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JCAHPO Regional Meetings 2017



Ophthalmic Instrument Care and Sterilization

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Instrument Materials

- Metal
- Stainless steel
- Titanium
- Glass and Acrylic (retina)
- Gem blades (diamonds)
- Fiberoptics
- Finishes



New Instruments

- Unpacking
- Inspection and Testing
- Manual cleaning
- Gem blades
- Storage
- Protective covers for instrument tips



Instrument Care and Handling

- Obtain manufacturer's directions for use for instruments
- Obtain specific instruments for cleaning, decontamination, disinfection and sterilization.
- Create document listing each instrument – type of sterilizer, time and temperature needed for sterilization



Preoperative and Intraoperative

- Keep instruments free of debris
- Instrument wipe
- Sterile water vs. saline vs. BSS
- Position instruments side by side – do not pile on top of each other
- Cannulated instruments



Preoperative and Intraoperative

- Avoid metal to metal contact
- Pass only one instrument at a time
- Place sharps in neutral zone to prevent sharps injury (diamond blades, etc.)
- Always retract gem blades when not in use



Preoperative and Intraoperative

- Do not use towels or gauze to clean instruments – lint
- Use moist lint-free instrument wipe
- Use correct instrument for the job
- Arrange instruments logically and neatly



Cleaning and Disinfection

- Decontamination, manual cleaning
- Inspection and assembly of items
- Packaging
- Sterilization and quality control and monitoring
- Storage



Decontamination

- Decontamination is the most important step in the sterilization process.
- Decontamination occurs first before instruments can be sterilized.
- May include chemical and/or mechanical removal of bacteria and bloodborne pathogens.
- Ultrasonic washers



Sterilization

- Removes microbial life and makes instruments safe for use.
- There are different requirements for sterilization based on the type of instrument material, whether it is a cannulated instrument, the type of container used for sterilization, etc.
- All factors must be considered when determining the time and temperature and equipment that should be used in the sterilization process.



Sterilization

- For sterilization to occur, three essential conditions must be met:
 1. Items to be sterilized must be thoroughly cleaned and decontaminated before being subjected to a sterilization process.
 2. Conditions capable of killing microorganisms, including bacterial spores, must be created.
 3. The sterilizing agent must contact all surfaces of the item for sufficient time and under appropriate conditions (eg. temperature, humidity, concentration) for sterilization to take place.

Methods of Sterilization

- The major methods of sterilization are:
 - Steam (dilution, gravity displacement, prevacuum, and flash)
 - Ethylene oxide sterilization
 - Gas plasma sterilization
 - Cold sterilization (germicide bath)
 - Liquid chemical sterilization (peracetic acid)
 - Dry heat sterilization



Steam Sterilization

- Oldest, cheapest, most reliable method of sterilization
- Used in most ophthalmic ASC
- Autoclaves with steam sterilization – most commonly prevacuum or gravity displaced

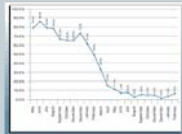


Steam Sterilization

- Gravity displacement – inject steam into the top of the autoclave and pushes cool air into the bottom.
- This type of sterilization takes a longer time – for the steam to replace the cooler air that was present in the autoclave.
- Vacuum sterilizers: remove all the air (vacuum) inside the chamber before injecting steam
- Vacuum sterilizers have a shorter sterilization cycle than gravity displaced.

Immediate Use Steam Sterilization

- Flash Sterilization
- IUSS Log
- Time and temperature for IUSS



Autoclaves

- Obtain manufacturer's directions for use
- Determine manufacturer's requirements for maintenance – daily, weekly, monthly, annually.
- Create log for maintenance of autoclaves – document compliance on log



Ethylene Oxide

- Also known as gas sterilization
- EO depends on four parameters:
 - Gas concentration
 - Temperature
 - Humidity
 - Time
- These parameters are interdependent. Changing any one of these parameters requires the others to be changed accordingly.



Ethylene Oxide

- Ethylene Oxide gas is toxic – therefore, aeration is required.
- Obtain manufacturer's directions for use for instruments and follow them carefully.
- Obtain manufacturer's directions for use for EO autoclave and create log (daily, weekly, monthly, annual requirements) and document compliance.

Quality Control for the Sterilization Process

- Chemical indicators
- Biological indicators
- Mechanical indicator



Enzymatic Cleaners

To Use or Not to Use
That is the Question

Toxic Anterior Segment Syndrome

- Failure to remove viscoelastics, detergent, enzymatic cleaners, bioburden from instruments may cause Toxic Anterior Segment Syndrome (TASS)
- Know the difference between TASS and endophthalmitis



TASS vs. Endophthalmitis

- **TASS**
 - 12-24 hour onset
 - Painless
 - Hypopyon
 - Limited to anterior segment
 - Occur in clusters
 - Gram stain negative
 - Treated by ophthalmologist with topical steroids every one to two hours
- **Endophthalmitis**
 - Three to seven days onset
 - Painful
 - Hypopyon
 - Anterior and posterior segments
 - Occur individually
 - Gram stain could be positive or negative
 - Treatment by retina surgeon with antibiotics and/or steroids injections

Ultrasonic Cleaners

- Follow manufacturer's directions for use for each instrument placed in ultrasonic cleaner
- It is recommended that water is changed in ultrasonic cleaner after every use



Care and Handling

- Use instrument milk/lubrication as recommended by manufacturer of each instrument
- Inspect each instrument after each case to ensure integrity and availability of instrument for the next case.
- Identify stains (brown stains may be rust, dried blood, etc.)
- Damaged instruments should be removed immediately and sent out for repair.
- Instrument should be replaced on the tray.

Instrument Care and Handling

- AORN and ASORN recommends:
- All instruments in the tray that is opened during the case must undergo the same cleaning and sterilization process – whether or not the instrument was used during the case.



Peel Pouches

- Note manufacturer's recommendations for length of time instruments can remain sterilized in the peel pouches
- Do not overfill the pouch
- Leave room between pouches during sterilization process – do not overpack autoclave
- Store peel pouches in an area that would require minimal manipulation – in order to maintain sterility for a longer period of time.

Disposable/Single Use Devices

- Do not reuse disposable and/or single use devices (knives, cannulas, etc.)
- Only a FDA approved reprocessing facility can reprocess a single use item for reuse.

