SOP: Sterilization and Disinfection of Medical Instruments

This SOP details the **sterilization and disinfection of medical instruments**, encompassing the cleaning, decontamination, sterilization methods, and storage protocols to prevent healthcare-associated infections. It ensures the safe and effective elimination of microbial contamination on reusable medical tools, protecting patients and healthcare staff by maintaining instrument sterility and compliance with infection control standards.

1. Purpose

To provide standardized procedures for cleaning, disinfecting, sterilizing, and storing reusable medical instruments to ensure their safe reuse in clinical settings.

2. Scope

This SOP applies to all healthcare staff involved in handling, cleaning, and reprocessing reusable medical devices and instruments.

3. Responsibilities

- All staff must follow this SOP to ensure patient and staff safety.
- Designated staff must document compliance with each stage of the process.
- Supervisors must perform regular audits and competency assessments.

4. Definitions

- **Cleaning:** Removal of visible soil and organic material using water, detergents, and mechanical action.
- **Disinfection:** Elimination of many or all pathogenic microorganisms, except bacterial spores.
- **Sterilization:** Complete destruction of all forms of microbial life, including spores.

5. Procedure

5.1 Pre-Cleaning and Decontamination

1. Wear designated personal protective equipment (PPE): gloves, gown, mask, and eye protection.
2. Remove gross contaminants from instruments immediately after use (e.g., with disposable cloths).
3. Transport instruments to the reprocessing area in closed, leak-proof containers labeled as â€œContaminated.â€

5.2 Cleaning

1. Disassemble instruments if applicable and rinse under running water to remove debris.
2. Soak instruments in an enzymatic cleaning solution as recommended by the manufacturer.
3. Scrub all surfaces, joints, and crevices with a soft-bristled brush.
4. Rinse thoroughly with clean distilled water.
5. Inspect instruments for cleanliness and integrity.

5.3 Disinfection (If Applicable)

1. Immerse instruments in an approved high-level disinfectant for the recommended duration.
2. Rinse with sterile or filtered water after disinfection.
3. Dry instruments with lint-free towels.

5.4 Sterilization

Sterilization Method	Parameters/Instructions	Examples of Instruments
Autoclaving (Steam Sterilization)	121Â°Câ€“134Â°C, 15â€“30 mins, appropriate pressure; do not overload chamber	Surgical tools, forceps, scissors
Dry Heat	160Â°Câ€“170Â°C, 60â€“120 mins	Metal instruments that can tolerate dry heat

Ethylene Oxide (EO) Gas	For heat-sensitive instruments; follow manufacturer's instructions	Endoscopes, plastic devices
Chemical Sterilants	Submerge for required time per manufacturer's guidelines	Heat-sensitive instruments

5.5 Storage

1. After sterilization, allow instruments to cool before handling.
2. Store in a dry, dust-free, and secure environment.
3. Ensure packaging is intact and labeled with sterilization date and batch number.
4. Rotate stock to use oldest items first (â€œFirst-In, First-Outâ€).

6. Documentation

- Log sterilization cycles (date, time, parameters, operator).
- Maintain records of load contents and results of biological or chemical indicators.
- Document equipment maintenance and staff training.

7. Quality Control

- Use biological/chemical indicators to monitor sterilization effectiveness.
- Conduct regular equipment validation and calibration.
- Audit compliance with this SOP quarterly.

8. References

- CDC Guidelines for Disinfection and Sterilization in Healthcare Facilities
- Manufacturer Instructions for Use
- Hospital/Institutional Infection Control Policies

9. Revision History

Version	Date	Description	Author
1.0	2024-06-01	Initial Release	Jane Doe, Infection Control