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 S5. Operatory setup study characteristics

Author(s), date, country	Study design	Number of participants	Setting	Intervention(s) and protocol	Comparators	Outcome measure	Summary of findings	Remarks
Allison et al. (2022)[51] United Kingdom	Experimental	Not specified	Dental mannequins	10-min crown preparations with an air-turbine handpiece 10-min full-mouth ultrasonic scaling Fluorescein used as a tracer Optical particle counters: measure aerosol particles between 0.3 µm and 10.0 µm	Open plan clinic Single surgery unit	Reduction in aerosol after adding LEV to the existing suction devices	LEV reduced aerosol production from the air-turbine handpiece by 90% within 0.5 m, and this was 99% for the ultrasonic scaler. Particle counts were substantially reduced for both procedures. A reduction of 95% within 0.5 m was seen when air-turbine was used.	The effect of LEV was substantially greater than suction alone for the air-turbine and was similar to the effect of suction for the ultrasonic scaler.
Holliday et al. (2021)[91] United Kingdom	Experimental	Not specified	Dental mannequins in simulated setting	Filter papers were placed in an open plan clinic to collect fluorescein An 8-metre diameter rig Fluorescence photography and	Not specified	Contamination in terms of distance in clinic setting Aerosol settling time	Contamination distribution varied across the clinic depending on conditions. Unmitigated procedures have the potential to deposit	Aerosols have the potential to contaminate distant sites, and the majority of settled aerosol is detectable after 10 min. Cross-ventilation reduced contamination

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				spectrofluorometry for analysis			contamination at large distances. Distant bays (≥5 m head-to-head chair distance) gave very low or zero readings. Almost all (99.99%) of the splatter detected was retained within the procedural bay.	in adjacent and distant areas by 80% to 89%.
Kumbargere Nagraj et al. (2020) [77] NA	Cochrane review	NA	Only 2 studies measured the volume of contaminated aerosols	Ventilation (local and general) Decontamination of aerosols in air	ACS vs none	ACS vs ACS Laminar air on with HEPA versus laminar air off	Effect estimates showed fewer CFU in ACS group for both procedures Lesser CFU during the use of laminar air flow with HEPA filters compared to no laminar air flow or filter at less than 1 m from the floor	Showed reduction in volume of contaminated aerosols in operative environments Evidence that an ACS can significantly reduce the aerosol load during dental procedures Through laminar airflow in a dental operatory, dental aerosols containing micro-organisms disseminated into the

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								environmental air by an ultrasonic scaling device can be significantly reduced (99.67%)
Ren et al. (2021)[92] United States	Experimental	Not specified	Dental facility with 52 enclosed dental treatment rooms and 3 open bay clinics each containing 12 dental units spaced 7 feet to 8 feet apart	Room airflow and mechanical ventilation rates Quantification of aerosol particle generation (Lasair III 310C aerosol particle counter) Effectiveness of aerosol removal by PAC	Different treatment rooms 10 dental treatment rooms Baseline, after 5 min of incense burn, and after 30 min of observation with and without the	Air change rate per hour by ventilation (ACH_{vent}) and equivalent ventilation provided by the PAC (ACH_{pac}) Concentrations of 0.3 μm, 0.5 μm, and 1.0 μm aerosol particles Concentration decay constants for the 0.3 μm particles with ventilation alone (K_n) and with ventilation and PAC (K_{n+pac}), and by times needed to	The speeds of aerosol removal from the dental treatment rooms were highly correlated with mechanical ventilation rates (mechanical ventilation alone) ACH_{vent} varied from 3 to 45 Kn and Kn+pac were correlated with ACH_{vent} (r = 0.90) and combined ACH_{total} (r = 0.81), respectively Accumulated aerosol particles	Noted that adding PAC with a HEPA filter improves aerosol removal in rooms with low ventilation rate. PAC reduced aerosol accumulation and accelerated aerosol removal, and accumulated aerosols could be completely removed in 4 min to 12-min by ventilation combined with PAC. Effectiveness of the PAC was especially prominent in rooms with poor ventilation

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				Effectiveness of aerosol removal by mechanical ventilation and PAC	PAC or ventilation system in operation	reach 95% and 100% removal	could not be removed by ventilation alone within 30 min in rooms with ACH_{vent}<15	
Zhu et al. (2022)[93] United States	Experimental	Not specified	Simulated with dental mannequins	Conducted drilling procedures with a high-speed handpiece and high-volume evacuator High-speed imaging and particle sampling was done	Compared drilling operations with supplemental internal and external suction and evaluated the effects of barriers separating operating spaces	Formation and transport of aerosol clouds Aerosol concentration and size distribution of particulate matter	In the context of dental operatory design, barriers considerably reduce aerosol transport to adjacent dental training stations (higher barriers were better than short ones).	Using barriers was the most effective mitigation strategy.

ACH: air change rate per hour; ACS: air cleaning systems; CFU: colony forming units; HEPA: high-efficiency particulate air-filter; NA: information not available in articles; OPC: optical particle counters; PAC: portable air cleaner