

INSTRUMENT CARE

RECOMMENDED STEPS FOR CLEANING, STERILIZATION AND MAINTENANCE OF SURGICAL INSTRUMENTS

1. RINSING

Immediately after surgery, remove organic materials by rinsing instruments under warm (not hot) running water. Rinse should remove most blood fluids and tissue. Do not process dissimilar metals (stainless, copper, chrome plated, etc.) together.

2. DISINFECTING

To protect medical personnel from contamination during cleaning, immerse instruments completely in an EPA approved disinfectant for approximately 10 minutes. Then rinse again.

CAUTION: Never expose stainless steel instruments to bleach or other corrosive chemicals to disinfect. Exposure to bleach may result in instrument pitting and will void all manufacturer guarantees.

3. CLEANING

All blood, dried body fluids and tissue should be completely removed from the instruments prior to sterilization. Several methods are available.

A. Soak

An enzymatic cleaner bath or a solution of water and neutral pH (7) detergent are effective in removing organic material from instruments. Instruments should be fully submerged for at least 10 minutes. Rinse instruments under running tap water to remove solutions.

B. Ultrasonic Cleaning

Most instrument manufacturers recommend ultrasonic cleaning as the most effective way to clean surgical instruments, particularly those with hinges, locks, and other moving parts. All instruments must be fully submerged. Make sure that "sharps" (scissors, knives, osteotomes, etc.) blades do not touch other instruments. A lid can be used to avoid splashing.

Change solution frequently, at least as often as the manufacturer's recommendation.

Rinse instruments with water to remove the cleaning solution.

Lubricate all hinged instruments which have any "metal to metal" action, at the screw or box lock. A non-silicone, water soluble surgical lubricant is recommended. Do not use industrial oils or lubricants.

C. Automatic Washer Sterilizers

Follow manufacturer's recommendations but ensure instruments are lubricated after the last rinse cycle and before sterilization cycle.

Caution: Needle Holders and Forceps may crack if sterilized with the ratchet in the closed position.

D. Manual Cleaning

If ultrasonic cleaning is not available, observe the following steps:

Use stiff nylon cleaning brushes. Do not use steel wool or wire brushes except specially recommended stainless steel wire brushes for instrument serrated areas, bone files, burs or on stained areas of knurled handles.

Use only neutral pH (pH7) detergents. If not rinsed off properly, low pH (acidic-less 6 pH) detergents breakdown the stainless protective surface resulting in pitting and/or black staining. High pH detergents (alkaline-more than 8 pH) can cause brown stains (phosphate surface deposit) which can also interfere with the smooth operation of instruments. Most brown stains are not rust and are easily removed with stain remover.

Brush delicate instruments carefully, and if possible, separate them from general instruments.

Make sure instrument surfaces are visibly clean and free from stains and tissue. Also, inspect each instruments for proper function and condition.

Check to make sure that:

- Scissor blades glide smoothly all the way (they must not be loose when in closed position). Test by cutting thin gauze or surgical glove material three up.
- Forceps (pickups) have properly aligned tips. Teeth must meet properly- without cracking action.
- Hemostats and Needle Holders should not allow light between the jaws when closed in the first ratchet position. (Hemostats may show a small opening half way in from the closed tip), lock and unlock easily, and joints should not be too loose. Check needle holders for wear on jaw surfaces.

- Suction tubes are clean inside.
- Biopsy Punches – Punch a clean hole into tissue paper.
- Retractors function properly.
- Cutting Instruments and knives have sharp undamaged blades.

After scrubbing, rinse instruments thoroughly under running water. While rinsing, open and close scissors, hemostats, needle holders, and other hinged instruments to make sure the hinge areas are rinsed out, as well as the outside of the instruments.

4. AFTER CLEANING

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

5. AUTOCLAVING

The sterilizer manufacturer's written instructions for cycle parameters should be followed. In general, though, the most common temperatures and time parameters are:

- A. For gravity displacement cycles, 10 to 25 minute exposure time at 132° to 135° C (270° to 275° F), 15 to 30 minute exposure time at 121° to 123° C (250° to 254° F).
- B. For pre-vacuum cycles, 3 to 4 minutes at 132° to 135° C (270°-275° F)
- C. For steam-flush pressure-pulse cycles, 3 to 4 minutes at 132° to 135° C (270°-275° F), 20 minutes at 121°-123° F (250° to 254° F).
- D. Lubricate all hinged instruments which have any "metal to metal" action at the screw or box lock. A non-silicone, water soluble surgical lubricant is recommended. Do not use industrial oils or lubricants.
- E. Sterilize instruments either individually or in sets.

Individual Instruments – Disposable paper or plastic pouches are ideal. Make sure to use a wide enough pouch for instruments with ratchet locks so the instruments can be sterilized in an open (unlocked) position. Instruments locked during autoclaving can experience cracked hinges (box locks) or other problems because of heat expansion. If you wrap instruments, make sure the towel does not contain detergent residue, which can stain your instrument.

Instruments Sets – Unlock all instruments and sterilize them in an open position. Place heavy instruments on bottom of set (when two layers are required). Do not overload chamber because an air pocket may form that hinders steam penetration.

CAUTION: With most portable tabletop autoclaves, at the end of the autoclave cycle- before the drying cycle- unlock the door and open it no more than a crack, about ¼" (6.4mm). Then run the dry cycle for the period recommended by the autoclave manufacturer. If the autoclave door is fully opened before the drying cycle- cold room air will rush into the chamber causing condensation on the instruments that may result in water stains for cause wet packs. Make sure autoclave filters and chambers are cleaned as recommended by the manufacturer.

6. COLD STERILIZATION

Most cold sterilization solutions render instruments sterile only after a 10 hour immersion. This prolonged chemical action can be more detrimental than the usual 20 minute autoclave cycle. If the instruments need to be "disinfected" only, a cold sterilization soak is acceptable, as disinfection will take place in approximately 10 minutes. Check manufacturer's specifications. Also see our warning in using bleach (paragraph 2).

- Keep in mind the difference between:
 - Sterile – an absolute term (no living organism survives)
 - Disinfected – basically clean. Some organisms may survive.
 - Always use proper sterilization/cleaning technique to render the instrument in the require condition for use.

CAUTION: For instruments with tungsten carbide inserts, we do not recommend use of cold sterilization solutions. Cold sterilization solutions will deteriorate the instrument's jaw.