

COLLEGE OF MIDWIVES OF BRITISH COLUMBIA

GUIDELINES ON DISINFECTION AND STERILIZATION

Sterilization* is the complete elimination or destruction of all forms of microbial life. It is accomplished by either physical or chemical processes. Steam under pressure, in an autoclave or pressure cooker, dry heat, ethylene oxide gas and liquid chemicals are the principal sterilizing agents.

Disinfection* is a process that eliminates many or all pathogenic microorganisms with the exception of bacterial spores. This is generally accomplished by the use of liquid chemicals or wet pasteurization and the efficacy of disinfection can be affected by a number of factors including the original level of contamination of the object and the prior clean of the object.

Cleaning is the removing of all foreign material from objects and is normally accomplished with water, soap or detergent and mechanical action.

*** Unacceptable Methods of Disinfection or Sterilization**

Boiling, chemiclave (formaldehyde vapour), formaldehyde, glass bead sterilization, microwave oven, and or ultraviolet irradiation¹

Three Categories Based on the Degree of Risk of Infection²

Critical Items

Objects that enter sterile body tissue or the vascular system are considered critical items and must be sterile. This category includes, but is not limited to, instruments such as scissors and clamps, urinary catheters and needles. They are either purchased as sterile for one-time use (eg. needles), or should be thoroughly cleaned first then sterilized. If heat labile, an object may be treated with a suitable chemical sterilant. In particular circumstances, such as ruptured membranes, sterile speculums are required.

Semi-critical Items

Objects that come into contact with mucous membranes or skin which may not be intact must be disinfected. This includes items such as laryngoscope blades, airways, endotracheal tubes, speculums and diaphragm fitting rings. Whenever possible, semi-critical medical equipment should be sterilized. When sterilization of semi-critical items is not possible, cleaning and use of a high level disinfection such as wet pasteurization or chemical germicides is required.

Non-critical Items

Objects that come into contact with intact skin but not with mucous membranes are considered non-critical and may be cleaned where they are used with soap and water, alcohol or other low level disinfectants. Examples of non-critical items include stethoscopes and blood pressure cuffs and linens.

¹ Best Practice Guidelines For Cleaning, Disinfection and Sterilization of Critical and Semi-critical Medical Devices in BC Health Authorities, October 2011

² APIC Guidelines for Infection Control Practice, 2011

Cleaning of instruments is necessary before proceeding to high-level disinfection and sterilization. Instruments shall be prepared for sterilization in the following manner:

- Clean and remove excess water;
- Position instruments in the open or unlocked position;
- Multi-piece or sliding pieces should be disassembled unless otherwise indicated by the instrument manufacturer;
- Instruments with concave surfaces that will retain water should be placed in a manner that prevents condensation from collecting;
- Instruments with lumens should be moistened with distilled water immediately prior to sterilization;

Where there are narrow channels, crevices or joints that can harbour organisms, the object should be exposed to a high-level disinfectant for at least 20 minutes at room temperature after cleaning. In general, the longer the exposure of an item to a disinfectant, the more likely it is that contaminating organisms will be inactivated. Depending on the method of disinfection or sterilization used, close attention must be paid to appropriate temperature and timing for the chosen method in order to achieve the desired results. Sterilization tape or indicator labels should be applied to, or internal indicator strips inserted into, the instrument packaging to ensure instruments are sterilized.