

## Managing dental Aerosols

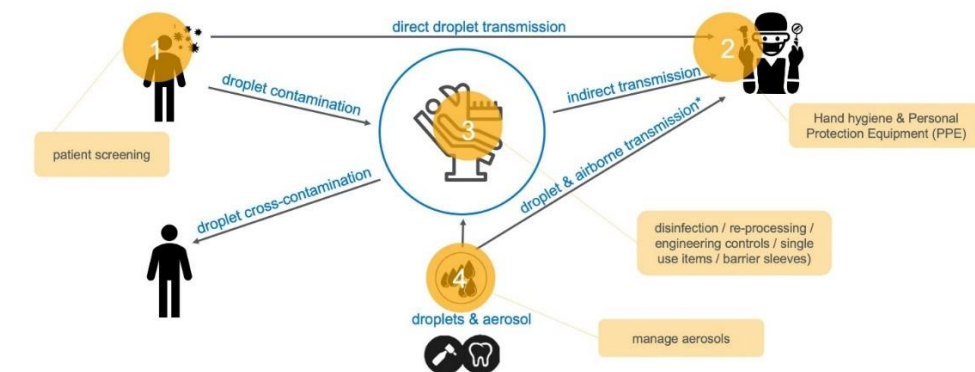
Since the pandemic affected many communities and countries, elective dental treatments were voluntarily discontinued in many places in order to follow the guidelines of "social distancing", while scientists and epidemiologists used the time to learn more about the disease and its spread. This action also facilitated Personal Protective Equipment, or PPE, being directed to front line health care workers treating patients infected by this virus.

Dental practices are beginning to resume elective procedures and are following strict guidelines in terms of hygiene and preventive measures to ensure the best possible safety for their patients and dental staff. High-speed handpieces, ultrasonic scaling devices, and three-way syringes are routinely used for operative and preventive dental procedures. Most restorative and prophylaxis procedures cannot be performed without these devices. Thus, aerosol generating procedures (AGPs) are a major component of modern dentistry.

Although there is currently no evidence of the transmission of the virus via aerosols that are generated by a variety of dental procedures, public health agencies and dental associations globally recommend minimal use of aerosol-producing dental procedures currently. Studies have suggested that SARS-CoV-2 may be airborne through aerosols formed during dental procedures using high speed handpieces, air water syringes or ultrasonic scaling devices, although evidence for this transmission route is lacking.

In order to mitigate infection transmission in a dental setting, a variety of infection prevention measures must be implemented by DHCP:

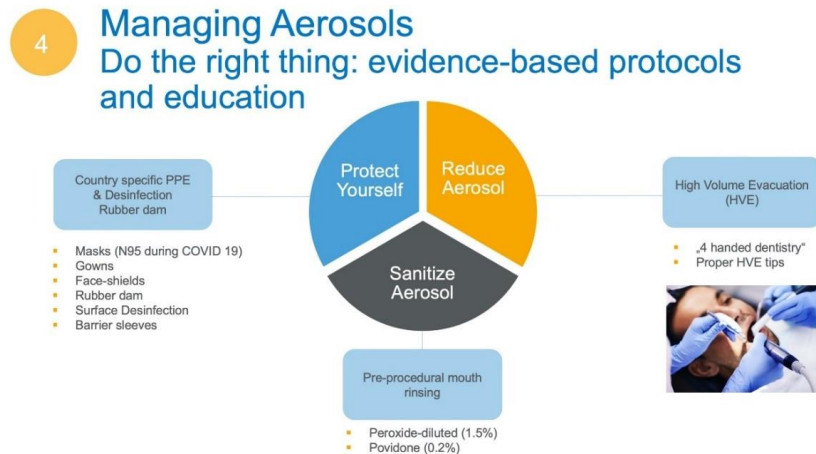
### Principles of **BLOCKING** possible Transmission routes in a treatment room (overview)



\*Inhalation of airborne particles (aerosols) possible but has to be confirmed  
 • Peng X, et al. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci* 2020; 12:9.  
 • Van Doremalen et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. *N Engl J Med*. 2020 Mar 17

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High-speed handpieces, ultrasonic scalers and air-water syringes may produce potentially infectious droplets, splatter and aerosol. In order to minimize the risk of a contamination, three principal measures are undertaken in a dental setting:



ADA Interim Guidance for Minimizing Risk of COVID-19 Transmission 2020/04  
 ADA recommendation: HVE = 100 cubic ft/min Harrel, Molinari, 2004. Aerosols and splatter in dentistry, a brief review of the literature and infection control implications. The Journal of the American Dental Association.  
 Peng X. et al. Transmission routes of 2019-nCoV and controls in dental practice. Int J Oral Sci 2020; 12:9



Aerosols can be managed by proper personal protective equipment, sanitization measures, and compliance with the infection prevention measures according to the country-specific guidelines. The amount of generated aerosols can be further reduced by using high-volume evacuation (HVE) instead of saliva ejectors for procedures. Because Dental Hygienists (DH) usually work alone and are not in a position to perform “four-handed dentistry”, they typically use standard saliva ejectors instead of HVE, as two hands are required to operate both the mirror and the aerosol generating device. The Dentsply Sirona Purevac® High Volume Evacuation Mirror Tip is an example of a true HVE, enabling evacuation of fluid and debris with 90% less aerosols during ultrasonic scaling compared to low-volume saliva ejectors.

If you are interested in more detailed information on the topic you can find it in the aerosols information section:

<https://dentsplysirona.sharepoint.com/sites/Intranet/en-us/EmployeeServices/Pages/Covid19.aspx>