

Sterilization in orthodontic

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Sterilization is a process by which an instrument is freed of all micro-organisms.

The control of infection that spreads through various instruments used in the field of orthodontics and dentistry in general is of utmost importance as a preventive measure for cross infection, sterilization process consists of three main procedures.

i- Pre-Sterilization Cleaning: The process involves removing debris and other impurities prior to undergoing a sterilization process. It could be done by hand washing with detergents and brushes or recently by ultrasonic. At the end procedure it is very important to eliminate any residual moisture on the instruments as it may lead to corrosion.

ii- Sterilization: there are different methods of sterilization, includes:

1) Hot air oven: Dry heat denatures protein of microorganisms rendering it nonviable. It operates at a temperature of 160°C for 1-2 hours.

2) Rapid heat sterilizer: Uses controlled internal air flow system at 375°F. Sterilization claims of 6 minutes are made with unwrapped instruments and 12 minutes for wrapped instruments.

3) Autoclave: Moist heat denatures and coagulates protein of microorganisms. Temperature required is 121°C for 20 minutes at 15 pounds pressure. For practical considerations high pressure vacuum models are operated at a temperature of 136°C for 5 minutes at 30 pounds pressure.

4) Unsaturated chemical vapour sterilization: Uses special solution containing 0.23% formaldehyde (active ingredient) and 72.38% ethanol plus acetone, ketone, water and other alcohols. It's a suitable method for orthodontic instruments. Operates at 270°F (132°C) with 25 pounds pressure for 20 minutes.

5) Ethylene oxide sterilization: At normal temperature, it is a gas with very high penetrating ability. It acts by alkylating the amino, carboxyl, sulphhydryl groups in protein molecules. It reacts with RNA and DNA. This method used to sterilize heat sensitive instruments.

iii- Storage of sterilized instruments:

Unpackaged instruments removed from the sterilizer have a zero –sterile shelf life. Store the packages in a low dust area, assuring that the package never becomes wet or tear upon removal from storage and when delivered to chair side for use on the next patient.