
بسم الله الرحمن الرحيم

INSTRUMENT PROCESSING

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INSTRUMENT PROCESSING

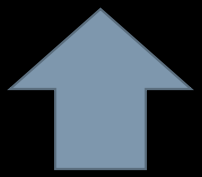
is a collection of procedures that prepares contaminated instruments for reuse. It is necessary step to keep instruments damage to a minimum.

THE MAJOR STEPS FOR INSTRUMENTS PROCESSING

- Holding (presoaking): facilitates the cleaning process by preventing debris from drying.
- Precleaning: removes bioburden to give a best chance of work for sterilization.
- Corrosion control, drying, lubrication: reduce damage to instruments [illegible] proper function of instruments.
- Packaging [illegible] uments after sterilizatio[illegible]
- Sterilizatio[illegible] or high-leve[illegible] all microbes remaining on the instruments to ensure patient safety.
- Sterilization monitoring: measures the use and functioning of the sterilizer.
- Handling processed instruments: helps maintain sterility of the instruments during storage until usage.

bioburden

Sterilization is a process intended to kill all microorganisms and is the highest level of microbial kill that can be achieved.



The microorganisms showed resistance to kill with chemicals and heat including *Mycobacterium tuberculosis*, hepatitis viruses, HIV1, fungal spores, herpes viruses, Staphylococcus aureus and others.

Disinfection: Is a less lethal process than sterilization and is intended to kill disease-producing microorganisms but not bacterial endospores.

Disinfectant

kill low level of bacterial spores

Sterilant

kill high level of bacterial spores

CATEGORIES OF ANTIMICROBIAL CHEMICALS:

high-level disinfectant/Sterilant

- Glutaraldehyde
- Hydrogen peroxide
- Peracetic acid

Heat sensitive reusable items

Intermediate-level disinfectant (EPA-tuberculocidal)

- Phenolics
- iodophor

Non critical items with visible blood

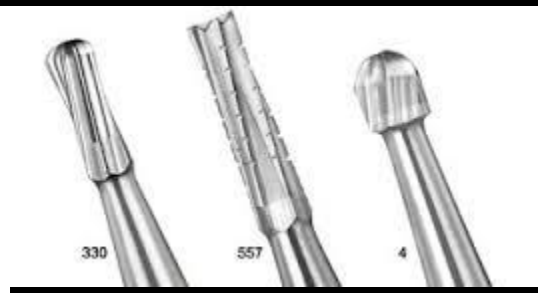
Low-level disinfectant (is not tuberculocidal)

- Quaternary ammonium compounds

Non critical items without visible blood

CATEGORIES OF PATIENT CARE ITEMS

- **Critical items** penetrates soft tissues, contact bone or blood and they should be sterilized with heat. (surgical blades, burs, scalers).



CATEGORIES OF PATIENT CARE ITEMS

- **Semicritical items** contact mucous membrane and most of them are heat sensitive so treated with high level disinfectant.

CATEGORIES OF PATIENT CARE ITEMS

- **Noncritical items** contact intact skin, they are cleaned and treated with low level disinfectant (if blood not visible) or intermediate level disinfectant (if blood is visible).

INSTRUMENTS PROCESSING AREA ACCORDING TO CDC

- **Receiving, cleaning and decontamination.**
- **Preparation and packaging.**
- **Sterilization.**
- **Storage.**

RECEIVING, CLEANING AND DECONTAMINATION.

Reusable instruments and equipment should be received, cleaned and decontaminated in one section of processing area. They should be placed in container that are puncture resistant, labled or color coded.

HOLDING (PRESOAKING)

Why presoaking is important?

- **The instruments should be placed in holding solution (detergents, water, and enzyme solution)**
- **The instruments placed in perforated basket and then place the basket in holding solution to reduce direct handling of instruments.**
- **Extended period of presoaking is not recommended.**

PRECLEANING

- **Is an essential step before any sterilization or disinfection procedures. It involves removal of debris in addition to organic and inorganic components.**

Ultrasonic cleaning

Instruments washer

WORK PRACTICE CONTROL

- **Wear heavy-duty utility gloves.**
- **Using a long handled brush.**
- **The instruments are either submerged in a cleaning solu spattering or at least scrubbed near the sink.**

After cleaning, the instruments should be rinsed with water to remove chemical or detergents.

CORROSION CONTROL, DRYING AND LUBRICATION

Instruments or portion of instruments and burs made of carbon steel will rust during steam sterilization. It can spray rust inhibitors (sodium nitrite) on the instruments. A dry heat or chemical vapor sterilization is used instead.

Some hinged instruments may need to be lubricated to maintain proper functioning and they should be opened before packaging to facilitate access of the sterilizing agents to all parts of the instruments.

PACKAGING

- It prevents instruments from becoming contaminated after sterilization during storage or when being distributed to chairside.

Some pouches have chemical indicators inside them and most are self-sealing; other needs to be sealed with tape.

- Packaging involves wrapping cleaned instruments cassettes and placing them in sterilizing pouches, bags, trays or cassettes.

peel pouches of plastic or paper

sterilizing wraps

wrapped perforated instruments cassettes

nylon plastic tubing

REFERENCE

- Miller CH, Palenik CJ. Infection control and management of hazardous materials for the dental team. 4th ed. Mosby, 2010. (Book)
- Figures from internet
- Others from scientific articles

THANK YOU