

Procedure Recommended for Cleaning, Maintenance & Sterilization of Surgical Instruments

- A) **Rinsing**
Directly after surgery, rinse instruments under warm (hot) running water. Rinsing should remove the majority of blood, body fluids, and tissue.
- B) **Disinfecting**
(the protection for medical personnel from accidental contamination during cleaning)
1. To avoid blood and other proteins from sticking to instruments surfaces, an enzymatic cleaner bath (soaking) should be used on all instruments. After soaking for a minimum of 10 minutes, rinse all instruments in running tap water.
 2. Immerse instruments completely in a PA approved disinfectant for another 10 minutes or more. Then rinse again.
 3. Never expose stainless steel instruments to bleach or other chemicals for the purpose of disinfection. Exposure to bleach will result in severe pitting of your instruments and will void all the manufacturer's guarantees.
- C) **Cleaning**
Instruments should be submerged in a solution of water and neutral pH (7) detergent.
- 1) Ultrasonic Cleaning
Place instruments in an open position into the ultrasonic cleaner. Make sure all "Sharp" (i.e. scissors, knives, blades etc) do not touch other instruments. All instruments must be completely submerged. Instruments should be processed in the ultrasonic cleaner for the full-recommended cycle time, which is normally about 5-10 minutes. A lid should cover the ultrasonic cleaner during the operation to avoid splashing. Never place different metals in the same cleaning cycle For example, stainless steel and copper; etc. Change the solution as frequently as the manufacturer recommends. Rinse all instruments after an ultrasonic cleaning with water to remove the excess cleaning solution.
 - 2) Automatic Washing Sterilization
Follow all manufacturers' recommendations. Make sure that all instruments are lubricated after and before the sterilization cycle.
 - 3) Manual Cleaning
The majority of instrument manufacturers recommend ultrasonic cleaning as the best way to clean instruments, especially those with hinges, locks, and other moving parts. If ultrasonic cleaning is not available, follow the below instructions.

- a) Use stiff nylon cleaning brushes. Do not use steel, wool or wire brushes except specially recommended brushes for instrument-serrated areas or on bone files, burs or on stained areas in knurled handles.
- b) Use only neutral pH (7) detergents because if not rinsed off properly, low pH (acidic less than 6pH) detergents will cause breakdown of stainless steel protective surface (pitting) and black staining. Higher pH detergents (alkaline-more than 8 pH) will cause a surface deposit of a brown stain (phosphates), which will also interfere with the smooth operation of the instrument. Most brown stains are not rust-but merely a high pH surface (phosphate) deposit and can easily be removed with a stain remover.
- c) Brush delicate instruments carefully and if possible, handle them totally separate from all other general instruments.
- d) Make sure all instrument surfaces are visibly clean and free from stains and tissue. The stain remover will help you get rid of residue stains. At this point it is a good time to inspect individual instruments for proper function and condition. Forceps have properly aligned tips. Teeth must be proper-without catching action Hemostats and needle holders should not show light between the jaws, when closed in the first ratchet position (hemostats may show a small open space half way in from the closed tips), lock and unlock easily at joints and make sure they are not too loose. Check needle holders for wear on jaw surfaces. Check to ensure suction tubes are clean inside. To ensure biopsy punches are clean, punch a hole into tissue paper. Check the working functions of all the retractors. Make that all cutting instruments and knives have sharp and undamaged blades.
- e) After scrubbing, rinse all instruments thoroughly under running water. While Rinsing, open and close scissors, hemostats, needle holders and other hinged instruments to make sure the hinged areas are rinsed out as well as the outside of the instruments.

D) **After Cleaning**

If instruments are to be stored, let them air dry then store them in a clean and dry area.

E) **Autoclaving**

1. Lubricate all instruments' which have any "metal to metal" action, (i.e. scissors, hemostats, etc.) Non-silicone, water-soluble surgical lubricants, such as spray lube is recommended. Do not use industrial lubricants.
2. Put instruments up for sterilization either individually or in sets.
3. **Individual instruments:** Disposable paper or plastic pouches are ideal. Make sure you use a wide enough pouch (4 inches or wider) for instruments with ratchet locks (i.e. hemostats and needle holders, etc) so the instrument can be sterilized in an open (unlocked) position. Locking instruments during autoclaving will result

in cracked hinges and other defects be cause of heat expansion. If you wrap instruments, make sure your towels do not contain detergent residue, which can stain your instruments. Make sure that the towels used in sterilization of instruments have no detergent residue and are neutral pH (7) if immersed in water. This can be a problem, as laundries will frequently use inexpensive but high pH (9-13) detergents and do not properly rinse out or neutralize those detergents in the final wash or rinse cycle. Also, sometimes bleaches are added and are not neutralized. Hospitals use a “sour” rinse cycle to neutralize all detergent residues.

Instrument Sets: Unlock all instruments and sterilize them in an open position. Place the heavier instruments on the bottom of the set, when two layers are required. **Never lock an instrument during autoclaving.** It will not be sterile being that steam cannot reach the metal-to-metal surfaces. The instrument will develop cracks in hinges (lock box) areas because of the heat expansion during sterilization. Do not overload autoclave chambers as pockets may form and will not permit steam to penetrate. Place a towel on the bottom of the pan to absorb the excess moisture during autoclaving. This will reduce the chances of getting “Wet Packs”.

CAUTION: With most portable, tabletop autoclaves, at the end of the autoclave cycle-before drying cycleunlock the door and open it no more than a crack (approximately ¼ “). Then run dry cycle for the period recommended by the autoclave manufacturer. If the autoclave door is opened fully before the drying cycle, cold room air will rush into the chamber, causing condensation on the instruments. This will result in water stains on the instruments and also cause wet packs. Make sure the autoclave filters and chambers are cleaned periodically. A stain remover will remove stains and clean the autoclave chamber.

F) **Cold Sterilization**

Most cold sterilization solutions render instruments sterile only after ten-hour immersions. This prolonged chemical action can be more detrimental to surgical instruments than the usual 20- minute autoclave cycle. If the instrument needs to be, “disinfected” only, a cold sterilization soak is okay, as disinfection will take place in ten minutes or more. Check the manufacturers specifications. Also, see the warning sign on using bleach (section B3).

Keep in mind the difference between:

STERILE: no living organisms survive & **DISINFECTED:** basically clean

CAUTION: For instruments with Tungsten Carbide inserts (hemostats, scissors, needle holders-also identified by a gold handle) we do not recommend cold sterilizations or solutions containing Benzyl Ammonium Chloride, which will deteriorate the Tungsten Carbide, inserts.