DECONTAMINATION HANDBOOK

For Bloodborne Pathogens

Oklahoma Department of Corrections

I. Purpose

The purpose of this handbook is to provide protocols for decontamination of environmental surfaces and equipment.

II. Introduction

All blood, body fluids, and tissue must be regarded as potentially infectious. Universal precautions or body substance isolation precautions will therefore be required any time an employee has direct contact with blood, body fluids, tissue, or any other suspected potentially infectious material.

The Medical Services units will utilize ODOC authorized decontamination solution according to manufacturer's guidelines.

In unusual circumstances if bleach is used as a disinfectant, it MUST be freshly mixed in a 1:10 dilution with water every 24 hours to retain its effectiveness.

Any portion of equipment, supplies, or environmental surfaces which cannot be adequately disinfected, and containers or equipment which is used to routinely store inmate specimens (i.e., Centrifuges, freezers, refrigerators holding inmate specimens, etc.) must be labeled as bio hazardous using an adhesive biohazard label or a securely attached biohazard tag.

III. Decontamination of Spills

A. Absorb the spill; then

B. Use ODOC authorized decontamination solution according to the manufacturer's guidelines.

In the unusual circumstance that bleach is used, the entire exposed surface will be saturated with a 1:10 dilution of bleach. The bleach must be allowed sufficient time to penetrate the surface prior to removal. Do not wipe the surface completely dry. Bleach is only effective when it is in contact with the surface for 20-30 minutes.

IV. Decontamination of Medical Equipment

Medical equipment may be defined as critical, semi-critical, or non-critical.

A. Critical

Such equipment enters normally sterile tissue, the vascular system, or permits blood to flow through it.

B. Semi-Critical

This equipment may contact mucous membranes or non-intact skin. Although most dental instruments, all instruments used for vaginal exams or procedures, and respiratory equipment are considered semi-critical, they require high level disinfection/sterilization. Thermometers, however, require only intermediate level disinfection.

C. Non-Critical

This type of equipment contacts intact skin and includes otoscopes, stethoscopes, and blood pressure cuffs.

D. Critical Medical Equipment Sterilization Methods

Critical or high level sterilization methods include autoclaving. All critical medical equipment must be effectively sterilized between each patient use.

1. Autoclaving Procedure:

   a. Remove all visible blood or body fluids.

   b. Place equipment in an open metal autoclave pan (autoclavable plastic pans are not effective). Adequate air space must be maintained between packaged instruments and the equipment should not be overloaded. All clamped instruments must be unclamped during autoclaving.

   c. Autoclave to achieve and maintain a temperature of 121 degrees centigrade with a pressure of 15 psi for at least 30 minutes. Autoclave time may vary depending on the type and size of the load in accordance with the manufacturer's recommendations.

   d. Autoclave time does not begin until the autoclave reaches the proper temperature and pressure.

E. Semi-Critical Medical Equipment Disinfection Methods

1. Thermometers-Oral, Tympanic and/or Temporal.

With oral and tympanic thermometers, disposable sheaths are to be used. Temporal thermometers will be cleaned between each patient with an alcohol pad and/or per manufacturer's guidelines.

2. Other Semi-Critical Equipment:

a. Other semi-critical equipment is to be disinfected using an approved EPA registered disinfectant (i.e., Glutaraldehyde solution), or may be autoclaved if heat stable.

b. Equipment that cannot be appropriately disinfected following contamination must be replaced.

F. Non-Critical Medical Equipment Disinfection Method

All non-critical medical equipment must be cleaned when visibly soiled. Any portion of equipment contaminated with blood or body fluids must be thoroughly cleansed with a disinfectant solution in accordance with Section III.

V. Laboratory Equipment Use, Monitoring, and Decontamination

A. Vacutainer Blood Collection System

The vacutainer system should be used in all venipunctures if possible. Butterfly needles will be utilized as clinically indicated.

B. Syringe and Needle System

1. The syringe and needle system should only be used when a vacutainer system is unavailable.

2. If used, blood should be transferred to the test tube without removal of needle.

3. Discard the complete unit into a sharps collector.

4. Do not remove, recap, or otherwise manually manipulate the needle. Use safety needles when available.

C. Fingerstick Lancets

1. Immediately discard used lancets into a sharps collector.

2. Automatic spring-loaded lancet release devices should be avoided where possible.

D. Whole Blood Centrifuges

1. Operate this equipment in a small enclosed area away from inmates.

2. Use a balance tube with an equal volume of water positioned across from the actual specimen to prevent breakage.

3. If a sample tube breaks in the centrifuge, decontamination is required in accordance with the centrifuge manufacturer's instructions.

E. Glucose Reflectance Meters and Similar Equipment

Clean according to the manufacturer's recommendations.

F. Autoclave Use & Testing

Autoclaves will be tested before being placed into service and then periodically for effectiveness.

1. Autoclave Testing

a. Periodicity

1) Testing is required every 40 hours of use for autoclaves that are used to inactivate human or non-human primate blood, tissues, clinical samples, or human pathogens.

2) At a minimum, six month testing is required for autoclaves that are used to inactivate other material.

b. Method

1) A commercially available test indicator kit that uses bacterial spores (*Bacillus stearothermophilus*) is the approved method of testing autoclave efficiency. Most spore vial test kits require 56 to 60° C incubation of the autoclaved test vial along with a non-autoclaved control vial. Incubation causes surviving spores to grow.

2) New Autoclaves

Before placing an autoclave into service, a test load approximating the weight and density of the type of waste generated will be autoclaved with test spore vials. The spore vials should be placed at the bottom, top, front, rear, and center of the autoclave chamber. This can be achieved by either:

(a) Placing vials at those positions within one large test load; or

(b) Making several smaller test packs with one vial at the center of each and placing the packs at those locations within the chamber.

The appropriate parameters for sterilization including temperature, pressure, and treatment time will be determined in this way.

3) Autoclaves Already in Use

For periodic testing, place a spore vial in the very center of a test load prior to autoclaving.

2. Storage Information

The product information sheet will be referred to for appropriate storage information, but in generally, spore vials should not be frozen. Each batch of vials has an expiration date. Vials will not be used after their expiration date.

3. Record Keeping

The following records regarding autoclave use must be maintained:

a. On-site maintenance records; and

b. An autoclave use log. Each load of material inactivated will be logged as follows:

1) Date, time, and operator’s name;

2) Type and approximate amount of waste; and

3) Confirmation of sterilization

(a) Record the temperature, pressure, and length of time the load is sterilized. Note that temperature sensitive autoclave tape is not sufficient to indicate that the load reached sterilization conditions because the tape will change color at lower temperatures; or

(b) Save the autoclave print-out, if the autoclave has a working printer.

4. Autoclave Operating Procedures

A written sterilization procedure will be in place for each workplace. This will include the following:

a. Parameters

1) Appropriate parameters for sterilization will be determined from the testing with spore vials.

2) The time required to sterilize a load may change depending upon the load density and the sterilization cycle one chooses. Therefore, tests should be performed which imitate these various situations.

b. Protocol

Identification of standard treatment containers and proper load placement will be made.

c. Cleaning

The autoclave and work areas will be cleaned after every use and the work area will be disinfected, as needed.

5. Shelf life of autoclaved items

a. Any indication of contamination, such as exposure to moisture, damage or a break in packaging, etc. renders the autoclaved item unsterile at that time.

b. Items that remain on shelves and are unused for a period of over one year will be evaluated as to the condition of the sterile packaging, as well as evaluated to determine the necessity of stocking such infrequently used items.

VI. Dental Equipment Use, Monitoring, and Decontamination

A. Dental Instruments

1. Any equipment that penetrates soft tissue or bone (i.e., forceps, scalpels, bone chisels, scalers, and surgical burs) must be sterilized after each use or be discarded.

2. Instruments not intended to penetrate oral soft tissues or bone (i.e, Amalgam condensers and plastic instruments), but do contact oral tissues must also be sterilized after each use.

3. Plastic instruments that will not withstand sterilization will be discarded after a single use.

4. Metal and heat stable instruments must be sterilized between use by autoclave, dry heat, or chemical vapor.

5. Instruments will be wrapped or bagged prior to sterilization if they are to be stored after sterilization. Suitable wrapping materials include muslin, clear pouches, or paper as recommended by the manufacturer.

6. The wrap or bag will be sealed with the appropriate tape before sterilization occurs. Pins, staples, or paper clips should not be used.

7. Sterilized instruments must remain in sealed packages until used.

8. Dental personnel responsible for handling instruments will wear heavy-duty gloves to prevent hand injuries.

a. Decontamination Procedure

1) Remove blood, body fluids, and patient debris from all surfaces. This may be accomplished by scrubbing the surfaces using hot water, soap, or detergent. An ultrasonic cleaner with an appropriate cleaning solution may be used.

2) Dry instruments after cleaning and before they are wrapped or packaged for sterilization.

B. Dental Hand-pieces

1. Dental handpieces, prophy angles, and contra angles must be sterilized after each use.

2. Acceptable sterilization methods must ensure internal as well as external sterility.

3. Follow the manufacturer's instructions to ensure that adequate sterilization of handpieces, prophy angles, and contra angles are conducted and that the use and maintenance of water lines and check valves are appropriate.

4. All dental units must have a check valve to prevent infective materials from being aspirated back into the water line.

a. Decontamination Procedure:

1) Flush the handpiece with running water for 20-30 seconds.

2) An ultrasonic cleaner may be used to remove any adherent material if recommended by the hand-piece manufacturer.

3) If unable to use an ultrasonic cleaner, scrub with a detergent and hot water.

4) Apply a cleaner/lubricant before and after sterilization if recommended by the manufacturer.

C. Air/Water Syringes and Ultrasonic Scalers

1. Equipment should be decontaminated in the same manner as dental hand-pieces in accordance with Section VI. item B.

2. Removable disposable tips should be used and discarded between each patient use.

D. X-ray Equipment and Film

1. Intraorally contaminated film packets should be opened in the darkroom using disposable gloves.

2. Contaminated film should not be handled.

3. The contaminated film packets should be accumulated in a disposable towel and discarded into a biohazardous waste container. Discard gloves after packet disposal has been completed.

4. Position indicating devices must be sterilized after each use.

E. Operatory Surfaces

1. Countertops, dental equipment surfaces such as light handles, x-ray unit heads, amalgamators, cabinet and drawer pulls, tray tables, and chair switches may be contaminated during use. Equipment surfaces may be covered with plastic wrap, aluminum foil, or impervious-backed absorbent paper prior to contamination. If used, protective coverings must be changed between patients and when contaminated.

2. If protective coverings are not used, decontamination of operatory surfaces must be conducted between patients and whenever visibly contaminated.

   a. Decontamination Procedure:

      1) Apply gloves and other appropriate personal protective equipment.

      2) Remove all visible extraneous organic matter from the affected surface.

F. Impressions, Prostheses, Casts, Wax, Rims, and Jaw Relation Records

1. All devices which have been in the patient's mouth must be properly disinfected prior to shipment to a dental laboratory. Disinfected items sent to dental laboratories must be labeled to indicate the type of disinfection used prior to shipment.

2. The following table may serve as a guide for disinfection:

   a. Stone casts spray or immerse in acceptable disinfectant;

b. Removable dentures immerse in acceptable disinfectant; or

c. Wax rims or bites spray-wipe-spray with acceptable disinfectant.

3. Impressions must be rinsed to remove saliva, blood, and debris prior to disinfection.

4. Impressions can be disinfected by immersion in any compatible disinfectant as long as it is in accordance with the material manufacturer's recommendations.

VII. Emergency Medical Equipment Decontamination

A. Resuscitator Bags

All resuscitator ambu-bags and pocket masks must be cleaned after use according to the manufacturer's recommendations for cold sterilization.

B. Airways, Oxygen Masks and Tubing

All such equipment will be disposable single use items and be discarded after each use.

VIII. CPR Training

All persons responsible for conducting CPR training should follow the requirements of the instructor course for decontamination of equipment.

IX. Decontamination of Housekeeping Surfaces

Cleaners with germicidal activity are appropriate for use on these surfaces.

X. Storage of Biohazard Waste Items and Appropriate Disposal Containers

Storage containers for biohazard waste items are provided by the contracted biohazard waste disposal service company.

All biohazard wastes are to be stored in a specifically designated, separate, and contained area with the international biohazard symbol posted prominently on entrance to this area. The area must be access controlled therefore preventing entry to unauthorized persons.

All storage areas must be kept clean and in good repair while maintaining the integrity of the stored containers.

Waste Items And Appropriate Disposal Containers

Waste Item	Designated Container		
	Sharps Box	Red Bag	Trash Bag
Needles/syringes	X		
Lancets	X		
Sutures	X		
Scalpels	X		
Scissors	X		
Specimen tubes, used or unused	X		
Broken glass	X		
IV catheters	X		
Gloves, gowns, masks (dripping with blood)		X	
Gauze or dressings (dripping with blood)		X	
Foley catheters or bags with blood		X	
Pleuro-Vacs, hemovacs, other drains containing bloody drainage		X	
Sump tubes		X	
Blood bags		X	
Hemodialysis tubings		X	
Suction canisters		X	
IV lines and bags (with blood)		X	
IV lines and bags (no blood)			X
Bedpans, urinals, emesis basins			X
Ventilator tubing			X
Foley catheters and bags			X
Gauze or dressings (no blood or just stained with blood)			X
Chux or “blue pads”			X
Diapers			X
ET tubes and suction catheters			X
Gloves, gowns, aprons, masks, N-95 masks (no blood or just stained with blood)			X
Packaging and boxes			X
Newspapers, magazines			X
Plates, cups, utensils			X
Food and food packaging			X
Tissues and paper towels			X
Medication vials (non-chemo)			X
Guaiac cards			X

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