***Opening question to be read exactly:***

***“What is cleaning?”***

It refers to the initial stage of decontamination. It is the only stage for non-critical equipment but other classes of equipment will go on to be disinfected or sterilised after cleaning.

***What is Decontamination?***

The removal of macroscopic and microscopic contaminants in quantities sufficient to prevent infection. Involves use of detergent

***What is Disinfection?***

involves killing of almost all microbial pathogens, including most viruses, but will not remove bacterial spores. Mycobacteria may also survive.

Most semi-critical equipment is disinfected.

Chemical disinfectants include : CEFGH

**C**hlorhexidine, **E**thanol, **F**ormaldehyde, **G**luteraldehyde (which can also be used for sterilization under different conditions), **H**ypochlorite

W**hat is meant by pasteurisation?**

Pasteurization is a disinfection process that involves heating the equipment to 70°C for 20 mins or 80°C for 10 mins.

**What’s the advantage of pasteurisation?**

There are no toxic chemicals used

***What is******Sterilization?***

The complete removal of all forms of microbial life including bacterial spores. It is achieved by chemicals, high temperature, radiation or a combination of these.

Dry heat- 160°C for 1hr

Autoclaving: (Moist heat) The equipment is cleaned and disinfected rinsed and dried and then packaged and placed into the autoclave. the air in the autoclave is replaced with high pressurised saturated steam at various temperatures:

30 mins at 122°C and 1 atm// 10 mins at 126°C and 1.5 atm// 3 mins at 134°C and 2 atm

The fibres of the packing initially allow steam to enter and come into contact with the enclosed equipment. By the end of the process the fibres within the packaging swell and produce an airtight deal around the sterile instruments.

Chemicals: Used for equipment that cannot tolerate High Temperature heating.

Ethylene oxide - needs warming to 65’C and submerging for 12 hours (highly flammable and explosive)

Gluteraldehyde (needs submerging for 10 hours)

Hydrogen peroxide (requires only 30 minutes submerging but not as effective as other chemicals)

Gamma irradiation- for most disposable equipment ( not common in hospitals)

***How is equipment classified in terms of cleaning?***

Equipment can be classified based on the likelihood of transmitting an infectious organism.

**Critical equipment** –

equipment that penetrates the skin or mucous membrane to enter a normally sterile space or vascular space.

Examples include surgical tools, intravascular cannulae, urinary catheters.

Endotracheal tubes are also considered critical equipment despite not normally penetrating mucous membranes.

**Semi-critical equipment**- equipment that comes into contact with skin or mucous membranes but does not enter a normally sterile or vascular space.

E.g laryngoscopes, fiberoptic endoscopes, temperature probes.

**Non-critical equipment** -that which only comes into contact with intact skin, or is not in contact with the patient at all.

Examples include non-invasive blood pressure cuffs, ECG electrodes, ultrasound probes and pulse oximeters.

***How is a fiberoptic endoscope cleaned and why it is important anaesthetists are aware of this?***

It is semi- critical piece of equipment and is often not able to tolerate the high temperature required for sterilisation. Therefore it requires High level chemical disinfection. It is important the anaesthetist cleans after use using soap and water to begin the disinfection process by reducing the chance of slimy organisms becoming firmly adhered to the endoscope prior to being submerged in chemicals.

***What are prions and where are prions particularly found?***

[infectious](https://en.wikipedia.org/wiki/Infection) agents composed entirely of [protein](https://en.wikipedia.org/wiki/Protein) material,

can cause [disease](https://en.wikipedia.org/wiki/Disease) that is similar to viral infection.

Human prion diseases include [Creutzfeldt–Jakob disease](https://en.wikipedia.org/wiki/Creutzfeldt%25E2%2580%2593Jakob_disease) (CJD)

**How can this problem be solved?**

use of disposal equipment

**Other importance of disposable equipment:**

convenience, economy