Protocols for Safe Prosthodontic Procedures Amid COVID-19 Results Pandemic

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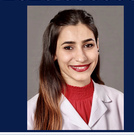


Introduction:

Evidence-based infection control protocols that maintain dimensional stability for prostheses/impressions/ record bases and other dental surfaces while providing effective disinfection against COVID 19 is necessary for the survival of a prosthodontic practice against the threat of the pandemic crisis caused by SARS-COV-2. Serious errors such as use of incorrect chemicals, inadequate dilutions, inadequate contact times, and incorrect application methods can spread pathogens from one surface to another limiting prosthodontics specialty to only urgent needs. For this purpose, acquiring updated knowledge regarding prevention and disinfection during the current pandemic is mandatory. This poster compiles protocols for safe prosthodontic procedures referring to CDC and ADA guidelines as well as evidence in the available literature. Those protocols include 24-hour triage prior the appointment and 48-hour post appointment follow-up.

Infection Control Protocols for Patients: Before & During the appointment

1. Patients may be accompanied by one supporting individual if absolutely essential to the visit parent or guardian.
2. All patients & supporting individuals must pass all the pre appointment temperature check.
3. Avoid direct contact (no hugging or hand shaking).
4. Patients must wear a mask at all times until examination and/or direct intraoral care is administered.
5. Patient must wash hands upon entering for 20 sec with soap & water or with 60% alcohol-based hand sanitizer.
6. Patient should wear eye protective glasses throughout the appointment.
7. Limit transport and movement of the patient outside of the room to medically essential purposes.
8. Next appointment should be scheduled before dismissing the patient.

1. Patients should rinse with 0.5% povidone-iodine (PVP-I) for 15 sec for adequate viricidal activity against SARS-CoV-2.
2. Hydrogen peroxide-1.5% and 3.0% is minimally effective as a viricidal agent after contact times as long as 30 sec but may be used as an alternative when PVP-I is contraindicated.
3. Aerosolized procedures must be performed under rubber dam, when possible, and with the utilization of high-speed evacuation.
4. Electric handpiece speed must be reduced to 100,000 RPM or below and the air supply to the hand piece must be turned off completely.

Disinfection of Prosthodontic Equipment

- Disinfection should be done with EPA-registered hospital disinfectant (intermediate level) with a tuberculocidal claim being a registered product qualified for use against COVID-19 through the agency's Emerging Viral Pathogen Program (EPA N List) Such as Hypochlorous acid and Isopropanol based disinfectants.
- **When a laboratory case is sent off-site, dental health care provider should provide written information regarding the methods (type of disinfectant & exposure time) to be used for disinfection.**

Dimensional stability-registered in EPA-N List:

The use of Diluted sodium hypochlorite (bleach 5.25%, 1:10 dilution, 10 minutes at 20°C) For:

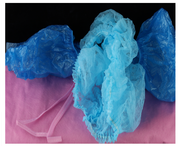
- Hydrocolloids: After the impression is cleaned with water; It is recommended to use disinfectant spray; Impression is placed in a plastic bag for 10mins. Then the impression is rinsed with water before pouring.
- Polyether: which is moderately hydrophilic, strict attention to disinfection guidelines is necessary to prevent swelling of the material. Spray with disinfectant for 10 minutes and rinse with water and dry immediately before pouring casts.
- Chlorine solutions should be prepared fresh daily, as they are light sensitive. Most chlorine products require the removal of organic soil prior to their use (removing bulk spill matter, cleaning prior to disinfecting).
- **Disinfection requires a wet contact time on all surfaces of the impression/dental Prosthesis (amount of time the disinfectant is required to be left on the Surface to be effective)**. Chlorine solutions are corrosive and can pit metal and damage skin.

1. Disposable hard sleeve for the intra-oral camera/wand.
2. Barrier for the keyboard and the screen.
3. The unit should be disinfected after each use with disinfectant with a tuberculocidal claim registered in EPA-N list.
4. There is no available disinfectant that can be safely used on the lens.

1. Every attempt must be made to prevent articulators from becoming contaminated.
2. If used within 3 feet of the dental unit during patient treatment, it should be wiped with a disinfectant within the EPA- N list after confirming with the manufacturer for the safety of use.

1. Polycarbonate shield mounted to the microscope with an attached high velocity vacuum hose ventilation
2. Plastic drape added to a Dura-Lar shield and a saliva ejector attached to the rubber dam.
3. Shield protecting the Prosthodontist from "splash back".

Personal Protective Equipment



N95 respirator
Surgical facemask on top
Eye protection with no gap between glasses
Full-face surgical face shield

Isolation gown
Head Cover
Shoe covers

This PPE is required for treating patients by dental care providers; CDC recommends applying these to ***all*** patients, not just those with suspected of being infected with SARS-COV-2.

References:

[1] Bidra, Avinash S., et al. "Rapid In-Vitro Inactivation of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Using Povidone-Iodine Oral Antiseptic Rinse." *Journal of Prosthodontics*, vol. 29, no. 6, 2020, pp. 529–533., doi:10.1111/jopr.13209.
[2] Anderson, Danielle E., et al. "Povidone-Iodine Demonstrates Rapid in-Vitro Virucidal Activity against SARS-CoV-2, the Virus Causing COVID-19 Disease." 2020, doi:10.21203/rs.3.rs-34544/v2.
[3] Rubel, Barry S. "Impression Materials: A Comparative Review of Impression Materials Most Commonly Used in Restorative Dentistry." *Dental Clinics of North America*, vol. 51, no. 3, 2007, pp. 629–642., doi:10.1016/j.cden.2007.03.006.