

Sterilization Techniques for Operation

Sterilization Techniques for Operation Theatre Instruments

1. Autoclaving:

- Utilizes high-pressure steam to kill microorganisms.
- Ideal for instruments that can withstand high temperatures and moisture.
- Process involves heating instruments to 121-134°C for 15-30 minutes.

2. Dry Heat Sterilization:

- Involves heating instruments at temperatures of 160-190°C.
- Suitable for instruments that are sensitive to moisture.
- Process usually takes 1-2 hours to ensure complete sterilization.

3. Ethylene Oxide Gas Sterilization:

- Effective for heat-sensitive instruments like plastic or rubber.
- Involves exposing instruments to ethylene oxide gas for several hours.
- Requires proper aeration post-sterilization to remove toxic residues.

4. Chemical Sterilization:

- Uses chemical solutions like glutaraldehyde or hydrogen peroxide.
- Suitable for heat-sensitive instruments.
- Process involves soaking instruments for a specific duration as per manufacturer guidelines.

5. Plasma Sterilization:

- Utilizes low-temperature hydrogen peroxide gas plasma.
- Effective for delicate instruments like endoscopes.
- Process typically takes around 45-60 minutes.

6. Ultraviolet (UV) Light Sterilization:

- Uses UV light to kill microorganisms on surfaces.
- Best for disinfecting flat or exposed surfaces.
- Limited penetration, hence not suitable for complex instruments.

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7. Sterile Packaging: **Theatre Instruments**

- Crucial step post-sterilization to maintain instrument sterility.
- Instruments are placed in sterile wraps or packs to prevent contamination.

8. Validation and Monitoring:

- Regular validation of sterilization processes to ensure efficacy.
- Monitoring includes biological and chemical indicators to verify sterilization success.

9. Storage:

- Proper storage conditions to maintain instrument sterility.
- Instruments should be stored in clean, dry, and well-ventilated areas.

10. Training:

- Healthcare personnel should receive training on sterilization techniques.
- Adherence to protocols and guidelines is essential to prevent infections.

By following these sterilization techniques diligently, operation theatre instruments can be effectively sterilized, ensuring patient safety and preventing the spread of infections.