

Disinfection

Disinfection of impressions is a concern with respect to viral diseases such as hepatitis B, acquired immunodeficiency syndrome, and herpes simplex, because the viruses may be transferred to gypsum models and present a risk to dental laboratory and operating personnel.

When they are removed from the patient's mouth, it must be assumed that all impression materials have been in contact with body fluids. They should be disinfected according to the recommended procedures for the material being used. After being removed from the patient's mouth, the impression is immediately rinsed with tap water and dried with an air syringe.

Two functions of disinfectant agent:

1. Must be an effective antimicrobial agent.
2. Must not adversely affect dimensional accuracy or surface texture of impression materials and resulting gypsum cast.

Procedure of disinfection:

1. Rinse under running tap water to remove blood/saliva
2. Disinfect as appropriate.
3. No single disinfectant is ideal or compatible with all items.
4. Clean and disinfect before delivery to patient.
5. After disinfection: rinse and place in plastic bag with diluted mouthwash until insertion.

Methods of disinfection:

Spraying, dipping, immersing, and incorporation

Exposure time should be that recommended by the manufacturer of disinfectant.

--*Iodophors, sodium hypochlorite (1:10 concentration), chlorine dioxide, phenols, and other approved products are all acceptable.

--Soak casts for 30 minutes in 0.5% concentration of sodium hypochlorite and saturated calcium dihydrate solution (SDS).

Advantages

1. Uses less disinfectant
2. Same disinfectant can often be used to disinfect environmental surfaces

Disadvantages

1. Probably not as effective as immersion can be released into air increasing occupational exposure.

Technique for pouring impression:

To reduce air bubbles in the mix, the water should be placed in the mixing bowl first. The powder is then added and quickly incorporated by hand spatulation. Possible causes of inaccurate casts.

1. Distortion of the hydrocolloid impression:

- a) By partial dislodgment from the tray.
- b) By shrinkage caused by dehydration.
- c) By expansion caused by imbibition .
- d) By pouring the cast with too resistant stone.

2. High water powder ratio, results in a weak cast.

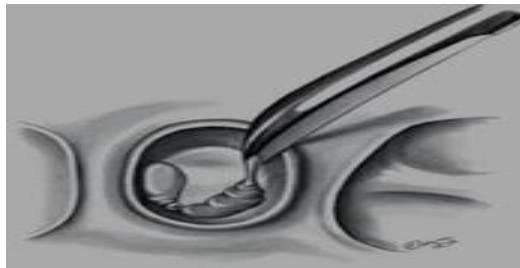
3. Improper mixing, results in a weak cast with chalky surface.

4. Trapping of air, either in the mix or in pouring, because of insufficient vibration.

5. Bubbles are trapped if too much stone is added abruptly or if two sizable masses of stone meet.
6. Soft or chalky cast surface resulting from the retarding action of the hydrocolloid or the absorption of necessary water for crystallization by the dehydrating hydrocolloid.
7. Premature separation of the cast from the impression.
8. Delayed separation of the cast.

Pouring an impression (without boxing):

1. Remove the alginate impression from the damp paper towel and shake out any moisture.
2. Add 100 gm of stone (powder) into 28 ml of water and spatulate for one minute. Place the bowl on the vibrator to escape the entrapped air.
3. Pick up a small amount of stone with a suitable brush or instrument, and place it in the most critical area (usually the occlusal aspect of narrow preparations or immediately adjacent to the sulcus area).



5. Continue to add stone in larger portions until the impression is completely filled.
6. Let the stone reach its initial set.
7. The base of the cast can then be formed with a new mix of stone. The base should be at least 15 mm thick.

Forming the cast with boxing

1. Apply beading wax to the periphery of the impression. It should be placed 2-3 mm from the borders of the impression and should be 4 mm wide.
2. Alternately, beading can be done with a 50 – 50 mix of plaster and pumice.
3. Boxing the impression with Boxing wax sheet.
4. Hold the boxed impression on a vibrator and add mixed dental stone in small increments until completely filled.
5. Allow the stone to set for the recommended time (usually 30 minutes). After the stone has completely set & the exothermic reaction is completed, peel off the boxing wax and remove the beading wax.
6. Remove the impression gently off the cast with a plaster knife.
7. The sides of the cast are trimmed to be parallel.