

## **Proposed Clinical Guidance for Orthodontists and Orthodontic Staff Post COVID-19 A Clinician's Perspective**

John W. Graham, DDS, MD, James E. Paschal, DMD, MS, David E. Paquette, DDS, MS, MSD, FACD

*The contents contained herein are subject to change based upon Federal, State, and local regulations, guidance from agencies and additional knowledge to be obtained through the COVID-19 crisis. The contents are designed to provide guidance and therefore should not be relied upon for the making of any decisions in a specific practice as each practice has its own specific needs and requirements. Each practice and professional should consult with their own professional advisors to address their specific practice requirements.*

The recent unprecedented COVID-19 global pandemic and subsequent strain on supply chains of PPE have given many individuals justifiable cause for concern with regards to infection control in healthcare settings. In early March, the American Dental Association advised all dental practices to cease non-emergent in-person care, reduce the infection rate, and to allow the country and individual states to rebuild stockpiles of PPE for health care workers on the front lines of treating the COVID-19 virus. The orthodontic specialty supported this recommendation. This is not a sustainable long-term solution due to the vast numbers of patients in active appliances moving forward.

Unlike most elective procedures, orthodontic treatment is an ongoing process dependent upon the consistent monitoring and adjustment of active appliances throughout treatment. Unanticipated and prolonged shutdowns are beginning to produce a coming wave of orthodontic patients that grows each day and will complicate the enforcement of social distancing guidelines. The Administration has unveiled Guidelines for Opening up America Again, a three-phase approach based on recommendations from public health officials and the most recent COVID-19 data. (["Opening Up America Again | The White House," n.d.](#))

How orthodontic offices should open is now a primary concern. Unfortunately, it seems that the current discussion regarding post-SARS-CoV-2 infection control is emotion-based, not evidence-based. Emotion driven decisions are not only ill-advised from a staff and patient protection point-of-view, but they also have the potential to add unnecessary costs and untold environmental consequences.

Currently, the CDC does not include dentists in their general definition of healthcare providers (HCP) as it pertains to personal protective equipment (PPE), and the guidance that the CDC *has* provided to dental offices does *not* distinguish between the multiple dental specialties. ([CDC 2020](#)) Furthermore, the interim guidelines for dentists and their staff were presented within the context of emergency appointments rather than the routine dental care we are preparing to provide once again.

The purpose of this Proposed Guidance for Orthodontists and Orthodontic Staff in the Post-COVID-19 Environment is to establish reasonable, evidence-based best practices to

protect both orthodontic staff and patients from transmission of COVID-19 and other infectious diseases and to distinguish these practices from those of the general dental office or other dental specialties. ([Medical & Dental Offices 2003](#))

With the recent pandemic and concurrent global reaction surrounding it, many have started to revisit and re-analyze infection control protocols that are currently utilized within dental practices in general and orthodontic practices in particular. It is essential to note the following: Routine orthodontic procedures rarely, if ever, violate the oral mucosa. Documented cases of cross-infection in US orthodontic offices are exceedingly rare. One study in 1980 ([Stambach and Biddle 1980](#)) found orthodontists had a high incidence of Hepatitis B; however, this study was conducted before current, well-established infection control standards. Under current standards, no reviews were found that provide evidence of increased infection rates in orthodontists or their clinical staff of any infectious disease. Given current evidence, one must conclude that current, long-established infection control practices provide adequate protection for Dental Health Care Personnel (DHCP) and their patients.

The environmental stability of the SARS-CoV-2 virus within fluid droplets and on surfaces continues to be the chief concern regarding infection control in the dental office ([Sun et al. 2020](#)). It is now generally accepted that infection and mortality rates for COVID-19 are similar to other common viruses such as seasonal influenza. ([Bendavid et al. 2020](#)) With the emerging evidence of asymptomatic carriers of COVID-19, mortality rates are possibly much lower than previously reported. Given that, it follows that considering significantly increased infection control standards only because we are experiencing a pandemic may be shortsighted, expensive, environmentally unsustainable, and possibly ineffective.

The common tendency to approach infection control from the errant philosophy of "complete eradication of all pathogens" is not realistic, and usually results in failure. While we can reduce the transmission of microorganisms from person to person, we can never establish an environment of complete non-pathogenic transmission. Even fully quarantined organisms find vectors of transmission eventually. Creating evidence-based measures to afford the most reasonable protection for staff and patients is the objective of this document. Efficacy, economics, and inconvenience are essential variables that have been considered as these recommendations have been written. Practicing well-established, well-researched infection control protocols, as currently understood, is effective. Economically, the costs of sterilization and asepsis procedures have traditionally been passed to the patient in their treatment fees. Over the last four decades, the cost of our current protocols has been accepted by the dental community and patients due to its effectiveness in preventing the spread of disease. Adding to an already successful and well-established infection-control protocol not only increases expense but also has a measurably negative impact on the environment.

There are inherent risks in any profession. Orthodontics has its unique risks originating from the generation of aerosol during the removal of composite adhesive and when performing enameloplasty. Sharps risks are mitigated through training and the wearing of disposable gloves while working in the oral environment. Aerosol exposure is minimized by the utilization of a mask, High Volume Evacuation (HVE), and microbial reduction with a preprocedural mouth rinse.

Rotary instruments generate a particulate aerosol, and it is generally accepted that the faster the instrument rotates, the amount of aerosol generated may increase. Other modifying factors are the application of air and water. Water usage with rotary instruments is generally eliminated in the orthodontic environment, and along with it, much of the aerosol. The particulate aerosol is reduced by 90+% by merely utilizing an HVE while the rotary instrument is used. The 10% of the aerosol that does escape the oral cavity and HVE has been shown to dissipate from the surrounding air in 10-30 minutes, well within the range of standard appointment times ([Bennett et al. 2000](#)).

There has been an increased discussion regarding masks and the protection that they afford healthcare workers. The ADA Interim Mask and Face Shield Guidelines provides a reference for dentists when choosing masks for their offices. ([ADA Interim Mask](#)). When establishing standards as we move forward, we must consider that surgical masks which have been utilized for years in the dental setting have been demonstrated to be as effective at reducing the transmission of infectious diseases as N95 respirators ([Loeb et al. 2009](#); [Radonovich et al. 2019](#); [Long et al. 2020](#)).

The microbial load in the oral cavity can be significantly reduced (by over 94%) with the utilization of a simple preprocedural mouth rinse ([Fine et al. 1992](#)). Use of 1.5% hydrogen peroxide or 1% povidone-iodine is currently recommended by the ADA during the current COVID-19 crisis ([ADA Int Rec](#)) to reduce the risk of environmental contamination during aerosol formation. Due to the brevity of most orthodontic procedures, such rinses should add a layer of protection.

Also, aerosol generation from the use of dental handpieces is reduced further by using the minimum speed necessary. The lower the rate, the less the aerosol generation there is.

**With these considerations in mind, aerosol contamination may be reduced in the orthodontic environment with the following recommendations:**

- Have a patient wash *and* dry hands before being seated
- Have the patient rinse with 1.5% hydrogen peroxide or 1% povidone-Iodine mouth rinse
- Utilize HVE for procedures that create aerosol
- Reduce handpiece speed to the minimum rate necessary
- Consider the use of electric handpieces to further reduce creation of aerosol
- Minimize or eliminate rotary instrument irrigation
- Wear a well fitted surgical level 1-3 or N95 mask
- Wear goggles *or* a face shield

Introducing increased PPE and procedures in the orthodontic office needs to have well defined, evidence-based goals, have economic viability, and offer environmental sustainability. Current PPE standards have proven to satisfy both DHCP/patient safety and economic viability. Utilized properly, they eliminate contact with a patient's bodily fluids and acceptably minimize the exposure to aerosol and droplet contamination. The stated purpose of this document is to avoid the introduction of non-evidence-based measures that serve only to increase costs to the practitioner and unnecessarily increase environmental waste.

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*Respectfully submitted*

John W. Graham, DDS, MD

James E. Paschal, DDS, MS

David E. Paquette, DDS, MS, MSD, FACD

*With support from the following esteemed signatories*

Sean K. Carlson, DMD, MS

Clark D. Colville, DDS, MS

Jason B. Cope, DDS, PhD

Scott T. Frey, DDS, MSD

Glenn D. Krieger, DDS, MS, FAGD

Salvatore J. Manente, DDS, MS

W. Ronald Redmond, DDS, MS, FACD

David M. Sarver, DDS, MS

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