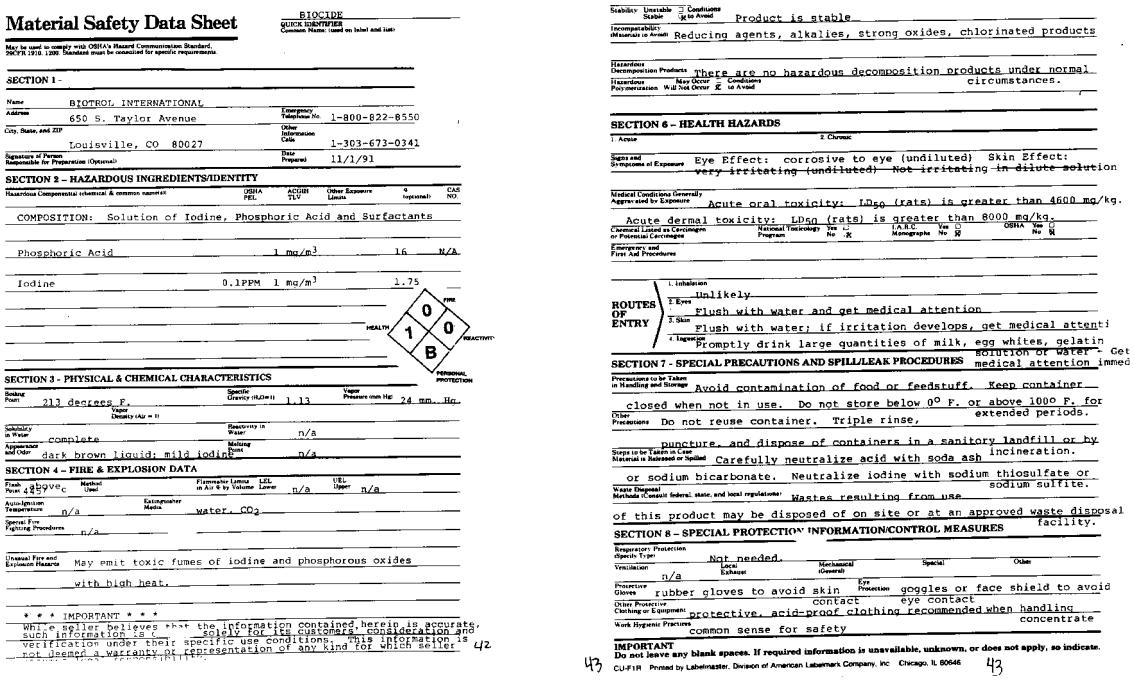
   b. Disinfectants labeled in accordance with Environmental Protection Agency requirements

   c. Consumer products such as household cleaners, labeled according to requirements of the Consumer Product Safety Commission

   d. Portable containers of hazardous chemicals being transferred for immediate use of the employee making the transfer (i.e., measuring devices for mixing disinfectants)

   e. Items considered to be “articles” by OSHA. These items do not release hazardous chemical under normal use (e.g., office products)

C. Using Material Safety Data Sheets (MSDS) (Figure 1-2)



Material Safety Data Sheet

BIOCIDE

SECTION 1 -

Name: BIOTROL INTERNATIONAL
Address: 650 S. Taylor Avenue
City, State, and ZIP: Louisville, CO 80027
Emergency Telephone No.: 1-800-822-8550
Other Information Calls: 1-303-673-0341
Date Prepared: 11/1/91

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Components(s) (chemical & common name(s))	OSHA PEL	ACGIH TLV	Other Exposure Limits	% (optional)	CAS NO
COMPOSITION: Solution of Iodine, Phosphoric Acid and Surfactants					
Phosphoric Acid		1 mg/m3		16	N/A
Iodine	0.1PPM	1 mg/m3		1.75	

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point: 213 degrees F.
Specific Gravity (H2O=1): 1.13
Vapor Pressure (mm Hg): 24 mm. Hg.
Vapor Density (Air = 1):
Solubility in Water: complete
Reactivity in Water: n/a
Appearance and Odor: dark brown liquid; mild iodine
Melting Point: n/a

SECTION 4 – FIRE & EXPLOSION DATA

Flash Point: above c
Method Used:
Flammable Limits in Air % by Volume: LEL Lower: n/a; UEL Upper: n/a
Auto-Ignition Temperature: n/a
Extinguisher Media: water, CO2
Special Fire Fighting Procedures: n/a
Unusual Fire and Explosion Hazards: May emit toxic fumes of iodine and phosphorous oxides with high heat.

* * * IMPORTANT * * *
While seller believes that the information contained herein is accurate, such information is c solely for its customers' consideration and verification under their specific use conditions. This information is not deemed a warranty or representation of any kind for which seller

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HEALTH 1 | FIRE 0 | REACTIVITY 0 | PERSONAL PROTECTION B

Stability: Unstable ☐ Stable ☒ Conditions to Avoid: Product is stable
Incompatability: Reducing agents, alkalies, strong oxides, chlorinated products
Hazardous Decomposition Products: There are no hazardous decomposition products under normal circumstances.
Hazardous Polymerization: May Occur ☐ Will Not Occur ☒ Conditions to Avoid

SECTION 6 – HEALTH HAZARDS

1. Acute 2. Chronic
Signs and Symptoms of Exposure: Eye Effect: corrosive to eye (undiluted) Skin Effect: very irritating (undiluted) Not irritating in dilute solution
Medical Conditions Generally Aggravated by Exposure: Acute oral toxicity: LD50 (rats) is greater than 4600 mg/kg. Acute dermal toxicity: LD50 (rats) is greater than 8000 mg/kg.
Chemical Listed as Carcinogen or Potential Carcinogen: National Toxicology Program: Yes ☐ No ☒; I.A.R.C. Monographs: Yes ☐ No ☒; OSHA: Yes ☐ No ☒
Emergency and First Aid Procedures:

ROUTES OF ENTRY
1. Inhalation: Unlikely
2. Eyes: Flush with water and get medical attention
3. Skin: Flush with water; if irritation develops, get medical attenti
4. Ingestion: Promptly drink large quantities of milk, egg whites, gelatin solution or water - Get medical attention immed

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Avoid contamination of food or feedstuff. Keep container closed when not in use. Do not store below 0° F. or above 1000 F. for extended periods.
Other Precautions: Do not reuse container. Triple rinse, puncture, and dispose of containers in a sanitory landfill or by incineration.
Steps to be Taken in Case Material is Released or Spilled: Carefully neutralize acid with soda ash or sodium bicarbonate. Neutralize iodine with sodium thiosulfate or sodium sulfite.
Waste Disposal Methods (Contain federal, state, and local regulations): Wastes resulting from use of this product may be disposed of on site or at an approved waste disposal facility.

SECTION 8 – SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respirator Protection (Specify Type): Not needed.
Ventilation: Local Exhaust: n/a; Mechanical (General): ; Special: ; Other:
Protective Gloves: rubber gloves to avoid skin contact
Eye Protection: goggles or face shield to avoid eye contact
Other Protective Clothing or Equipment: protective, acid-proof clothing recommended when handling concentrate
Work Hygienic Practices: common sense for safety

IMPORTANT
Do not leave any blank spaces. If required information is unavailable, unknown, or does not apply, so indicate.

CU-F1R Printed by Labelmaster, Division of American Labelmark Company, Inc Chicago, IL 60646

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Front **Back**

Figure 1-2. Sample MSDS for Biotrol disinfectant. (8 ½" x 11")

1. MSDS sheets contain health and safety information about each hazardous chemical in the workplace.

   a. An MSDS is required for each hazardous chemical in the workplace.

   b. It must be readily accessible by employees. Each dispensary and dental laboratory must be provided with a binder containing a chemical inventory and companion MSDS information.

   c. The area supervisor is responsible for the maintenance of the MSDS binders in all clinics, labs, and offices. The supervisors of other clinics and laboratories are responsible for their assigned work sites. Departmental Administrators are responsible for MSDS binder maintenance in their respective reference stations.

2. All spaces on the MSDS must contain some information. No blank spaces are permitted. If information is not available from the manufacturer then enter "Unknown" in the space, or "NA" if the item is not applicable.

3. MSDS Information

To facilitate the interpretation of an MSDS by an employee the following list provides a summary of the information that can be found on the MSDS:

a. *Product Identification:* The name, address, and phone number of the manufacturer, chemical name, trade name, and School of Dentistry code.

b. *Hazardous Ingredients:* Those substances present in the product which are listed as hazardous. Each substance in a mixture may be listed for entirely different reasons based on flammability, toxicity, corrosiveness, etc. Exposure limits are also provided.

c. *Physical Data:* Information regarding the physical properties of the substance is provided in terms of an indication if the product is a liquid, solid, gas, color, odor, boiling point, solubility, etc.

d. *Fire & Explosion Hazard Data:* Indication if the substance will burn or explode and how flammable the product may be.

e. *Health Hazard Data:* A description of the acute and chronic health effects of the product, exposure limits, possible routes of entry into the body, and first aid procedures.

f. *Reactivity Data:* A description of the stability of the product. Precautions to use in handling and storage conditions, and its incompatibility with other products.

g. *Spill or Leak Procedures:* This section provides information on how to contain and treat a spill or leakage of a product. It will indicate if special equipment or clothing is needed when dealing with a spill.

h. *Special Protection Information:* This section will list any personal protective equipment needed to handle the product. It includes such items as ventilation requirements, gloves, eye protection, etc.

i. *Special Precautions:* This section provides directions for special handling, storage of containers, labeling, posting of signs, and other information on health and safety not contained in other sections.

4. A complete glossary of terms used on the Material Safety Data Sheets can be found in the MSDS binders located in clinic dispensary.

Chapter 2

INFECTION CONTROL

I. POLICY STATEMENT

Surfaces of fixtures or non-sterilizable equipment and materials which can be contaminated by blood or other body fluids during the course of dental care shall be covered with disposable barriers, or cleaned and disinfected after use to minimize the potential for disease transmission between patients and to health care workers.

Dental health care workers will use work practice controls during the care of patients which will assure that diseases are not transmitted between patients or between provider and patient by reason of contamination of materials or supplies, or as a result of inappropriate technique. See Clinic Policy Manual for Faculty and Staff for Infection Control Policy.

II. OPERATORY MANAGEMENT

A. Operatory Preparation

The dental operatory must be prepared prior to seating the patient to ensure an aseptic environment for dental care. Setting up the operatory for patient care involves the following procedures:

1. Waterline Contamination Control Measures
   - Anti-retraction valves are installed on all dental units in the school.
   - Flush all water lines in the morning for at least 3 minutes to eliminate microorganisms multiplying in the water lines overnight and any material which may have been aspirated into the lines.
   - Water lines to handpieces, air-water syringes and auxiliary equipment are to be flushed for 30 seconds between patients.

2. Using an EPA-approved hospital grade disinfectant, clean and disinfect operatory and dental unit surfaces which may have been contaminated. Cleaning supplies and spray containers of FDA approved disinfectant are available in each operatory. Contaminated surfaces should be cleaned, then sprayed, wiped with a paper towel, then sprayed again and allowed to remain wet (IAW manufacturer's instructions "spray, wipe, spray" technique).

3. Surface covers will be used on all surfaces likely to be contacted in the operatory and will be changed between each patient to simplify unit decontaminization. Surfaces within three (3) feet of the patient's mouth must be considered contaminated when treatment produces aerosols or spatter and should receive highest attention. Surfaces covered by

effective barriers need not be disinfected between patients. Surface covers to be used are shown in Table 2-1.

Table 2-1 Surface Covers

Surface	Type of Cover	Size
Light Switch	Plastic Straw	Plastic Straw (3" piece)
Light Handle	Plastic Bag	Small
Chair Buttons & Head Rests	Plastic Bag	Large
Control Unit & Bracket Table	Plastic Bag	Large
Assistant's Station	Plastic Bag	Large
3-Way Syringe	Plastic Tubing	Tubing Cover
Saliva Ejector	Plastic Tubing	Tubing Cover
High Volume Evacuator	Plastic Tubing	Tubing Cover
Handpieces/Sonic Scaler	Plastic Tubing	Tubing Cover
Faucet Handle	Paper Cup or Plastic bag	Small
Counter Top	White Polycoated Paper	Entire Surface
Top of Mobile Cart	White Polycoated Paper	Entire Surface
Waster Drawer Handle	Foil	4"X4" Square
X-ray Button	Plastic Bag or Wrap	Small
X-ray Head and Tube	Plastic Bag	Large
Ultrasonic Scaler Controls	Plastic Bag	Large
Ultrasonic Scaler Handpiece	Plastic Tubing	Tubing Cover
Nitrous Oxide Unit Controls	Plastic Bag	Large
Nitrous Oxide Tubing	Plastic Tubing	Tubing Cover

a. Air-water syringes, saliva ejectors, handpieces, and Titan scalers will have *functional* tubing covers fitted whenever these devices are used.

b. Avoid ripping tubing covers to install suction tips or syringe tips since this renders them ineffective.

c. New saliva ejectors and hi-vac suction tips are poked through the cover after cover tubing is in place while the tubing cover over the orifice is stretched taut. The same can be done with insertion of new sterile syringe tips, or the new tip can be inserted into the syringe prior to placing the tubing cover, and the tip is then poked through the end of the tubing cover.

d. Tubing covers need not be placed on handpiece hoses if handpieces or ultrasonic scalers are not used during the procedure.

e. When used, the sterile handpiece or ultrasonic scaler is installed first, then the tubing cover placed at the end of these instruments is pushed carefully through the cover at the end so that the tubing coupling is covered. **DO NOT** rip off the end of the tubing cover to poke the handpiece through as the hole will be too large. This will make the cover slide down the tubing and render it ineffective.

B. Environmental Management Strategies

1. Disposable bibs must be used for each patient.

2. Dropped instruments will not be picked up during treatment, reused, or placed in the field of work. If the instrument is essential, obtain a sterile replacement.

3. Keep all books, syllabi, back packs, articulator, and tackle boxes off the counter top.

4. Laboratory materials from other patients should not be on the counter top during patient care.

5. Drawer pulls are not covered. The cabinet drawers are not opened while wearing contaminated gloves.

6. Surface covers are the same for surgical procedures with the exception that a Mayo stand will be provided for use rather than the standard mobile cart. The stand tray will be placed in a plastic bag and covered with a sterile paper drape on which instruments may be placed.

7. The counter top must be covered for placement of contaminated objects other than the surgical instruments, e.g., bagged camera, mirrors, and retractors.

8. Items such as light cure units or ultrasonic scaler units and handles must be thoroughly disinfected using the "spray, wipe, spray" technique.

    a. Thoroughly clean the item by spraying with an accepted disinfectant, then wipe with a paper towel or gauze, or scrub with a clean brush. Reapply the disinfectant by spraying. Item must remain wet for the manufacturer’s prescribed time.

    b. If the item is to enter the patient's mouth, remove residual disinfectant after treatment by rinsing in water or wiping with water-moistened gauze or toweling.

c. Ultrasonic scaler tips should always be heat sterilized after use. Surface covers are used on ultrasonic scaler controls and tubing covers on handpieces to simplify decontamination.

C. Post-treatment Environmental Management

1. The following procedure is to be used to handle the barrier materials in the dental operatory after the patient is dismissed:

   a. Remove the bag from the patient chair and turn it inside out so the contaminated surface is now inside.
   b. Remove the syringe tip, evacuators, and handpieces from the tubing, then carefully remove the covers from the tubing so as not to contaminate the tubing or connectors, and lay the tubing over the seat of the chair.
   c. Remove the surface covers from the operating light handles and switch off the operating light. Place waste in the inverted chair bag. Disinfect, being careful not to wipe the reflector surface, which is hot. Fold the light so that both arms are horizontal and parallel to the chair.
   d. Remove the unit cover and place it, along with the tubing covers and the other surface covers, in the inverted chair bag for disposal.
   e. Remove the bedside waste bag and place it in the large red container located on the floor throughout the clinic aisles.

2. Evacuation System

   Run a large volume of water (two to three liters or 60 seconds from the tap) through the high volume evacuation hose, and another one or two liters through the saliva ejector hose. Substantially larger volumes of water should be used following surgical procedures. This is accomplished by holding the tips directly in the water stream in the sink.

3. Contaminated Surfaces

   Any surfaces, such as handpiece couplings, saliva ejector holder, etc., which may have come into contact with patient body fluids during the procedure must be cleaned and disinfected with FDA approved disinfectant solution as previously described.

   Following removal of waste from the unit and disinfection, gloves are removed, disposed, and hands washed thoroughly. DO NOT RE-COVER and REBAG until the operatory is to be used again.

D. Operatory Management at the End of the Day

1. Use the disinfectant/cleaner and paper towels to clean all contact surfaces in the operatory using the "spray, wipe, spray" method.

1. Evacuation System

   Prior to cleaning the filter in the evacuation system, aspirate a paper cup full of an accepted disinfectant into the evacuator. Leaving the high volume evacuation slide valve open, turn the main evacuation shut-off valve, located just under the instrument head, to the OFF position. With gloves on, determine if there is any solid debris in the filter, then remove the filter and empty the waste into the waste receptacle. Rinse the filter thoroughly and replace it. Use paper towels to prevent drips from the highly contaminated filter contacting the chair, floor, or counter. Replace the cap cover. Turn the main valve back ON and the tip valves for the saliva ejector and high volume evacuation hose OFF. The unit is then disinfected and bagged for the next use.

2. Unit Arrangement

   Students are provided with cleaning supplies for general ‘housekeeping’ of their assigned unit. The School provides a corkboard, which may be used for photos, etc., but the student may not post any pictures or items elsewhere in the cubicle. Students may not provide any additional cabinetry, plants, radios, books, etc. to be stored in the units. Backpacks and other personal items may not be stored in the clinic for security and infection control reasons.

E. Management of Radiographic Equipment

1. X-ray Machines

   a. The x-ray head must be bagged with a large plastic bag before each use to prevent cross contamination by contact with the patient in placement of the film and alignment of the head.

   b. Use over gloves if the control panel needs adjusting.

   c. Obtain all films required prior to beginning exposure.

   d. Place exposed films on bib covered counter outside x-ray room.

   e. Touch only covered surfaces of x-ray head during alignment.

2. Assembly of the Film Holder

   Film holders required for an intended examination should be assembled using gloves. The expected number of films required for an intended radiographic examination should be extracted from the film dispenser and accessories such as cotton rolls and rubber ligatures should be obtained prior to the examination.

   Only autoclavable or disposable film holders shall be used. Film holders shall be kept in a separate container after sterilization. After an examination, contaminated film holders and instruments shall be placed in a disinfectant solution before they are transported for sterilization.

3. Preparation of Countertops

   Countertops are to be covered by either paper toweling or polycoated paper to provide a clean area for storage of film and film holders during the examination.

4. X-ray lead apron with thyroid collar will be worn by patients during exposure. Disinfect it following the “spray, wipe, spray” method. Wear patient towel over apron to help limit saliva contamination.

5. Protective Barriers for Radiography

   Use of medical gloves is mandatory during radiographic procedures. The use of a facemask and protective eyewear is recommended, but not required. Once the radiographic examination has started, the gloved hands of the operator are contaminated and must only touch protected surfaces of the x-ray room, x-ray equipment, controls, and countertops.

6. X-ray Development

   a. *Daylight loader:* Use over gloves to handle contaminated films to process. The plastic covers and gloves must be removed prior to placing the film into the loader.

   b. *Darkroom*: Take films into darkroom in paper towel or bib. Process as follows:

      - Avoid touching any equipment with contaminated gloves.
      - Open film packets and drop films without touching them onto clean towel or bib.

- Dispose of contaminated wrappers and place the lead foil in the recycle container.
- Remove contaminated gloves and wash the glove powder off your hands. (Glove powder can cause film artifacts.)
- Place *clean* films into processor, or on a rack for the developing tank.

7. Clean-up of X-ray Rooms

When the examination of a patient is completed, the covers of the x-ray unit, exposure controls, and the patient chair are removed and put in the appropriate receptacle. The countertops and the patient chair shall be disinfected after each patient.

F. Management of Other Equipment Used In Direct Patient Care

1. Nitrous Oxide Unit

   Use a large plastic bag over unit controls, and tubing covers over hoses to prevent contamination. Disposable masks are obtained from the dispensary and are attached to the tubing.

2. Camera, Mirrors, and Retractors

   a. The grip of the camera should be bagged, and plastic wrap placed on the focusing knob or ring and any areas of the flash assembly that might be touched during picture taking. The flash and drive should be turned on once, prior to the start of the procedure. If the film runs out, deglove to change film, scrub, and reglove.

   b. Mirrors can be autoclaved or sterilized by chemical vapor, but they should be cleaned very well prior to packaging to insure that no spots get baked on. Wrap them in white paper toweling before packaging to reduce the possibility of scratches.

   c. Wire retractors must be heat sterilized between uses.

   d. Microscopes moved from lab to clinic and back must be disinfected prior to each move.

3. Prophy Angles and Ultrasonic Scalers

   a. When two patients receive a coronal polishing during the same session, disposable prophy angles with cups attached are available

for your use. The motor and nose cones are sterilized and the handpiece inserted snugly into a tubing cover. The disposable prophy angle is placed on the handpiece by piercing the tubing cover with the shaft of the prophy angle and inserting it into the handpiece. Only the clean prophy angle is then exposed for use on the patient.

b. Ultrasonic scalers must ***never*** be used on more than one patient, even with tip replacement, without first being sterilized.

c. Ultrasonic scalers must be thoroughly disinfected prior to use and after use with the "spray, wipe, spray" technique, as previously described. Special attention should be given to the control knobs and handpiece. The tips are always heat sterilized after use. Barriers are used to simplify disinfection (large bag over control unit and tubing cover over handpiece through which the tip insert is placed.)

4. Aseptic Dental Carts and Cabinetry

a. Students must clean and disinfect both the inside and outside work surfaces of their fixed cabinetry with a cleaner and accepted disinfectant whenever these surfaces are visibly soiled. Cubicles will be inspected on a regular basis and a safety evaluation will be done. Violations of the aseptic protocol will be reported and may result in loss of clinic privileges.

b. Instruments and equipment used in patient care should be stored in sterile bags and arranged in an orderly manner. Instruments for intraoral use are not to be stored unwrapped.

c. Packages must be rewrapped and resterilized if there is evidence that the packages are not intact. Packages must also possess a process indicator, such as autoclave tape, to insure that the contents were actually cycled through a high heat sterilizer.

d. Laboratory equipment and instruments shall be stored in separate drawers from patient care equipment and instruments.

e. Supplies should be unit dosed whenever possible. For example, Temp-Bond is placed on the mixing pad prior to use, and the tubes are not contaminated with dirty gloves. Items such as pressure indicator paste, topical anesthetic, and Vaseline, which can be dispensed into medicine cups or onto gauze, are examples of unit dosing of materials.

f. Clinic cabinetry is not to be used to store lab work in-progress. Lab work should be stored in student lockers in plastic containers which are disinfected with an accepted surface disinfectant, "spray, wipe, spray" technique between cases.

III. ASEPTIC CLINICAL TECHNIQUES

There are a variety of aseptic techniques that can be practiced which will reduce the spread of the patient's saliva and blood, or will decrease the chances of unnecessary exposure to potentially infectious materials. These are listed as follows:

A. Storage and Dispensing of Instruments and Supplies

1. Supply items must be unit dosed rather than dispensed in bulk containers whenever possible, i.e., take only what is to be used in a single treatment session, and dispense into a disposable medicine cup.

2. An aseptic dispensing technique must be employed to prevent contamination of bulk supplies. For example, Vaseline and pressure indicator paste can be dispensed with tongue blades into disposable medicine cups rather than having the tubes or jars on the contaminated work surface. Pumice for lab procedures can also be unit dosed using a paper cup.

3. Plan ahead for supplies rather than contaminating supply containers. For example, place Temp-bond on a mixing pad prior to gloving for temporary cementation, or place cavity varnish in a small, covered medicine cup.

4. If an unplanned material is required during a procedure, gloves should be removed or over gloves used and the material unit dosed prior to regloving. For example, if Dycal is required it should be dispensed into the mixing area after degloving. Wash hands and reglove prior to continuing.

5. Supply containers and other items that must be kept at the unit or in carts should be placed on the countertop or in closed drawers and not on the covered cart-top or bracket table to avoid supply contamination.

6. Contaminated items such as bite registrations, appliance baseplates, models, dies, or impressions must not be transported from one unit to the next in a clinic or to the laboratory without first being disinfected (see Asepsis in the Dental Laboratory, page 23).

7. Personnel responsible for dispensing sterile instruments or supplies must wash their hands after touching contaminated items or surfaces.

B. Maintaining an Aseptic Environment

1. Never return anything to work surfaces that have fallen on the patient or the floor.

2. Do not allow patients to handle instruments. Children who are not patients or other visitors should not be allowed in either clinics or treatment areas.

3. Never place unbagged or non-sterile items such as hand mirrors, timers, pencils, patient records, audio-visual aids, etc., on work surfaces or on the contaminated instrument area.

4. Hand mirrors used for patient education should be cleaned and disinfected following each use.

5. When making chart notes during a procedure use pen covers or overgloves.

6. Take care to avoid cross-contamination via your gloves by pushing up glasses, touching face and hair, rubbing nose, or adjusting mask, etc. Put on face mask and adjust glasses first, then wash hands and put on gloves. Hair should be off the face and out of the work area to avoid falling into the work area.

7. Final chart entries should be made with unwrapped pen and clean hands after the unit has been cleaned.

8. Wash hands, glove, and open all sterile packages in the presence of the patient, including the handpiece, if possible and practical.

IV. INSTRUMENT STERILIZATION POLICY

All reusable heat stable instruments, handpieces, mechanical scalers and prophy angles that come into contact with the patient's blood, saliva, teeth, or mucous membranes must be cleaned and sterilized before use on another patient. Pressurized steam, dry heat, chemical vapor, and ethylene oxide are all acceptable methods of sterilization.

Only sterilizers that are routinely spore-tested and demonstrate repeated capacity to kill biological indicators are to be used for sterilization of

instruments[2, 3]. Sterilizers must be spore-tested weekly and monitored with chemical process indicators on every load. Records of these tests are to be maintained by the Safety Assistant of the School of Dentistry.

All items to be sterilized must be properly cleaned (preferably in an ultrasonic cleaner) and properly packaged before sterilization.

Some items will be destroyed if a heat sterilization method is used, but must be cleaned, then sterilized in a School-accepted disinfectant solution using a submersion time and product concentration that achieves sterilization following the manufacturer's label directions.

[2]WAC 246-816-520 and 246-816-620 Washington Administrative Code "Use of Barriers and Sterilization Techniques", 11/95.
[3]"Recommended Infection Control Practices for Dentistry," Morbidity and Mortality Weekly Report, May 28, 1993. (See Appendix A.)

V. STERILIZATION PROCEDURES

A. Training of Sterilization Staff

Users of sterilizing equipment must be trained prior to using the equipment. The training procedure must include written protocols and all users must have access to a copy of this procedure as well as the operator's manual for the equipment being used. The Supervisor of Sterilization for the School of Dentistry will maintain records of training sessions and publish an employee instruction manual entitled, *Sterilization Procedure Manual,* to supplement the training of central sterilization employees. The manual will provide staff with information on instrument processing and operation of sterilization equipment.

B. Acceptable Sterilization Methods

1. Steam, dry heat, or chemical vapor sterilization shall be used for all contaminated reusable instruments which can be sterilized in verifiable sterilizing devices. These must be thoroughly cleaned and sterilized before use in the treatment of another patient. Use of chemical disinfection as a substitute for sterilization of these items is unacceptable.

2. Alternate sterilants shall be used for all reusable items which cannot tolerate heat sterilization. These items must be thoroughly cleaned and appropriately treated with either ethylene oxide or a FDA accepted disinfectant using the “wipe, spray, wipe” method.

   These agents must be used as follows:

   a. Processing for the time length specified by the manufacturer is essential. In reference to shelf life, use life and reuse life (# loads).

   b. Heavy gloves and eyeglasses are required when handling glutaraldehyde.

   c. After chemical "sterilization," items must be rinsed thoroughly under running tap water for at least one minute to remove all traces of glutaraldehyde.

   d. If such items are to be used to penetrate tissue, they should be rinsed with sterile water. The instruments must then be packaged in a clean manner.

C. Instrument Sterilization Protocols

Following a patient treatment session, the following protocol for processing and sterilization shall be employed:

1. Remove all disposable "sharps" from contaminated work area (cart top and bracket table) after completing care, and place in the sharps container in the operatory.

2. Remove all disposable waste from the activity area and discard, taking care to properly dispose of materials designated as infectious or regulated waste (any body fluid).

3. All instruments must be cleaned prior to packaging for sterilization in an ultrasonic cleaner with the appropriate cleaning solution for at least 12 minutes. Handling of instruments during the cleaning should be done with heavy gauge utility gloves to minimize the risk of accidental injury. Even with utility gloves, never reach into a container, or ultrasonic containing reusable sharps. Instead, rinse the instruments, and then invert the container onto an appropriately covered surface. The ultrasonic cleaner lid must be in place during the cleaning cycle. Instruments are to be rinsed with water following cleaning and spread on towels and allowed to dry or dried in an instrument dryer.

> ***Turnaround Time***
>
> Personal instruments and handpieces turned in at the following times will be ready 1 hour later:
>
> 8:00 AM, 12:00 Noon, or 4:00 PM

5. Handpieces should not be ultrasonically cleaned but must be externally cleaned with a brush or paper towel and detergent to remove external debris prior to sterilization.

6. Cleaning of school-owned instruments will follow the same protocol, except that instruments in cassettes will be cleaned ultrasonically by central sterilization staff.

7. Hand cleaning of instruments is to be avoided due to the possibility of injury and spatter.

8. Burs will be locked into the bur holder, cleaned ultrasonically for 12 minutes, then rinsed and dried.

9. Following drying of the instruments, they will be packaged in appropriate materials (read labels on packaging materials to determine suitability for specific sterilization process) and sterilized as noted in Table 2-2.

Table 2-2 Sterilization Guidelines

Steam Sterilization

- Instrument kits and cassettes
- Dental hand instruments
- Dental handpieces
- Other heat stable items not specifically noted

Dry Heat Sterilization

- Carbon steel instruments other than specified
- Burs in blocks
- Instrument kits and cassettes
- Dental hand instruments
- Other heat stable items not specifically noted

Chemical Vapor Sterilization

- Burs and bur holders
- Instrument kits and cassettes
- Dental hand instruments
- Dental handpieces
- Other heat stable items not specifically noted

2% Glutaraldehyde

- Non-heat sterilizable items, such as shade guides will be cleaned and then sterilized by immersion in glutaraldehyde for at least 10 hours. Notations will be kept with each glutaraldehyde bath to insure immersion of items for full time period. Solutions will also be dated and mixed fresh per manufacturer's instructions. Items will then be rinsed, dried, and packaged for distribution.

Glasses

- Protective glasses will be disinfected with a 10-minute soak in a 1:10 dilution of household bleach (sodium hypochlorite), then rinsed, dried, and packaged for distribution.

Handpieces

- Sterilization of handpieces is mandatory between patients. The only exception to this is the use of disposable prophy angles on the slow speed handpiece. In this case, the handpiece must be covered with a tubing cover leaving only the disposable prophy angle exposed.

- Debris on handpieces should be removed by scrubbing prior to packaging for heat sterilization.

- Handpieces should not be cleaned in ultrasonic cleaners, nor should they be disinfected by immersion in glutaraldehyde solutions.

The following surface disinfectants are approved by the School for use in its clinics and laboratories:

Table 2-3 Surface Disinfectants

Surface Disinfectant	Shelf Life	Use Life	Reuse Life	Disinfection Time	Sterilize Time	Mix Ratio
Sodium Hypochlorite	Indefinite	1 day	1 day	10 min	N/A	1:10
Iodophor/Biocide	2 years	1 day	1 day	10 min	N/A	2 ml: 14 oz H_2O
Cavicide	2 years	28 days	28 days	10 min	N/A	1:1 ready to use
2% Glutaraldhyde						
Cidex Plus (3.2%)	2 years	28 days	dirty	10 min	10 hrs	1 Act:1Bt
Banicide	Dated	30 day	dirty	10 min	10 hrs	1:4
BIREXse	Indefinite	1 week	dirty	10 min	N/A	1/8oz:1qt

VI. MONITORING STERILIZATION EQUIPMENT

A. Verification of Sterilization

1. Heat Sterilization (Spore Testing)

   Dental instruments pose a threat of cross-contamination between patients if the instruments are not sterilized between uses. Consistent killing of bacterial spores by a sterilizer provides the best known assurance that sterilization (death of all microorganisms) has occurred and that the device is functioning properly.

   At least once per week, each steam, dry heat, or chemical sterilizer will be checked with a biological control indicator. Control indicators are indispensable in checking against faulty packaging, loading, and sterilizer performances. Physical controls such as pressure gauges and thermometers are widely used but should be considered secondary methods of monitoring the efficacy of sterilization.

   a. **Steam Sterilization:** The biological indicator to be used for steam sterilization is *Bacillus stearothermophilus* spores. Use spore strips or ampules with an average population of 10^4 to 10^6 *Bacillus*

stearothermophilus organisms. The spores should be killed at 250^0 F in thirty minutes with steam sterilization.

b. **Dry Heat Sterilization:** The proper organism to use for testing dry heat sterilization processes is a spore strip with *Bacillus subtilis*. containing 10^6 organisms.

2. Glutaraldehyde Sterilant Solutions

   The effectiveness of the glutaraldehyde method cannot be routinely verified during use. Therefore, this or any other disinfection method must not be substituted for a verifiable sterilization method unless the instruments would be destroyed by high heat methods. Verifiable heat or gas sterilization methods provide the most effective way to insure dental instrument safety.

B. Spore Testing Protocol

The following procedure establishes the testing procedures and equipment required to evaluate the performance of sterilizing equipment.

1. Place the spore strips or ampule in the load. The most reliable means for determining whether a sterilizing cycle has been successful is by planting biological indicators throughout the load before the load is subjected to the sterilization process. If the load contains wrapped items a test pack should be prepared containing a spore strip. This pack should be positioned in the center of the sterilizer load.

2. Operate sterilizer in accordance with manufacturer's instructions.

3. Record chamber temperature as shown by the sterilizer indicator. Most large steam sterilizers utilize a chart recorder and the chart should be changed as necessary. It must be dated and retained to document the sterilizer's performance.

4. Upon completion of cycle, fast exhaust the chamber and remove test spore strips from sterilizer.

5. Incubate the indicators at the temperature and for the time indicated by the manufacturer after completion of the sterilizer cycle.

6. Record the results of the test indicating viability of the spores or successful sterilization.

7. Failure of a sterilizer to successfully indicate a spore kill on the biological indicator should trigger the recall of all materials processed

in that machine, followed by verification of the failure by repeat biological indicator testing and repair of the sterilizer, if warranted. Overloading of the sterilizer should be assessed as it is a common cause of sterilization failure. A questionable sterilizer should be taken out of service until a successful spore test has been achieved.

8. The Supervisor of Sterilization is to be informed of any failure of a spore test.

C. Recordkeeping

Records must be maintained for one year. These records must include:

1. Calibration reports on thermometers and other equipment

2. Results of all monitoring (spore tests)

3. Temperature charts

D. Monitoring Efficacy of Ultrasonic Cleaners

Once every month, each ultrasonic cleaner will be evaluated for performance by a standardized test concluded as follows:

1. A sheet of lightweight aluminum foil equivalent to the length and depth of the cleaner will be suspended in the cleaner filled with fresh cleaning solution and the unit operated for the appropriate cycle time (1 minute).

2. The test foil sheet will be examined for distribution of "dimples" and compared with previous records of performance.

3. Test foils will be dated and kept for reference.

4. Machines which exhibit bad or deteriorating performance as assessed by variation in "dimple" distribution shall be repaired or replaced.

E. Repair of Equipment

1. All equipment or instruments which may have come in contact with blood or other potentially infectious materials, such as saliva, shall be cleaned and disinfected by an acceptable disinfectant using the "spray, wipe, spray" method, or sterilized, if possible, prior to servicing. If such decontamination is not possible, the repairing agency must be informed and the device labeled as being contaminated with potentially biohazardous materials.

2. Dental repair personnel are to wear protective clothing, rubber gloves, and eyewear when handling dental equipment which may have been contaminated with body fluids.

VII. ASEPSIS IN THE DENTAL LABORATORY: POLICY

All materials and appliances from the clinics destined for laboratory work shall be disinfected prior to leaving the clinic. In addition, all appliances and materials coming from the laboratory phase of care will be disinfected and rinsed prior to try-in or insertion. All phases of the laboratory stage of dental care will be carried out in a manner which will minimize the potential for disease transmission by contact with appliances or materials.

VIII. IMPLEMENTATION

A. Disinfection of Fixed and Removable Prostheses

1. All instruments contaminated with body fluids during the laboratory phase of treatment must be cleaned and sterilized following use. This includes all wax spatulas, lab knives, acrylic burs and stones, wax carvers, etc.

2. All custom impression trays, biteforks, and occlusion rims must be disinfected after fabrication and before use with a patient. These items are disinfected by spraying thoroughly with the available FDA accepted disinfectant found in each clinic, and wrapping in a disinfectant-moistened paper towel to insure saturation with the disinfectant for the required time recommended by the manufacturer.

3. Articulators, casts, baseplates, bite records, and trial dentures must be disinfected following each clinical appointment. These materials must also be disinfected before taking them to faculty offices for evaluation. Disinfection of the mounted casts can be accomplished best by spraying both the articulator and casts with the solution until saturation of the casts is noted. The casts should then be wrapped with disinfectant-moistened paper toweling for the manufacturer's recommended time span. After that time, the articulator should be dried with paper towels and the condylar mechanism dried with compressed air. After each disinfection sequence, the articulator condylar mechanism should be sprayed with a fine mist of silicone spray (SGS) to preserve the mechanical integrity of the instrument. The entire surface of the instrument should be sprayed with silicone spray before mounting each new case to preserve its surface.

B. Disinfection of Impressions/Casts

1. Alginate Impressions

    a. Alginate impressions shall be disinfected before cast pouring by spraying with the solution and placing in a plastic bag for the manufacturer's recommended time.

    b. Prior to taking an impression, the patient will rinse with the provided mouth rinse to reduce the number of oral bacteria. After removing the impression, it should be rinsed to remove as much saliva as possible, then disinfected as previously described.

    c. Impression trays must be cleaned prior to sterilization. Removal of the impression material as quickly as is practical will make for easier cleaning.

2. Elastomeric Impressions (silicone, rubber base, polyvinyl)

    Rinse the impression to remove debris, blood, and saliva. Dry with air. Place impression in zip-lock bag with enough Banicide (green acid glutaraldehyde disinfectant) to cover. Seal the bag and allow the impression to remain immersed for 30 minutes at room temperature. When ready to cast, pour out the Banicide, remove the impression, and rinse with water for 45 seconds. Dry the impression with compressed air for 10 seconds, then allow the impression to rest undisturbed on the bench prior to pouring.

3. Reline Impressions

    Spray with a disinfectant solution and place in plastic bag for manufacturer's recommended time span.

C. Denture Disinfection

1. New dentures prior to delivery:

    a. Wash dentures vigorously with a brush and antimicrobial soap. Rinse well.

    b. Place in denture cup with 2% glutaraldehyde disinfectant for 20 minutes.

    c. Using aseptic technique, remove dentures, rinse well, and place on a clean towel.

2. Patient dentures prior to polish or repair:

   Follow procedures under "new denture" before polish or repair in lab.

D. Laboratory Procedures

Use of protective clothing, glasses, masks, and gloves is required.

1. Change the paper covering the bench top when changing cases.

2. Receiving area in prosthodontics lab should be disinfected with the "spray, wipe, spray" technique at least daily.

3. Cases should be disinfected before placement in the case pans.

4. Case pans should be disinfected with an FDA accepted disinfectant solution after use.

5. The same standards of infection control apply to fraternity labs or personal home labs. Impression trays must be cleaned prior to sterilization. Removal of the impression material as quickly as is practical will make for easier cleaning.

E. Dental Lathe Polishing

1. Place a sheet of plastic wrap or a Styrofoam tray in the splash pan.

2. Dispense amount of clean pumice to be used in a paper cup.

3. Sterile rag wheels will be used (rinse, package, and autoclave after use).

4. An accepted disinfectant solution will be used to moisten pumice.

5. Unit dose polishing paste (Ivoclar Universal Polishing Paste).

6. Dispose of plastic wrap or Styrofoam tray when finished.

7. "Spray, wipe, spray" splash pan with an accepted disinfectant solution after use.

F. Preclinical Laboratory Protocol

Tissues including teeth, blood, and other body fluids from all patients should be considered infectious. During sessions in laboratories, appropriate barrier precautions (masks, gloves, and eye wear) shall be

worn when working with materials contaminated by human body fluids, such as extracted teeth. Work habits in the preclinical laboratory should be learned which will enhance infection control procedures later during clinical practice. The following precautions are recommended for health care workers in preclinical laboratories when performing procedures on anatomical specimens, such as teeth:

1. Laboratory gowns are provided to students.

2. Use of extracted teeth in instructional programs demands that attention to infection control practices such as the use of personal protective equipment be included in laboratory activities. Refer to Chapter 4, Section IIB of this manual for proper handling of extracted teeth.

3. Masks and protective eyewear must be worn if particles of tooth or restorative materials may come in contact with mucous membranes. Gloves should be changed and hands washed after completion of specimen use or processing.

4. Laboratory work surfaces should be cleaned and disinfected with a FDA accepted disinfectant when work activities are completed.

5. Equipment that has been contaminated with blood or other body fluids should be cleaned and heat sterilized, if possible, or at least disinfected before being repaired in the laboratory or transported to the manufacturer for repair.

6. Hands must be washed after completion of laboratory activities.

Chapter 3

BLOODBORNE PATHOGEN MANAGEMENT

I. POLICY

All faculty, staff, and students who work in clinics or laboratories where skin, mucosal, eye, or parenteral contact with blood or other potentially infectious materials including saliva can be reasonably anticipated, or those whose work supports those clinics or laboratories and may indirectly contact objects or substances contaminated with potentially infectious materials, shall receive training on bloodborne disease risk, epidemiology, and methods of reducing risk for transmission in the dental setting. They will be offered immunization in accordance with University of Washington Health Science Center policy as a condition of employment, or acceptance into clinical dental education programs. They shall also receive training in safety procedures related to hazardous chemicals.

Protocols are in place for post-exposure evaluation and follow-up in the event of accidental potentially inoculating events. Health care providers who harbor infectious diseases shall not perform certain invasive, or exposure prone procedures (Appendix C) in order to reduce the risk of disease transmission to patients unless sanctioned to do so by the HBV/HIV Committee of the Health Sciences Center.

All individuals with patient contact will adhere to high standards of personal hygiene, and will dress in a clean, professional manner appropriate to the care provided.

All students, faculty, and staff will use appropriate personal protective equipment (PPE), as well as mechanical protective devices or procedures to minimize skin contact with potentially infectious materials and hazardous chemicals. These precautions will be maintained during the treatment of patients and in laboratory procedures with any items contaminated with blood, saliva, or gingival fluids. A CDC publication entitled, *Recommended Infection Control Practices for Dentistry*, 1993 is available online at: http://www.cdc.gov/mmwr/preview/mmwrhtml/00021095.htm

II. PROTECTIVE STRATEGIES

This chapter describes the array of strategies designed to protect the dental healthcare worker from hazardous chemical, potentially infectious materials and transmitting infectious disease. These include the following:

- Training
- Hand washing

- Immunizations
- Use of Protective Equipment
- Injury and Exposure Procedures
- Personal Hygiene
- Regulations for Infected Health Care Workers

A. Training

All students, staff, and faculty at risk for occupational exposure to blood-borne diseases and hazardous chemicals will receive training in personal protection. New personnel shall be trained prior to being assigned to procedures where potential for exposure exists. Initial and recurring required training needs for employees will be determined by and monitored by supervisors. They will also be responsible for scheduling necessary training sessions as well as keeping current training records.

Training will be provided using videotapes and seminars by Dr. Frank Roberts or the staff of the Office of Environmental Health and Safety and will cover the following topics:

Infection Control

1. The epidemiology, symptoms, modes of transmission, and prevention of bloodborne disease including HIV, and Hepatitis B as well as possible risks to a fetus from bloodborne pathogens. The training in epidemiology shall also include tuberculosis which is an airborne disease

2. Hepatitis B vaccine's availability, efficacy, safety, and benefits.

3. Methods for recognizing tasks and activities that may involve exposure to blood and other potentially infectious materials. This discussion will cover universal precautions and barrier techniques including the selection, proper use, decontamination, and/or disposal of personal protective equipment.

4. The meaning of any warning signs, symbols, or labels used in the facility to identify infectious waste or contaminated items.

5. The procedures to follow when an injury or accidental exposure occurs.

6. A copy of the bloodborne pathogen standard will be provided to participants along with an explanation of its contents (see Appendix A).

7. A review of the exposure control plan of the School of Dentistry and how it may be obtained.

Chemical Hazards

8. Trainers

   The following are trainers who will train employees on the “Hazards Communication Program”:

Instructor	Title	Audience
Frank Roberts, DDS	Associate Professor	Faculty, staff, students
Char Bell-Younger	Safety Director	Staff
Environmental Health & Safety Staff	Various	Faculty, staff, students

9. Chemical hazard training shall include the following:

   a. Explanation of the Hazard Communication Standard. Each trainee will be instructed as to where they can access a copy of the standard and the manual *Hazard Control In The Dental Environment* on the School web site. Hard copies of these documents will be made available upon request.

   b. Review of chemicals used in each specific workplace as well as any special handling they require. Identify any physical and health hazards associated with any of the chemicals in the workplace. Identify the location of the chemical inventory list for each work area.

   c. Explanation of Material Safety Data Sheets (MSDS) and their location for each work area.

   d. Explanation of the warning label system for chemical and biohazardous materials.

   e. Explanation of the use of protective devices and procedures to protect employees from chemical and biological hazards.

   f. A "question and answer period" related to management of chemicals in the workplace.

   g. Document the name and department of each participant. Written certification is available upon request to the OCS for those whom received training.

10. Training shall be made available on a quarterly basis to accommodate new employees as well as training of continuing employees in the

handling of new chemical products. Training is required at the time of hiring, when a new hazard is introduced into the workplace, and at least annually for continuing employees. Training needs of employees will be determined and monitored by supervisors who will schedule training accordingly.

11. Training shall be offered in small group sessions using various media including PowerPoint, overhead transparencies, videotapes, and handouts. The training shall be work site-specific for the trainees. Each trainee will be given a brief examination at the conclusion of the training session.

12. Training Records

    a. Training records must be signed by the persons receiving the training.

    b. Training records will be maintained by the School Health and Safety Coordinator or the Office of Environmental Health and Safety and will be kept for the duration of employment plus three years.

    c. The record should include the elements shown in Figure 3-1.

Table 3-1 Basic Safety Training Requirements

	EMPLOYEES AFFECTED	Office	Clinic	Lab	Student	SUBJECT	COMPLIANCE METHOD	FREQUENCY
1	All employees	X	X	X	X	Accident Prevention (New Employee Safety Orientation)	Employing department give training; checklist for department use is available from EH&S	Upon hire or initial assignment
2	All employees	X	X	X	X	Hazards Communication	EH&S Hazcom Train the Trainer and Depts./ Units	Upon hire or initial assignment
3	All employees	X	X	X	X	Fire Prevention and Emergency Plans (including earthquakes, major disasters)	Department/Unit	Upon hire/assignment/annual review
4	Employees required to wear personal protective equipment		X	X	X	Orientation and Updates on the Use and Disposal of Personal Protective Equipment	Employing Department	Upon hire/assignment/annual review
5	Employees in contact with patients/ human body fluids (includes clinic staff, students, and faculty)	X	X	X	X	Bloodborne Pathogen Exposure in Dentistry	School of Dentistry provides courses	Required annually
6	Dentists		X		X	Basic Life Support (Level C)	Available Academic Services, HSC & SOD	At expiration of previous training
7	Clinic Staff		X			Basic First Aid (at least two people from each department)	Available Academic Services, HSC & SOD	At expiration of previous training
8	Lab Employees working with biohazards			X		Biosafety Training/Bloodborne Pathogens	EH&S Courses	Required annually
9	Employees who work with chemicals or are at risk of exposure, esp. in labs		X	X		Special EH&S Courses in Specific Chemical Hazards/Controls	EH&S courses on lab chemical safety	Upon hire/assignment/ or when new chemical introduced into workplace
10	Employees who work with compressed gas cylinders or pressure systems (including lab and clinic personnel who handle anesthesia tanks)		X	X		Compressed Gases and Pressure Systems	EH&S	Upon hire or initial assignment
11	Employees who could encounter a hazardous materials spill or release, including labs		X	X	X	Emergency Response to Hazardous Waste	EH&S as part of lab safety training	Required annually
12	Employees with fire evacuation responsibilities (named in fire alarm exemption protocol)	X	X			Fire Evacuation Training	EH&S Fire Safety Training	Upon hire or initial assignment
13	Employees at risk of formaldehyde exposure			X		Formaldehyde Use and Control	Department/Unit with EH&S support	Upon hire/assignment/annual review
14	Employees exposed to/working with non-ionizing radiation (X-ray, microwaves), clinical laboratory personnel		X	X	X	Training in Protection, Control, and Assessment of Radiation Hazards	Employing Department with EH&S support	Upon hire/assignment/annual review

Hazard Communication Program

Course Description:
Date of Course:

Course Instructor(s):	Credentials:
Attending Employees: (Print)	Employee Signature

Figure 3-2 Sample record of employee training.

Table 3-1 on the previous page is a summary of training requirements for students, faculty and staff.

B. Immunizations

1. Hepatitis B Vaccination

   a. All students, staff, and faculty who have contact with patients or materials which may be potentially infectious are required to receive Hepatitis B immunization or show evidence of immunity from previous vaccination or actual infection. The vaccine is to be offered to employees (staff and faculty) at no charge.

Evidence of immunity is required. The immunization series consists of three doses of vaccine. *The first injection must be administered before staff, faculty, or volunteers enter the clinic.* In addition, an antibody titer is required after completion of the series to prove immunity.

   b. Students are screened and provided needed immunizations during Orientation Week and must show evidence of immunization or immunity as a condition of participation in the educational programs of the School. This information should be provided to the Director of Safety for maintenance of student medical records. This

information is maintained by the University's Student Health Service and the Office of Clinical Services in the School of Dentistry.

2. Tetanus and Diphtheria

   All dental health care workers (HCW) must be immunized with boosters required within 10-year intervals.

A basic childhood series and a booster (Td or Tdap) within the last ten years.

3. Rubella

All dental HCW are required to have either a positive Rubella titer, or receive Rubella Vaccine. The current UW standard is that rubella immunization is required if the titer indicates susceptibility (i.e., lack of detectable antibody). Students and employees are expected to provide proof of one or the other.

One immunization or a positive antibody titer.

4. Rubeola (Measles)

   Two live virus measles (rubeola) vaccinations, both given after 1967 with at least one given after 1980; or a history from a healthcare provider of measles (rubeola) disease. Individuals born before 1967 are considered immune to measles.

Two vaccine doses, a positive antibody titer, or documented physician-diagnosed history of the disease. The doses must have been received after 12 months of age and at least one month apart. They must have been given after 1/1/68 and not given with immune globulin. Persons born before 1/1/57 must have proof of one dose or positive antibody.

5. Mumps

   Immunizations are required if there is no definite knowledge of having had the disease.

Two immunizations (regardless of birth year), a positive antibody titer, or history of the disease diagnosed by a physician.

6. Poliomyelitis

   Those who have not been previously immunized for Polio should discuss immunization with their physician and proceed according to his/her instructions. Inactivated (Salk) vaccine is recommended for adult immunization.

7. Tuberculosis

   All HCW must be tested annually for TB. This is done through PPD skin tests. BCG vaccination is not a contraindication for PPD skin test. Anyone who has had a positive PPD skin test should have had a chest x-ray to rule out active TB. The results of this x-ray must be recorded in the Employee Health Clinic. Once this information is obtained, these employees will be cleared annually for TB with the use of a symptom questionnaire. Chest x-rays could be indicated after completion of the questionnaire. There is no indication for yearly chest x-rays.

Evidence of *two* PPD tests within the year prior to employment is required; otherwise a 2-step PPD will be done.	History of BCG is *not* a contraindication to PPD testing. If you have had a *documented* positive TB skin test in the past, records specifying the test, a chest x-ray report, and details of prescribed medication are needed. Annual PPD skin testing (or symptom review for those not being tested) is required. Patient contact is not allowed unless documentation of this annual TB screening takes place.

8. Influenza

   Annual immunization is recommended.

9. Varicella – All Dental HCW should follow CDC guidelines and demonstrate immunity to varicella with history of disease or two injections of varicella vaccine, given at least 4-8 weeks apart.

History of disease is usually sufficient.	Those lacking a reliable history of varicella or serologic evidence of immunity receive a series of two immunizations given at least one month apart.

C. Tuberculosis Management Guidelines

The occurrence of tuberculosis is on the rise in the United States. The following guidelines listed in Table 3-2 should be adhered to in the patient care process:

Table 3-3 Tuberculosis Management Guide

1. Healthcare workers (HCW) should routinely ask all patients about a history of TB disease and symptoms suggestive of TB.
2. Patients with a history, and symptoms suggestive of active TB, should be promptly referred for evaluation for possible infectiousness.

3. Elective dental treatment should be delayed until a physician confirms that the patient does not have infectious TB.
4. If it is determined that the patient has infectious TB, elective dental treatment should be deferred until the patient is no longer infectious.
5. If urgent dental care must be provided for a patient who has, or is strongly suspected of having infectious TB, the patient should be referred to a clinic where TB isolation practices can be implemented.
6. If urgent dental care must be provided for a patient who has, or is strongly suspected of having, infectious TB, HCWs should be referred to a provider who is trained to use respiratory protection while performing procedures on such patients.
7. Dental HCWs who work in a facility where there is a likelihood of exposure to patients with infectious TB should be included in an employer-sponsored PPD testing program.

D. Regulations for Infected Health Care Workers (HCW)

1. Dental HCW who may be infected or have a known infection of either HIV or HBV must comply with the University of Washington Health Science Center Policy addressing this issue (see Appendix A).

2. Information related to a patient health history or care will be released only to individuals participating in the patient's care to insure access to confidential patient information without violating patient rights to confidentiality. Authorization to access confidential patient medical information for health care providers and students in the University Health Sciences Center is provided as follows:

   a. **State Law:** Confidentiality of Patient HIV Status and related information permits health care facility administrators to authorize exchange of confidential medical information for the teaching and training of health care providers and students when exchange of such information is necessary for their training and teaching and is specifically related to the care of the patient. (WAC 246-101-120)

   b. **University Policy:** On May 4, 1990, in accordance with their authority, the Vice President for Health Sciences, the Executive Director of University of Washington Medical Center, and the Administrator of Harborview Medical Center hereby authorize the exchange of confidential medical information for the teaching and training of health care providers and students when the exchange of confidential medical information is necessary for such training and specifically related to the care of the patient. Students must clearly understand the idea of privileged information and the imperative need to maintain confidentiality by all who have access to patient records and other medical information.

E. Personal Hygiene

1. Hair shall be cleared away from the face, and should not contact the patient,
   operatory light handle, or the area of operation.

2. Facial hair shall be covered by a face mask or chin-length plastic face shield.

3. Jewelry or watches shall not be worn on the hands or arms during patient treatment.

4. Nails must be kept clean and short.

5. Watches and necklaces with long chains must be worn inside the clinic gown.

6. Individuals with injured, cracked skin or dermatitis should exercise particular caution when treating patients until the lesions are healed.

7. The consumption of food and beverages shall be confined to lounge or eating facilities and must not be done in clinics or laboratories. No smoking is allowed in the Health Sciences Center complex.

F. Hand Washing

1. Hand washing is mandatory before gloving, after de-gloving, after handling items that may have been contaminated by patient contact, or when hands are obviously soiled.

   a. Hands are to be washed during the appointment after gloves are removed, before leaving the operatory, and again on re-entering the operatory prior to re-gloving. They should also be washed prior to re-gloving if gloves are torn.

   b. Hand washing is required following toilet use, before eating, and after contact with your hair, face, or glasses.

2. Routine hand washing for dental clinical and laboratory procedures should involve the following:

   a. Remove visible debris (e.g., cements, impression material, etc.) from hands and arms using appropriate solvents or cleaners if required.

   b. Skin must not be abraded with brushes or sharp instruments.

   c. Wet hands and wrists under cool running water.

d. Rub antibacterial soap gently into all areas, especially between fingers and around nails, for at least 15 seconds before rinsing under cool water.

e. Repeat the washing and rinsing, and thoroughly dry with paper towels.

G. In-House Laundry Guidelines

1. Individuals must wear personal Protective Equipment (gown, gloves, mask) when handling soiled gowns.
2. Soiled gowns must be brought to pre-sterilization in a red bag.
3. Water temperature during the wash cycle shall be a minimum of 160^0 F.
4. Chemical or soap product containers shall be clearly labeled.
5. Laundry detergent shall be used in accordance with the manufacturer's instructions.
6. Bleach is to be used during the wash cycle at a concentration of 1 cup per load (50-150 ppm).
7. No more than 20 gowns are to be washed during a single load.
8. No more than 10 gowns are to be dried in a single load. The dry cycle shall be not less than 10 minutes.
9. Gowns are to be hung on the apparel rack after drying.
10. Clean gowns will be stored in either the Sterilization room or in Central Supply and dispensed from the Sterilization room.
11. The above instruction shall be posted near the laundry equipment.

H. Use of Personal Protective Equipment

Students, faculty, and staff are required to wear personal protective equipment as described in Section III below during clinical and laboratory procedures as well as when handling contaminated instruments and laundry. The information provided is in compliance with WAC 246-816-520 and 246-816-620.

I. Housekeeping Requirements

State law requires that all health care facilities be maintained in a sanitary condition. A publication entitled, *Physical Plant Department Custodial Services*, lists the routine services provided by the custodial staff in clinical, laboratory and adjacent support areas as follows:

1. Daily Tasks
    a) Trash removal
    b) Floor sweeping, spot mopping, spot vacuuming
    c) Sanitizing restrooms, repairing dispensers, and replenishing supplies
    d) Dusting uncluttered cabinet tops, window sills, banisters, etc.
    e) Recycle collection
2. Regular Tasks (non-daily)
    a) Sweeping stairwells (twice weekly)
    b) Stripping and finishing floors
3. Biennial Tasks
    a) Window washing (Note: The dental school supplements this service with an additional cleaning ever other year so that windows are washed annually.)
    b) Carpet cleaning

All other housekeeping is the responsibility of the facility staff under the direction of their supervisors.

III. USE OF PERSONAL PROTECTIVE EQUIPMENT

A. Clinic and Laboratory Attire

Clinical attire for dental procedures should always be used to protect against contamination of other clothing, and should be changed daily or when visibly soiled. Attire for those involved in patient care shall include the following:

1. Clinic Attire

    a. General Dress Requirements

- A neat, clean professional appearance while engaged in patient care is required. Such a professional appearance communicates an image of quality work, and respect for the patient's well-being.
- Clinic Gowns must not be worn in restrooms. Hooks are provided outside restrooms to hang clinic gowns before entering.

- Name tags or photo ID badges will be required and will include the individual's name and *UW School of Dentistry* designation.
- Faculty, students, and staff must wear shoes and stockings (nylon hose are acceptable) when *entering* a clinic or laboratory. Shoes must be clean and well-maintained and appropriate, (e.g., no torn or dirty athletic shoes, work shoes/boots, open toed shoes, sandals, or shoes without socks or nylons). Clean all white athletic shoes are acceptable.
- Clinical or laboratory attire used in the patient care process is only to be worn in the clinics and adjacent hallways.
- Persons with facial or head hair of a length that may contact operating instruments, materials, or the operative field while the operator is in working position or during treatment room preparation, must contain the hair using a hair net on the head and a face shield with a face mask to contain facial hair.

b. Student and Staff Gowns (Figures 3-4 and 3-5)

Moisture resistant gowns will be used by all students and staff during patient care. The garments are designed to provide additional protection to skin and clothing from potentially saturating contamination. Name tags should be either clipped on or worn around the neck.

Figure 3-4 A properly attired student using a moisture resistant gown, surgical mask, protective eyewear, and examination gloves.

Figure 3-5 A properly attired staff member using a moisture resistant gown, surgical mask, protective eyewear, and examination gloves.

will reduce the moisture resistant protection. They are professionally laundered, and should be changed daily or when visibly soiled. They are to be placed in the appropriate laundry bags or designated cabinet located in each clinic prior to leaving the clinic. Clinic garments must not be taken home.

c. Faculty Gowns (Figures 3-6 and 3-7)

Faculty can wear the moisture resistant gowns mentioned above during a clinic session or white laboratory coats with long sleeves and Velcro collars which can be closed if spatter or aerosol is anticipated during a procedure. These garments will be laundered professionally by each department. These garments must ***not*** be taken home for laundering. Clinic attire which is actually used for patient care should not be used as "street clothing" to attend meetings, perform office work, or during meals.

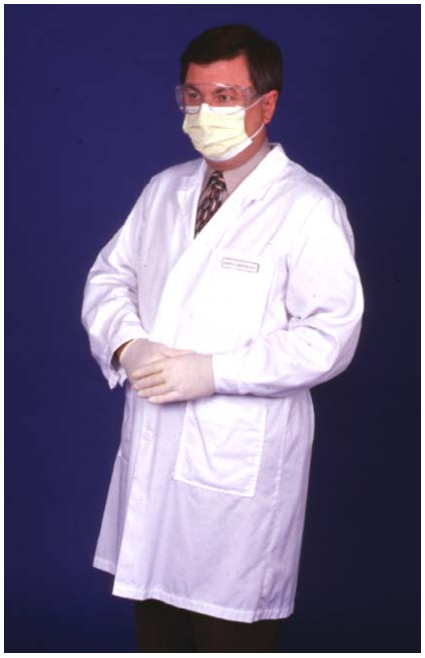


Figure 3-6 A properly attired faculty member using a white gown with the collar in the non-spatter position, surgical mask, protective eyewear, and examination gloves.

Figure 3-7 A properly attired faculty member using a white gown with the collar in the spatter position, surgical mask, protective eyewear, and examination gloves.

2. Laboratory Attire

a. Laboratory gowns or coats should be worn during laboratory procedures producing splatter, aerosols, or dust in order to protect clothing from contamination. Gowns designated for use in the clinic

are not to be used as laboratory attire. Users must wear a clean white jacket or coat with long sleeves to minimize skin and clothing exposure to aerosols. The garment must be closed (buttoned, zipped, or snapped) during use. Laboratory coats or jackets are not to be worn outside of either laboratory or clinical areas, and must be changed daily or when visibly soiled.

B. Gloves

1. All persons involved in patient care will wear disposable medical gloves (latex or vinyl) when there is contact with blood, blood-contaminated saliva, or mucous membranes. Gloves will also be worn when handling material which previously contacted these substances, or surfaces.

2. Non-sterile gloves are appropriate for examinations and other non-surgical procedures, but sterile gloves must be used for surgical procedures.

3. Gloves will be removed and hands washed prior to leaving the operatory, and hands will be rewashed on returning prior to regloving.

4. *Only items which are to be sterilized, have surface covers, or items which are to be disinfected following use, are to be touched with contaminated gloves.* Gloves are to be removed when getting supplies, removing materials from the cart, or handling the chart.

5. Puncture-resistant utility gloves shall be used by students and employees when handling contaminated instruments. When performing housekeeping duties where risk of accidental puncture wounds are minimal, latex gloves may be used.

6. Gloves are never to be washed and reused. They are to be removed by grasping the cuff and pulling the glove off while turning it inside out so that the contaminated surface is now inside the used glove.

7. Individuals with dermatitis related to use of gloves should insure that they are:

   - using cool water when washing hands
   - using an antimicrobial hand wash
   - drying the hands thoroughly
   - changing gloves often

If problems persist, contact the Employee Health for advice on optional hand washes or gloves for use on those with sensitive skin.

8. Gloves will be used during laboratory procedures on materials that may be contaminated with human body fluids. Care should be taken to avoid snagging gloves in rotary instruments or equipment such as lathes or model trimmers.

C. Face Masks

1. Disposable face masks or chin-length plastic face shields are to be worn for all patient care where spatter or aerosols are produced, or when a care provider or patient has a respiratory infection. The mask must cover the nose and mouth and must fit snugly with no gaps.

2. Masks must be changed between patients or treatment sessions, or when contaminated by touch.

3. Masks are to be worn in the laboratory when procedures create dust, shavings, or aerosols.

D. Eyewear/Face Shields

1. Protective eyewear is required during all procedures for patients, students, faculty, and staff.

2. Safety glasses, goggles or face shields with top and side coverage offer more protection than prescription eyewear, and many types can be worn with or without prescription glasses. Prescription eyewear with solid side shields, however, is the minimum standard of protection for patients, students, and employees.

   a. Patient Safety Glasses

      A disinfected pair of safety glasses for patient use may be obtained by exchanging the previously issued pair at the sterilization room. Dark glasses are not to be used on patients sedated for treatment.

   b. Student and Employee Safety Glasses

      A disinfected pair of safety glasses may be obtained by exchanging a previously used pair at the sterilization room. Alternately, an individual's personal safety glasses may be reused by washing thoroughly with soap and water, Bleach (use conc) as a disinfectant, and allowing to remain wet for at least 10 minutes.

After the 10 minute period, the glasses may be rinsed, dried, and reused.

3. Face Shields may be used in place of safety glasses, particularly in procedures where significant spatter is anticipated. Masks should be used in combination with face shields as the shields offer minimum protection from inhalation of aerosols. Disposable shields should be discarded after patient treatment.. Shields may also be used during lab procedures where there is potential for dust or particle inoculation or injury.

4. Masks and eyewear, or face shields should be placed and adjusted prior to gloving. They also should not be adjusted during treatment with contaminated gloves.

E. Needle Recapping and Sharps Disposal

1. Anesthetic needles should only be recapped with the use of the "Stik-shield" cardboard barrier which is supplied with each syringe, or with a one-handed "scoop" technique. Two-handed needle recapping without a protective device is not permitted. Recapping of needles used in conjunction with intravenous sedation is not permitted.

2. The Stik-shield is installed before the needle is unsheathed, and should be kept on the needle sheath until the needle is placed in the sharps container in the unit. The needle is removed from the syringe with the sheath and shield in place, the carpule puncturing end of the needle is placed over the opening of the sharps container, and the sheath (and needle) is pushed backwards through the shield and into the container. The shield itself is then discarded with ordinary clinical waste.

3. Needles must not be bent or broken following use.

4. After dismissing the patient, the "sharps" from the procedure must be cleared from the area first and then placed in the red, puncture-proof sharps containers found in each operatory.

5. Items to be placed in the sharps containers include:

   a. used and unused anesthetic carpules
   b. worn out burs
   c. anesthetic needles
   d. broken instruments
   e. syringe or butterfly needles

f. orthodontic wires and ligatures

g. suture needles

h. scalpel blades

i. or any other sharp items which may injure individuals handling waste

6. Never attempt to force sharps into a filled container. Obtain a new one from the clinic staff and report the filled container. A container should be replaced when it is 3/4 full.

Chapter 4

BIOMEDICAL WASTE MANAGEMENT

I. POLICY STATEMENT

Waste generated during the course of dental care will be disposed in a fashion consistent with University, local, and state regulations pursuant to the protection of individuals with possible exposure risk.

A. Definitions

1. ***Blood/Body Fluids:*** Flowable “liquid” blood or body fluids.

2. ***Blood, or Body Fluid Saturated Items:*** Items in which the blood or body fluid in question is not dried, or fully absorbed, and has the potential to drip (cotton rolls, gauze, etc.)

3. ***Bloody Wastes:*** Items that have come into contact with blood or body fluids, and on which the fluid has dried (gloves, bibs, rubber dams, etc.)

B. Regulated Waste Categories

1. Items referred to as "sharps" including such items as used and unused needles, scalpel blades, sutures, anesthetic carpules, instruments, and broken glass

2. Human tissues and foreign bodies including teeth removed during surgery

3. Blood-contaminated material or items which would release blood or other potentially infectious materials, including saliva, if compressed (Blood, or Body Fluid Saturated Items)

4. Liquid blood in free flowing form (Blood/Body Fluids)

5. Chemical hazards

II. BIOHAZARDOUS WASTE MANAGEMENT

To meet these regulations, the following waste management procedures shall be followed:

A. General Clinical Material

1. Sharps removed from their original packaging will be disposed in the red puncture-resistant, leak-proof containers found in each operatory.

2. All human materials (except extracted teeth) removed during surgery should be managed in accordance with the Tissue Management Policy of the School. The Division of Oral Pathology will arrange for appropriate disposal following examination and reporting.

3. All blood-contaminated disposable materials will be transferred from the patient's mouth and placed directly into a bedside collection bag taped to the cabinetry or mobile cart in the operatory. (This is true for materials which would release *Blood, or Body Fluid Saturated Items,* or other potentially infectious materials, including saliva if compressed, or which are caked with dried blood or other infectious materials, *Bloody Wastes*.) Materials placed in this bag will include, but will not be limited to, soaked or blood-contaminated cotton rolls, gauze, cotton pellets, floss, or tissue dressings ("packs").

   Following patient treatment, the bedside bag will be closed and placed in the biohazardous waste bag-lined receptacle (red bins) located in each clinic. Staff will collect and close the autoclave bag lining the bin at least daily or, when full, deposit in biohazardous waste container on each floor; it is then taken to Academic Services in T-276 weekly between 7:15 a.m. - 5:00 p.m., M-F, for sterilization disposal.

B. Procedure for Extracted Teeth

1. Extracted teeth are not classified as pathological waste in the State of Washington, but because of the contamination with blood and saliva they should be handled as biohazardous material in the dental school.

2. Extracted teeth should NOT ordinarily be returned to patients and, unless they are to be used for research or educational purposes, the teeth are infectious waste and should be treated prior to disposal. If the patient insists on obtaining his/her extracted tooth, it may only be returned to that patient following a 10-minute soak in a 1:10 solution of sodium hypochlorite (i.e., chlorine bleach). Handle extracted teeth only with forceps or gloved hands[1, 2].

3. Teeth to be used for research or educational purposes should be placed in a leak-proof container of 1:10 sodium hypochlorite. The

[1] Schulein, TM. Infection control for Extracted Teeth in the Teaching Laboratory. J. Dent. Educ. 1994; 58:411-13.
[2] Tate, WH, White, RR. Disinfection of human teeth for educational purposes. J. Dent. Educ 1991; 55:583-5.

container should be no more than one-third filled with teeth, and all teeth must be completely submerged for at least two weeks before handling. Care should be taken to avoid contamination of the outside of the container. Gloves always must be worn when handling the container. Eyeglasses and gloves must be used to prevent exposure to the sodium hypochlorite when adding sodium hypochlorite to, or when retrieving the teeth from, the container. Teeth should be thoroughly rinsed with water to remove as much residue as possible. (Note: If these procedures render the teeth inadequate for the intended research, contact the Health and Safety Task Force concerning the potential development of alternative methods of sterilization or disinfection.)

4. Teeth with amalgam restorations **must not** be heat sterilized to avoid the possibility of mercury vapor release.

C. Disposable Items Management

Items manufactured for "single use" are not to be reused. Such items include needles, plastic suction tips, prophylaxis points, cups and brushes, examination or surgical gloves, masks, operatory surface covers, and disposable clinic attire. Used disposable items must not be removed from the clinic, and should be discarded in available containers immediately after use.

III. CHEMICAL WASTE MANAGEMENT

A. Chemical Spill Management

The range and quantity of hazardous substances used in the facilities require preplanning to respond safely to chemical spills. The cleanup of a chemical spill should only be done by knowledgeable and experienced personnel. Spill kits with instructions, absorbents, reactants, and protective equipment should be available to clean up minor spills. A **minor** chemical spill is one that facility staff are capable of handling. All other chemical spills are considered to be in the **major** category.

1. Minor Chemical Spill Protocol
   a. Alert all people in the immediate area of the spill.
   b. Wear protective equipment, including safety goggles, and long-sleeved gown.
   c. Avoid breathing vapors from the spill.
   d. Confine spill to smallest area possible.

e. Use appropriate kit to neutralize and absorb inorganic acids and bases. Collect residue and place it in a container and dispose of it as chemical waste.

f. Clean spill area with water.

2. Major Chemical Spill Protocol

a. Attend to any injured, or contaminated persons and remove them from further exposure to the spill.

b. Alert people in the work area to evacuate.

c. If spilled material is flammable, turn off ignition and heat sources.

d. Call Chemical Spill Emergency Response at 543-0467.

e. Close doors to affected area.

f. Have any persons knowledgeable of spill incident and the facility assist in clean up.

B. Mercury

1. Mercury is considered a hazardous chemical and needs to be disposed of by the Safety Assistant through the Chemical Waste Section of EH&S. A chemical collection request form, as shown in Figure 4-1, must be submitted to EH&S to arrange for a pick-up of chemical waste items.

2. Small Mercury Spills

In the event of a small mercury spill (under 5 ml of mercury) the following protocol should be followed:

a. Mark or cordon off the area of the spill to prevent the inadvertent spread of the spilled mercury.

b. Wear gloves and goggles during clean-up procedures.

c. Moisten a mercury-absorbent sponge with water and wipe down the area of the spill. Some of the mercury will be absorbed into the sponge and some will be amalgamated on the sponge surface. Rubbing mercury absorbent powder into the surface of the sponge will increase its absorbent capacity. These materials can be obtained from the dispensary.

d. Repeat as necessary until the entire area has been decontaminated.

e. Place any broken glass, or other mercury-contaminated material such as gloves in a screw capped plastic container. Contaminated sponges can be placed in a "Ziplock" plastic bag and labeled "Hazardous Waste" and stored under a fume hood, or in a well-ventilated area until it is picked up by the area supervisor.

f. The area supervisor will submit a hazardous waste collection request form to EH&S to order the pick up.

3. Large Mercury Spills

   In the event of a large mercury spill (over 5 ml of mercury) the following protocol should be followed:

   a. Mark or cordon off the area of the spill to prevent the inadvertent spread of the spilled mercury.

   b. The clean-up should be performed by specially trained personnel. For the dental school clinics, either the area supervisor, or the Dental Equipment Repair Technician should be contacted to manage the spill using a mercury vacuum. If both of these persons are unavailable, call EH&S at 543-0467 for clean-up advice or follow up, if needed.

   c. Following the clean-up, the contaminated materials are to be disposed of as described above.

   d. EH&S is to be notified of large spills so that they can perform a post clean-up evaluation prior to the release of the contaminated area into service.

C. Amalgam Scrap

1. Amalgam scrap is to be stored in the sealable jars located in each cubicle where amalgam services are provided. The scrap is to be covered by a 1:10 solution of sodium hypochlorite in the jar.
2. Extracted teeth with amalgam are to be handled in the same manner by storing them in a closed container of 1:10 solution of sodium hypochlorite.
3. Full containers are to be sent to the Sterilization Supervisor for storage in a larger container with a Chemical Waste label until the waste is collected by the Chemical Waste Section of EH&S for proper disposal. A request form needs to be completed for chemical waste collection. See figure 4-1.

D. Amalgam Capsules

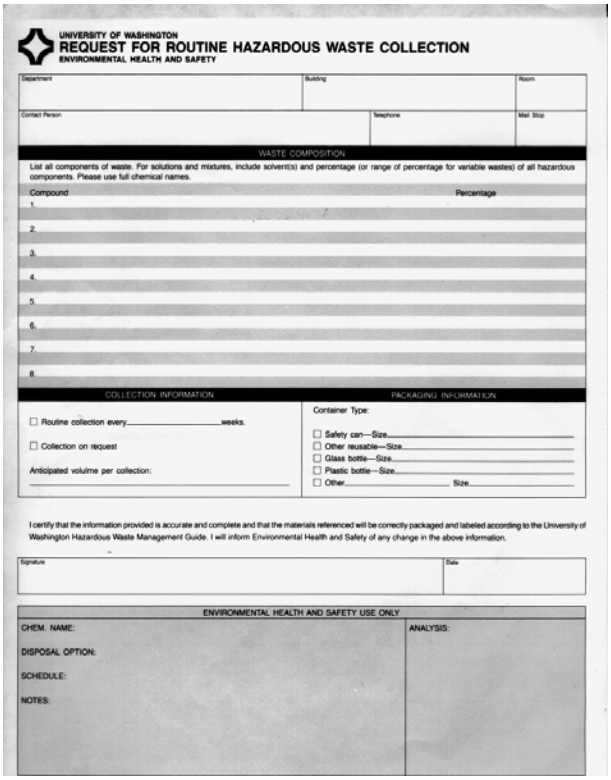
1. Used amalgam capsules are not to be disposed of with normal waste.
2. Place the capsules in the sealable receptacle provided and close the lid tightly. Clinic staff will empty the jars weekly and consolidate the waste into a larger sealed container to be disposed with amalgam scrap by the Chemical Waste Section of EH&S. Notify the area supervisor if the container gets full between scheduled pick-ups.

E. Lead Foil from Dental X-ray Film Packets

1. Lead foil from dental film packets are to be deposited in containers labeled "Recyclable Lead Foil Only" which are located at each film processing station. No other waste is to be placed in these containers.
2. Students, faculty, and staff are to be trained in the proper management of dental film packet disposal.
3. The area supervisor will collect the full containers and consolidate the waste into a sturdy, clear plastic bag for pick up by the Radiation Safety Section of the Department of EH&S.

F. X-ray Film Developing Solutions

1. X-ray fixer contains silver salts and is considered a hazardous chemical which must not be poured into the sewer system. It is to be collected by the Dental Equipment Repair Technicians and delivered to the Chemical Waste Section of EH&S for proper disposal.



UNIVERSITY OF WASHINGTON
REQUEST FOR ROUTINE HAZARDOUS WASTE COLLECTION
ENVIRONMENTAL HEALTH AND SAFETY

Department | Building | Room

Contact Person | Telephone | Mail Stop

WASTE COMPOSITION

List all components of waste. For solutions and mixtures, include solvent(s) and percentage (or range of percentage for variable wastes) of all hazardous components. Please use full chemical names.

Compound | Percentage

1.
2.
3.
4.
5.
6.
7.
8.

COLLECTION INFORMATION

☐ Routine collection every _____ weeks.

☐ Collection on request

Anticipated volume per collection:

PACKAGING INFORMATION

Container Type:

☐ Safety can—Size
☐ Other reusable—Size
☐ Glass bottle—Size
☐ Plastic bottle—Size
☐ Other _____ Size

I certify that the information provided is accurate and complete and that the materials referenced will be correctly packaged and labeled according to the University of Washington Hazardous Waste Management Guide. I will inform Environmental Health and Safety of any change in the above information.

Signature | Date

ENVIRONMENTAL HEALTH AND SAFETY USE ONLY

CHEM. NAME:

DISPOSAL OPTION:

SCHEDULE:

NOTES:

ANALYSIS:

Figure 4-1. Chemical Collection Request Form (81/2" x 11")

2. X-ray fixer which has been processed through a silver scavenging system can be disposed of in the sewer system.
3. X-ray developing solution is considered a hazardous chemical which must not be poured into the sewer system. It is to be collected in the same manner as fixer.

Chapter 5

ACCIDENT REPORTING AND FOLLOW-UP

I. INJURY AND EXPOSURE PROCEDURES

A. Policy Statement

Emergency procedures shall be posted in each dental operatory and medical emergency reminder cards will be distributed by the Office of Clinical Services to each dental health care worker. These documents shall contain the following information:

1. Life-threatening Medical Emergency Protocol.

a. Call **911** (answered by University Police who will contact Medic-I). Direct them to the loading dock between B- and D-wings. Be prepared to give your name and campus location (building/room/phone) and a description of the emergency.

b. Someone must stay with the patient ***at all times***.

c. Identify another person to meet aid car and guide Medic-I to Emergency while a second person holds elevator.

d. Retrieve drug kit and oxygen from the dispensary.

e. Students and staff notify supervising faculty immediately of the emergency.

f. Complete an Accident/Incident report.

2. Aspiration/Swallow of a Foreign Object Emergency Protocol

a. If a foreign object is suspected of being swallowed or aspirated during dental procedure:

- If patient shows no signs of distress such as coughing, choking, then look for the missing object (crown, rubber dam clamp, etc.).
- Check mouth, floor, crevices of chair, suction trap, and surrounding area.

b. If the object **is not** found:

- Notify supervising faculty member and area staff immediately.
- Area staff then pages the dental assistant supervisor to the student's cubicle and delivers a wheelchair.
- Student is to transport the patient along with the patient's chart to UWMC Emergency Room for evaluation. ***DO NOT DELAY***

BY COMPLETING THE DENTAL PROCEDURE. The dental assistant supervisor, or an available dental assistant should accompany the student and patient when possible.

- Student explains the situation to emergency room staff and request appropriate treatment for the patient.
- Give the Office of Clinical Services phone number (543-3367) to hospital staff for billing purposes.
- Remain with the patient until patient evaluation results are known.
- If the foreign object was determined to have been swallowed, be sure that the patient has instructions from emergency staff, and transportation home before leaving.
- If object was aspirated, call the Office of Clinical Services and remain with patient until course of action is determined.
- Notify individual listed as emergency contact in patient's record.
- Follow up by contacting patient that evening or next day.
- Complete incident reports and other paperwork after patient's needs have been addressed.

c. If a patient has obvious signs of distress or choking attempt to remove the object immediately. Follow the above protocol if coughing stops. Call 9-911 if unsuccessful.

3. Potential human body fluid exposure (Exposure Incident)

a. If the incident involves a potential exposure to human body fluid or materials contaminated with body substances, as would occur with a needlestick or splash to mucus membranes, or it involves non-intact skin and the exposure occurs during weekday hours, ***after performing appropriate first aide and then*** call and ***report without delay (within one hour)*** to:

UWMC Employee Health Service

Room NN256A (Adjacent to the Emergency Room)

598-4848 (24 Hours per day)

8 AM to 3:15 PM Monday-Friday

b. If the potential exposure to human body fluid occurs between 3:15 pm – 5 pm, contact UWMC Employee Health Service at 206-598-4848 for triage to the UWMC Emergency Department. Go directly

to the UWMC Emergency Department and inform them you are a student or employee of the dental school for follow-up.

If the incident involves spatter to eyes or face, emergency eyewash stations are located in each clinical area and should be used as soon as possible.

c. Fees

All UW employees, students and volunteers can receive initial assessment and treatment of work-related illness, exposure or injury at no charge. Student health fees cover the related charges.

d. Do not dismiss the patient until speaking with the nurse as the patient may need to have blood drawn.

e. Post-exposure evaluation and follow-up protocol will be determined by the Employee Health Nurse and may include testing of the source and recipient blood, medically indicated prophylaxis, counseling, and evaluation of subsequent reported illnesses.

f. An accident or exposure report should also be completed as soon as possible. Reports are available in each clinic or from the Office of Clinical Services, D322. The original should be returned to the Office of Clinical Services following completion.

4. Other Injuries or Exposures

Staff and faculty who are injured on the job should do the following for any non-life-threatening injury:

a. Use first aid kit, if necessary (located in all labs and clinics)

b. Notify supervisor

c. Report to:

- Students: Hall Health Center
- Employees: UWMC Employee Health Nurse

d. The injury should be reported to the department supervisor who will document the event in the Online Accident Reporting System (OARS). Document the event on an accident/incident form (available in clinics and D 322) and submit to the Office of Clinic Services who will route copies and take action as appropriate.

B. Records of Injuries or Exposures

1. The Office of Clinical Services will forward injury or exposure reports to the Health and Safety Director and to the Health Sciences Risk Manager who will forward the report to the employee medical history record. The report should include details of the incident.

2. The Health and Safety Director will request from the evaluating healthcare professional a written opinion within 15 days following completion of the evaluation. This opinion will include: 1) documentation that the employee has been informed of the results of the tests or evaluation; and 2) that the employee has been informed of any conditions resulting from the incident which might require further evaluation or testing.

3. All contents of employee medical health records are confidential.

4. Employee medical records shall be retained for the duration of employment plus 30 years in compliance with HIPAA regulations.

Appendix A

Related Hazard Standards
Online Resources

I. OSHA hazard communication standard, 2002
http://www.osha-slc.gov/SLTC/hazardcommunications/

http://www.osha.gov/OshDoc/toc_fact.html

II. University of Washington Infection Control Policies
http://www.ehs.washington.edu/manuals/bsmanual%5Fpdf/index.htm

III. Recommended Infection Control Practices for Dentist
http://www.cdc.gov/OralHealth/infection_control/

http://www.cdc.gov/mmwr/preview/mmwrhtml/00021095.htm

IV. Bloodborne Pathogens, Title 29 of the Code of Federal Regulations
The following links were gathered from a search on bloodborne pathogens
http://www.osha.gov/pls/oshaweb/owares.do_search

2003 - 06/05/2003 - Employer's responsibility to protect employees from workplace hazards through appropriate hazard control methods.

Updated U.S. Public Health Service Guidelines for HIV. (9/2005)

18-Jan-2001	66:5317-5325	Occupational Exposure to Bloodborne Pathogens;Needlestick and Other Sharps Injuries; Final Rule.
29-Sep-2000	65:58569-58570	Bloodborne Pathogens Standard; Extension of the Office of Management and Budget's (OMB) Approval of Information-Collection (Paperwork) Requirements.
09-Sep-1998	63:48250-48252	Occupational Exposure to Bloodborne Pathogens: Request for Information.
15-Jul-1997	62:37936	Agency Information Collection Activities: Proposed Collection;Comment Request; Bloodborne Pathogens Standard
18-Mar-1994	59:12985-12988	Washington State Standards; Notice of Approval
01-Jul-1992	57:29206	Occupational Exposure to Bloodborne Pathogens; Correction
13-Apr-1992	57:12717	Occupational Exposure to Bloodborne Pathogens, OMB approval of Information Collection Requirements
13-Apr-1992	57:12717	Occupational Exposure to Bloodborne Pathogens, OMB approval of Information Collection Requirements