Disinfection and Sterilization in the Chiropody Office

Definition of Terms

- **Antiseptic**: are germicides applied to living tissue and skin. Commonly used antiseptics for skin cleaning include benzalkonium chloride, chlorhexidine, hexachlorophine, iodine compounds, 70% alcohol and 3% hydrogen peroxide.

- **Cleaning**: manual removal of visible soil from objects, and surfaces, before placing instruments into ultrasonic solution (mechanical).

- **Contaminated**: soiled with disease-producing microorganisms.

- **Disinfectants**: are antimicrobials applies only to inanimate objects.

In general, antiseptics are used only on the skin and not for surface disinfection, and disinfectants are not used for skin antisepsis because they can injure skin and other tissues.

- **Disinfection**: process that kills most disease producing microorganisms but rarely kills all spores. Used on inanimate objects (treatment chair, operator light, handpiece or nail drill, etc).
  - **Low Level Disinfection**: required when processing non-critical equipment/devices (Treatment chair, operator’s stool, operator’s light)
  - **High Level Disinfection**: required when processing semi-critical equipment/devices (CPR/respiratory equipment, ultrasound/laser)

- **Germicide**: is an agent that can kill microorganisms, particularly pathogenic organisms (“germs”). The term germicide includes both antiseptics and disinfectants.

- **Sterilization**: process by which ALL microorganisms are killed, including bacteria, viruses, spores and fungi.

Approach to Disinfection & Sterilization

- **Critical Items**: are high risk for infection if they are contaminated with any microorganism. Objects that have the possibility of entering tissue must be sterile because any microbial contamination could transmit disease. These objects must be sterilized with an autoclave. All hand instruments, surgical instruments are a few examples.

- **Semi-Critical Items**: contact mucous membranes or nonintact skin. High-level disinfection traditionally is defined as complete elimination of all microorganisms in or on an instrument, except for small numbers of bacterial spores. Cleaning followed by high-level disinfection should eliminate enough pathogens to prevent transmission of infection. Devices such as CPR masks, Nitrous oxide mask, Ultrasound/laser hand held devices, nail drill handpieces are a few examples.

- **Non-Critical Items**: are those items that come in contact with intact skin but not mucous membranes. Intact skin acts as an effective barrier to most microorganisms. Examples of non-critical patient-care items are computers (keyboard & mouse), paper charts or items from the treatment room, patient furniture, treatment room floors.
Disinfection of the Healthcare Equipment
There are many disinfection of environmental surfaces in health-care facilities readily available through our medical suppliers. Many of these disinfectants have a contact time of 30-60 seconds which have significant microbial reduction. Consult your medical supplier for a registered or government approved product and confirm the usage, storage and shelf life of these products.

Factors affecting the Efficacy of Disinfection & Sterilization

- Physical location & Cross contamination (efficient instrument processing, separate cleaning, sterilization and storage. Workflow direction eliminates the risk of cross-contamination)
- Duration of exposure (appropriate minimum contact time)
- Concentration of Disinfectants (solutions improperly measured/mixed)
- Physical & Chemical Factors (temperature, water hardness, relative humidity, PH)
- Organic & Inorganic Matter (where all the instruments properly manually/mechanically cleaned)

Disinfection & Sterilization

1. Pre-cleaning
Immediately after use, rinse instruments under warm running water. Rinsing should remove most of the blood, body fluids and tissue.

2. Cleaning
Spray a non aerosol, dual enzyme foam to loosen and breakdown any remaining blood and debris.

A. Manual Cleaning (prior to ultrasonic cleaning)
I. Put on mask, eye protection and gloves (puncture proof utility gloves as an over-glove may be added) Personal protective equipment should be worn when scrubbing instruments. Instruments should also be submerged under water when being cleaned to minimize aerosols.
II. Use a stiff plastic nylon cleaning brush. Do not use steel wool or wire brushes as they may damage the instruments.
III. Use neutral pH (7) cleaners. Lower of higher pH detergents cause surface staining of brown and black deposits which interfere with the smooth operation of the instrument by breaking down the stainless protective surface.
IV. Brush instruments carefully and handles them totally separate from general instruments.
V. Make sure all instrument surfaces are visibly clean and free from stains and tissue. While rinsing, open and close scissors, hemostats and other hinged instruments to make sure the hinge areas are rinsed out, as well as the surface of the instruments.

B. Ultrasonic Cleaning
Instruments should be processed in the cleaner for the full recommended cycle time – usually 5 to 10 minutes. Use a multipurpose concentrated instrument cleaner (Metriclean 2™). Place instruments in open position into the ultrasonic cleaner. Make sure that “Sharps” (scissors, knives, etc.) blades do not touch other instruments. All instruments must be fully submerged. Do not place differing metals (stainless, copper, chrome-plated, etc.) in the same cleaning cycle.
Change solution frequently – daily. Rinse the instruments with water after ultrasonic cleaning to remove solution.

3. After Cleaning
Any instruments with hinges/screws/movable parts should be selected and placed in an Instrument Lubricant Milk Bath (usually for 5 minutes), and then rinsed in warm water.

4. Before Autoclaving
1. Inspect instruments for any blood or debris.
2. Make sure instruments are completely dry.
3. Use the appropriate sterilizing pouch size for instruments
4. Place instrument guards when needed to prevent puncturing pouches
5. Seal Pouch.
6. For grouped surgical sets insert a sterile indicator strip. Place autoclave tape on outside of the wrapped instrument tray.
7. Transfer trays to central sterilizing services.

5. Autoclaving
Individual Instruments:
Disposable pouches are ideal. Make sure you use a wide enough pouch for instruments with ratchet locks such as nippers and hemostats so the instrument can be sterilized in an open (unlocked) position.

Instrument Sets:
Unlock all instruments and sterilize then in an open position. Place heavy instruments on bottom of set (when 2 layers are required). Place in a sterilizable tray and wrap entire tray with sterilization wrap

Rationale
Never lock an instrument during autoclaving. It will not be sterile as steam cannot reach the metal to metal surfaces. The instrument will develop cracks in hinge areas because of heat expansion during the autoclave cycle.

Sample Performance Indictors & Record Keeping
Please feel free to print any of the below information and customize the details for your office and your brand of sterilizer. The below is a sample from a chiropody clinic to illustrate the details required. You should also review from The College of Chiropodist Of Ontario’s website, under the heading Infection Control gives the details of the minimal requirements.

COCOO Standards of Infection Control
1. Member shall endeavor to prevent the transmission of microorganisms from patient to patient, patient to member and member to patient.
Autoclave Sterilizer
Cleaning and Testing Policy and Procedure

Policy

In order to maintain high standards of disinfection and complying with the Ministry of Health and the College of Chiropodist the equipment used to sterilize instruments is to be serviced yearly. The equipment used to sterilize instruments is to be cleaned and tested monthly for accuracy of killing spores. A record is to be maintained regarding the PASS status certificate. This is scheduled for the first Tuesday of each month.

Procedure

We have two autoclaves which have been marked as Sterilizer #1 and Sterilizer #2. They both have to be serviced yearly for inspection. They both have to be cleaned and tested each month. The product used to clean the autoclave prior to testing is alternated from month to month.

Sterilizer #1 is (Make & Model)
Sterilizer #2 is (Make & Model)

Yearly Servicing and Inspection of Autoclaves

Please Call in June of each year: J.A. Walker Bio-Med Services, Joe Walker Tel 519-319-2423 to have both sterilizers serviced and inspected for yearly maintenance. He will schedule a day/time and then will provide a Certificate for each sterilizer to be placed in each pouch for each sterilizer.

Chamber Brite

January, March, May, July, September and November: Chamber Brite is to be used. This product is purchase at (your supplier info) Description of Chamber Brite Autoclave Cleaner
1 box of 10 sachets.

Speed-Clean

February, April, June, August, October, and December: Speed-Clean is to be used. This product is purchased at (your supplier info)

B-Safe Germiphene Corporation

One yearly kit B-Safe Biological Spore Testing Analysis is purchase from Germephene Corporation by calling 1-800-265-9931. Our customer number is# ______ Clin for ordering but our customer ID is ______

Due to the fact we test both autoclaves this provides us with only 6 months of testing. Therefore one kit is ordered every 6 months. We do not want two kits in stock because of the short expiry date of the kit as well as the expensive cost of the kit $215.

View Online B-Safe Record go to www.germiphene.com click on B-SAFE in the B-SAFE Result Search area enter the User ID and Password

The User ID is Customer ID: ______
The Password is our phone number: ______
Instructions for Chamber Brite Autoclave Cleaning Procedure
For both Sterilizer #1 and Sterilizer #2
January, March, May, July, September and November

Chamber Brite is a cleaning and descaling agent designed specifically for the cleaning and removal of water deposit oxides and other sediment that are found in steam sterilizers.

1. when autoclave chamber is cold, remove instruments and trays from the autoclave
2. open the door and spread the contents of the Chamber Brite packet in a straight even line along the bottom of the chamber, from back to the front
3. start a sterilization cycle with water as you would usually (30 min)
4. when the cycle ends right away exhaust the steam and then drain all the water from the reservoir by removing the plug at the bottom of the autoclave over the sink
5. fill the water reservoir with distilled water to the full line
6. repeat a sterilization cycle with water but this time without Chamber Brite powder (30 min)
7. when the cycle ends right away exhaust the steam and then drain all the water from the reservoir by removing the plug at the bottom of the autoclave over the sink
8. turn the autoclave off and allow chamber to cool
9. remove the tray holder, wipe the interior of the chamber with a damp cloth while being careful not to damage the heater element or the temperature and level sensors
10. reinstall the trays in the chamber while making sure the tray rack is to the back of the chamber
11. fill the water reservoir with distilled water to the full line
12. the autoclave is ready for the B-Safe Testing Spores
13. LOG your task as being accomplished by completing, dating and signing the Autoclave Testing Log Sheet

Instructions for Speed Clean Autoclave Cleaning Procedure
For both Sterilizer #1 and Sterilizer #2
February, April, June, August, October, and December

Speed-Clean is a slightly alkaline, multi-purpose solution used to remove grease and grime from sterilizer. It will also retard scale deposits.

1. drain and refill the reservoir with clean distilled water
2. add one ounce of Speed-Clean to a cool chamber
3. start a sterilization cycle with water as you would usually (30 min)
4. when the cycle ends right away exhaust the steam and then drain all the water from the reservoir by removing the plug at the bottom of the autoclave over the sink
5. fill the water reservoir with distilled water to the full line
6. repeat a sterilization cycle with water but this time without Speed-Clean (30 min)
7. when the cycle ends right away exhaust the steam and then drain all the water from the reservoir by removing the plug at the bottom of the autoclave over the sink
8. turn the autoclave off and allow chamber to cool
9. remove the tray holder, wipe the interior of the chamber with a damp cloth while being careful not to damage the heater element or the temperature and level sensors
10. reinstall the trays in the chamber while making sure the tray rack is to the back of the chamber
11. fill the water reservoir with distilled water to the full line
12. the autoclave is ready for the B-Safe Testing Spores
13. LOG your task as being accomplished by completing, dating and signing the Autoclave Testing Log Sheet

**B-SAFE Testing Procedure**

B-Safe Kit contains envelopes each with the Form and the Test Spore Strips. When only 2 left you need to order a new kit.

Take one envelope for each sterilizer to be tested.
Read the Biological Spore-test Direction for Use

**DO NOT remove the Test and Control Strips from the Blue Packaging**

1. place the two strips labeled Biological indicator TEST strips in the sterilizer along with a normal load.
2. these two strips should be placed in the most difficult to sterilize location, such as the front and the middle-back of the autoclave.
3. do not overload the sterilizer
4. run a 30 min cycle
5. the third strip Biological indicator CONTROL strip is NOT put in the autoclave
6. Once the sterilization of the two TEST strips is complete place all three: 2 TEST and 1 CONTROL with the completed Sterilization Monitoring Service Report Forms into the self addressed envelope and mail to Germiphene Corporation.
7. the strips will be tested and report sent back to us
8. once we receive the report then apply the PASS sticker on the appropriate certificate for each sterilizer pouch.
9. LOG your task as being accomplished by completing, dating and signing the Autoclave Testing Log Sheet

In the envelope fill out the form accordingly to the blank example provided.

After a few weeks of sending the envelope we will receive a report from Germiphene. Put the green PASS sticker on each sterilizer certificate and keep the letter of confirmation in the pouch.