

REFERENCE

Ghoneim A, Proaño D, Kaur H, Singhal S. Aerosol-generating procedures and associated control/mitigation measures: Position paper from the Canadian Dental Hygienists Association and the American Dental Hygienists' Association. *Can J Dent Hyg.* 2024;58(1):48–63.

Supplementary Table S1. Risk of transmission of microbial pathogens

Author(s), date, country	Study design	Number of participants	Setting	Intervention(s) and protocol	Comparator	Outcome measure	Summary of findings	Remarks
Al-Moraissi et al. (2022) ²⁶ China	Systematic review	NA	NA	Dental, maxillofacial, and orthopedic surgical procedures (DMOSP)	NA	Transmission of severe acute respiratory syndrome coronavirus (SARS-CoV-2)	One study confirmed that HIV could be transmitted by aerosolized blood generated by an electric saw and dental bur. There is sufficient evidence that DMOSP generate an ample amount of bioaerosols, but the infectivity of these bioaerosols to transmit diseases such as SARS-CoV-2 is unclear. Still, this should be considered.	This study found very weak evidence to suggest the infectivity of aerosols generated by DMOSP to transmit diseases such as SARS-CoV-2.
Amiri et al. (2021) ²⁵ Brazil	Systematic review and meta-analysis of observational studies	NA	NA	Search was conducted using PubMed, Embase, ISI, Scopus, Medicine for articles between	NA	Studies that reported effect size of airborne COVID 19 concentrations of hallway air samples	Two studies were considered; the effect size of airborne COVID-19 concentrations of the hallway and personal air samples was 64%	This review found insufficient evidence of aerosol transmission. Dentists are more at risk for COVID-19, so related challenges and

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				September 2019 and December 2020		(copies/L of air), and personal air samples (copies/L of air)	copies/L of air, and 100% copies/L air, respectively.	responsibilities need to be defined for them. Need to understand the risk of aerosol transmission.
Baldion et al. (2021) ³⁰ Colombia	Experimental study	NA	Phantom heads with typodont with 28 teeth	Settlement of aerosolized particles during AGPs: coloured saliva Gravity-deposited particles: filter paper within the perimeter of the phantom head Settled particles: recorded with standardized photographs Analysis of stained area: digital imaging	Dental units with adequate ventilation vs inadequate ventilation	Settlement of aerosolized particles in terms of distance from the mouth, the instrument used, area of the mouth treated, and location within the perimeter area	The greatest risk of particle settlement occurs at a distance up to 78 cm from the phantom mouth, with inadequate ventilation, and when working with a high-speed handpiece. Most settled particles generated during the AGPs ranged from 1 µm to 5 µm in size.	This model was useful for predicting the risk of exposure to COVID-19. Distance, ventilation, type of instrument, location within the perimeter to show association with amount of settled particles were the main factors.

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Levit and Levit (2020) ²⁴ Israel	Systematic review	NA	NA	Searched MEDLINE and Google Scholar for all possible reported cases of COVID-19 transmission in dental practice from December 1, 2019, until May 13, 2020	NA	COVID-19 transmission	Of 78 articles, only 31 articles discussed the risks related to dental practice and recommended infection management protocols. Only 1 had reported data on transmission of COVID-19 in dental practice. In addition, 2 cases of possible transmission to dental provider were reported in China (before its recognition as an epidemic).	It seemed that there are almost no reported cases of infection by SARS-CoV-2 during dental treatments, occupational or nosocomial transmission could not be ruled out. Urgent need to further assess COVID-19 transmission
Manzar et al. (2022) ²⁷ Pakistan	Cross-sectional survey	629 general and specialized dentists	12 dental colleges and hospitals	Online questionnaire, collected data included the sources of COVID-19 infection, the type of PPE used and the number of AGPs performed each day	NA	Absolute numbers of responses and their percentages	Among the total sample, only 18% reportedly contracted COVID-19. The risk of contracting COVID-19 during AGPs was the same as in the case of non-AGPs, and the infection risk was not associated with the number of AGPs performed per day.	

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Mirbod et al. (2021) ²⁸ United States	Experimental study	NA	Simulated conditions (patient's mouth using a mandible set of teeth) and employing a Cavitron Select SPS Ultrasonic Scaler	State-of-the-art optical flow tracking velocimetry and shadowgraphy measurements	NA	Flow velocity, trajectories, and size distribution of droplets produced during a dental scaling process	<p>First evidence of aerosol droplet formation from an ultrasonic scaler under simulated oral conditions</p> <p>The droplet sizes varied from 5 µm to 300 µm (correspond to droplet nuclei that might carry virus)</p> <p>The droplet velocities vary between 1.3 m/s and 2.6 m/s</p>	<p>Confirms the critical role of aerosols in the transmission of disease during dental procedures.</p> <p>Also provides a knowledge base for developing protocols and procedures.</p>
Tanaka et al. (2022) ²⁹ Japan	Cross-sectional survey	Staff from 64 hospitals	Faculties of the dental and oral/maxillofacial surgical departments of university hospitals	Online survey of clinical activities (administrative control), infection control measures (environmental/engineering control, PPE, etc.), and confirmed or probable COVID-19 cases among patients and clinical staff	NA	NA	<p>Staff from 51 hospitals (80%) completed the questionnaire</p> <p>Of 14 hospitals (27%) that treated patients with COVID-19, no infections were transmitted from the patients to the medical staff</p> <p>In 7 facilities (13%), patients were found to have the infection after</p>	<p>Indicated that COVID-19 clusters are unlikely to occur in dental as well as oral surgical care settings in presence of appropriate protective measures</p>

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							<p>treatment (medical staff came in close contact), but there was no transmission from patients to medical staff</p> <p>Four facilities had medical staff with infections, but none of them exhibited disease transmission from staff to patients.</p> <p>Also, there was no transmission from patients to medical staff, where they came in close contact to patients who reported positive infection after the treatment</p>	
Vasan et al. (2022) ³¹ India	Retrospective cohort	Study was conducted on health care workers who tested positive while rendering treatment to patients	Dental hospital	Hospital database was used to extract information	NA	Number of dental care workers with a positive PCR test during the year	Of 26 workers responsible for attending and treating the patients, only 9 were found to have contracted the infection during the entire year of study	Reveals that the risk of COVID-19 infection contraction among the dental care workers is considerably less

NA: information not available in articles; PCR: polymerase chain reaction; PPE: personal protective equipment