

SARS-CoV-2 Viral Inactivation Using Low Dose Povidone-Iodine Oral Rinse—Immediate Application for the Prosthodontic Practice

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The COVID-19 pandemic has significantly altered the way in which we practice prosthodontics. Prosthodontics encompasses a wide range of procedures ranging from single unit restorations to complex implant surgery and almost all procedures involve aerosol production resulting in higher risk for clinicians, dental assistants and patients. Current efforts at reducing viral transmission in the dental office have mainly focused on the use of personal protective equipment and air filtration systems. An important adjunctive protective measure that has received limited attention is oral (and nasal) decontamination by the use of topical povidone-iodine (PVP-I). PVP-I solutions of 0.23% have effectively inactivated SARS-CoV and MERS with contact times as low as 15 seconds in vitro.^{1,2} The SARS-CoV-2 virus resulting in the COVID-19 pandemic is in the same family of the SARS-COV virus and is expected to be inactivated by PVP-I in the same manner.

Presently, there are no clinical studies supporting the virucidal effects of any preprocedural oral rinse against SARS-CoV-2 and we are presently conducting studies that have already shown promising results. The ADA interim guidelines for minimizing risk of COVID-19 transmission suggest preprocedural oral rinsing with 1.5% hydrogen peroxide (commercially available in the United States) or 0.2% PVP-I (not commercially available in the United States). The CDC recommends preprocedural rinsing with antimicrobial rinses such as chlorhexidine gluconate, essential oils, PVP-I or cetylpyridinium chloride. PVP-I is safe for use in the oral cavities at concentrations up to 5%³ and in the nasal cavity is 1.25%.⁴ In the absence of appropriate commercially available preparations for routine dental use, we recommend dilution of the commercially available 10% povidone iodine by 1:20 utilizing 0.5 cc of 10% povidone iodine and 9.5 cc of sterile saline or

sterile water for routine clinical use. We have been implementing this protocol at our clinic routinely. We also recommend that prosthodontists and their staff regularly use 0.5% PVP-I oral rinse to decrease the risk of transmission associated with viral shedding from asymptomatic individuals. At this concentration, iodine absorption is minimal and is below the total daily iodine intake for a healthy adult of 150 µg. Contraindications include anaphylactic allergy to iodine, pregnancy, active thyroid disease, and patients undergoing radioactive iodine therapy. We hope this important adjunctive protective measure can add an additional barrier of safety during prosthodontic procedures.

Respectfully submitted by: Drs. Belachew Tessema MD, FACS, Samantha Frank MD and Avinash Bidra BDS, MS, FACP, UConn Health Center, Farmington, Connecticut, USA.

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