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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

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Supplementary Table S2. Preprocedural mouthrinse study characteristics

Author(s), date, country	Study design	Number of participants	Intervention(s) and protocol	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings
Anjum et al. (2019) ³⁵ Pakistan	Quasi experimental	70	0.2% CHX Protocol: NA	5% green tea mouthrinse	Ultrasonic scaling for 30 min	CFU	Significant reduction of CFU occurred with preprocedural rinsing with both mouthrinses as compared to non-rinsing before ultrasonic scaling and 0.2% CHX found to be superior to 5% green tea in reducing bacterial load in aerosol samples.
Burgos-Ramos et al. (2020) ³⁶ Spain	Experimental	NA	1% HP Rinse for 1 min, 5 min to 10 min before the treatment	No rinse	NA	Viral loads (COVID-19 detected in exhaled air)	The use of H ₂ O ₂ solution (1%) for 1 min for mouth rinsing drastically reduced the possibility of coronavirus spread during aerosol-generating dental procedures.
Choi et al. (2018) ³⁷ Korea	Experimental study	30	0.1% CHX solution	No gargle	Prophylactic scaling Duration: NA	CFU collected from the	There was a significant difference in the number of bacteria between the 2 experimental groups (with and without CHX gargling). In the group without any

Author(s), date, country	Study design	Number of participants	Intervention(s) and protocol	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings
			Gargle for 30 sec			operator's face shield	treatment before scaling, the average number of bacteria was 52.5 CFU/mL, but in the group where CHX gargling was applied, the average number of bacteria was 4.6 CFU/mL, which was remarkably small.
Das et al. (2022) ³⁸ India	Randomized controlled trial	80	0.2% CHX Herbal mouthwash Water	No rinse	Ultrasonic scaling for 30 min	Mean microbial count in various locations	Regardless of the position of the agar plates, the highest number of microbial colonies was seen in no-rinse group, followed by water, herbal mouthrinse, and 0.2% CHX gluconate. The lowest no of microbial colonies was seen in Group 3, where preprocedural mouthrinse was CHX gluconate (0.2%).
			Rinse 10 mL for 30 sec				
Gund et al. (2022) ³⁹ Germany	Prospective randomized clinical trial	306	0.1% CHX	Water No rinse	High-speed restorative preparations	Bacteria contamination on the operator's face mask	CHX led to a statistically significant reduction in bacterial contamination of the surgical mask (mean: 24 CFU) in comparison with water (mean: 47 CFU) and non-rinsing (mean: 80 CFU).

Author(s), date, country	Study design	Number of participants	Intervention(s) and protocol	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings
			Rinse 15 mL for 60 sec		Supra- and subgingival ultrasonic application Duration: 60 min to 90 min		
Nagraj et al. (2022) ³² NA	Cochrane systematic review	NA	–	–	–	Incidence of infection in oral health care providers	None of the studies measured our primary outcome of the incidence of infection in oral health care providers.
Marui et al. (2019) ³³ NA	Systematic review	15 to 60	<ul style="list-style-type: none"> • CPC • EO • 0.12% CHX • 0.05% CPC • Tempered and non-tempered 0.2% CHX • Tea tree oil • 0.075% CPC+0.28% zinc lactate+ 0.05% sodium fluoride (NaF) 	<ul style="list-style-type: none"> • 5% Hydroalcohol • No rinse • Water • Sterile water • Distilled water 	Prophylactic scaling, air polishing Duration: range 3 min to 10 min	CFU and anaerobic bacterial cultures	Pooled estimates suggested that, when compared with a control mouthrinse, there was significant percentage reduction in the number of CFU after use of CHX and use of EO mouthrinse. The use of an herbal mouthrinse did not result in a significant reduction in the number of CFU compared with the control mouthrinse. Overall, a preprocedural mouthrinse significantly reduced the number of CFU (moderate quality of evidence).

Author(s), date, country	Study design	Number of participants	Intervention(s) and protocol	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings
Mohd-Said et al. (2021) ³⁴ NA	Systematic review	18 to 120	<ul style="list-style-type: none"> • 0.12% or 0.2% CHX • Herbal EO • CPC • 1% PI • Chlorine dioxide (ClO₂) • Aloe vera • HE • Tea tree oil • 94.5% Aloe vera extract • 0.075% CPC+ 0.28% Zn lactate +0.05% NaF • 0.12% CHX+ 10% alcohol • Tempered and non-tempered 0.2% CHX 	<ul style="list-style-type: none"> • Saline • Sterile water, distilled water • Hydroalcohol • No rinse 	Ultrasonic scaling Polishing Duration: range 3 min to 30 min	Percentage reduction in CFU	Among studies comparing CHX with other agents (71.4%, 15/21), the effectiveness of CHX over other agents was evident, with more than half of the studies (7/15) reporting a greater than 70% reduction in CFU. Preprocedural rinsing for 30 sec to 2 min with selected antimicrobial solutions compared to water or no rinsing was found to effectively reduce aerosol contamination in periodontal prophylaxis on dental patients. There is evidence that chlorhexidine (either 0.12% or 0.2%) is an effective antimicrobial solution for this purpose.
Ramya et al. (2022) ⁴⁰ India	Clinical trial	30	0.12% CHX Rinse with 10 mL to 20 mL for 30 sec to 2 min, 2 min to 40 min before procedure	<ul style="list-style-type: none"> • PI • No rinse 	Ultrasonic scaling Duration: 30 min	CFU	The preprocedural mouthrinses significantly reduced the bacterial CFUs in aerosol samples. When utilised preprocedurally, chlorhexidine rinses

Author(s), date, country	Study design	Number of participants	Intervention(s) and protocol	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings
			Rinse with 15 mL for 30 sec				were found to be superior to Povidone iodine in decreasing aerosol bacteria.
Rao et al. (2015) ⁴¹ India	Controlled trial	30	Undiluted 0.2% CHX Rinse with 10 mL 10 min before treatment	No rinse	Ultrasonic scaling Duration: 30 min	CFU	The highest number of colonies was found on blood agar plate positioned at the patient's chest area followed by the doctors. The results showed that CFU in group II were significantly reduced when compared to group I with the <i>p</i> value < 0.001, which was statistically significant.
Sadun et al. (2020) ⁴² Malaysia	Randomized controlled trial	30	EO Rinse 20 mL for 1 min	Distilled water	Ultrasonic scaling Duration: NA	Microbial load (CFU)	Based on the mean CFU counts, patients prerinsed using Listerine showed significantly reduced presence of microbial contaminants compared to those prerinsed using the control mouthwash.
Takenaka et al. (2022) ⁴³ Japan	Crossover randomized clinical trial	10	<ul style="list-style-type: none"> 0.5% PI EO 	<ul style="list-style-type: none"> Distilled water No rinse 	Provider scaling and polishing for 10 min	Bacterial count	Combining an eHVE with mouth rinsing (using either 0.5% PI or EO) was found to reduce contamination from aerosols produced by an ultrasonic scaler. Although the eHVE was observed to

Author(s), date, country	Study design	Number of participants	Intervention(s) and protocol	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings
			Rinse for 30 sec				prevent most bacterial contamination when positioned relatively close to the patient's mouth, preprocedural mouth rinsing provided additional benefits in such situations where the eHVE must be positioned further away, depending on the dental procedure performed.
Varghese et al. (2021) ⁴⁴ India	Randomized controlled trial	20	<ul style="list-style-type: none"> • Neem • 0.2% CHX • Triphala 	Water	Ultrasonic scaling Duration: 10 min	CFU	The effectiveness of preprocedural rinsing with herbal rinse was compared with 0.2% CHX which was considered as a gold standard. The outcomes of this study revealed that 10 mL of Neem mouthrinse when used 10 min prior to ultrasonic scaling is more effective in decreasing the aerosol infection as compared to the Triphala mouthrinse and commercially available 0.2% CHX mouthrinse.
			Rinse 10 mL for 30 sec 10 min before scaling				
Warad and Bhatagunaki (2020) ⁴⁵ India	Experimental study	60	<ul style="list-style-type: none"> • 0.2% CHX • 0.1% octenidine 	Distilled water	Ultrasonic scaling Duration: NA	CFU	0.1% octenidine was found to be most effective preprocedural mouthrinse in reducing the bacterial load in the aerosol produced during ultrasonic scaling

Author(s), date, country	Study design	Number of participants	Intervention(s) and protocol	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings
			Rinse 20 mL for 30 sec				followed by 0.2% CHX and distilled water.
Yadav et al. (2018) ⁴⁶ India	Randomized controlled trial	40	<ul style="list-style-type: none"> • CHX • HE • EO 	Distilled water	Ultrasonic scaling Duration: NA	CFU	In the study, 0.2% CHX was found to be most effective preprocedural mouthrinse in reducing the bacterial load in the aerosol produced during ultrasonic scaling followed by essential oil and herbal mouthrinse respectively.
			Rinse with 10 mL of CHX, 15 mL of HE and EO for 60 sec, 10 min before scaling				

CFU: colony forming units; CHX: chlorhexidine; CPC: cetylpyridinium chloride; eHVE: extraoral high-volume evacuator; EO: essential oil; HE: herbal extracts; NA: information not available in articles; NaF: sodium fluoride; PI: povidone iodine

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Supplementary Table S3. Aerosol reduction study characteristics

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Allison et al. (2022) ⁵¹ United Kingdom	Non-randomised experimental study	3 mannequins	LEV: DentalAIR UVC AGP filtration system Location: Extraoral suction system	With suction and without LEV; with suction and LEV; without suction and without LEV; without suction and with LEV	Open plan setting: clinical teaching laboratory Single-surgery setting: enclosed dental surgery	Open-plan clinic: 825.4-m ³ Single-surgery setting: 49.3-m ³	Anterior crown preparation of the upper right central incisor for 10 min using an air-turbine handpiece. In the single-surgery setting, full-mouth ultrasonic scaling using a magnetostrictive scaler at full power for 10 min Duration: 10 min	Local exhaust system reduced aerosols from dental procedures with air-turbine handpiece by at least 90% within 0.5 m, and 99% for ultrasonic scaler. OPC particle counts reduced by 95%.
Barros et al. (2022) ¹⁰⁸	Non-randomised experimental study	120 bovine maxillary incisors	HVE	No HVE	Dental operatory	Not specified	Coronal endodontic opening	No differences were detected when using or not the aspiration. Aerosol dispersion was found in all groups (22.56 cm to 72.30

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Brazil			Location: Intraoral				Duration: 3 min	cm of distance). The longest point was produced without aspiration.
Blackley et al. (2022) ⁵⁴ United States	Non-randomised experimental study	32 mannequins	3 different types of HVE systems Location: Intraoral	Background concentrations with no dental evacuation system	Dental operatory bay with 5 chairs in semi-separated operatories	3.7 m x 3.7 m	Ultrasonic scaling; anterior crown preparation Duration: 10 min	Respirable and thoracic aerosols were reduced during ultrasonic scaling and crown preparation using HVE or the other HVE alternatives.
Chavis et al. (2021) ⁷¹ United States	Non-randomised experimental study	Mannequins Number: NA	Extraoral suction system (ADS Dental System) Location: Extraoral suction system	Vacuum airflow level off	Dental operatory in dental school	Not specified	The tooth preparation phase of a standardized restorative treatment Duration: 4 min	Use of extraoral suction units for dental clinical procedures can help reduce procedural spatter, surface contamination, and potential transmission of the SARS-CoV-2 virus. However, it did not eradicate spatter.
Chestsutayangkul et al. (2022) ⁷⁴ Thailand	Non-randomised experimental study	Mannequins : Number: NA	Metal frame with plastic wrap, plastic shield chamber	No barrier but with HVE and intraoral saliva ejector simultaneously	Single-chair operatory room	Not specified	Scaling procedures	Both types of barriers were able to reduce the surface contamination in most of the areas on dental chair, operator's and assistant's

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction methods	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
			Location: Extraoral suction system				Duration: 5 min	body. No significant difference in surface contamination of splatter reduction was found between the metal frame with plastic wrap and plastic shield chamber.
Choi et al. (2022) ⁵⁶ New Zealand	Non-randomised experimental study	5 mannequins	HVE; LVE	No suction	Enclosed windowless dental surgery	3.9 m x 3.5 m x 2.7 m	Ultrasonic scaling and drilling operative procedures	Drilling and scaling with LVE or HVE reduced aerosol generation significantly. HVE was effective in removing all sizes of aerosol particles measured.
			Location: Intraoral				Duration: 8 min	
Choudhary et al. (2022) ⁶⁵ United States	Non-randomised experimental study	Patients Number: NA	HVE; saliva ejector; HEPA filter; rubber dam	Not specified	Operating room (single chair with door closed), 2 types of semi-open bay, and large multioperator space	Not specified	Implant, ultrasonic cleaning, gingival flap with Cavitron, root canal procedures with high-speed handpiece, braces debonding, amalgam removal, post and core CEREC crown, composite filling	Few viable bacteria and no viruses in dental aerosols when applying common aerosol mitigation techniques.
			Location: Intraoral and extraoral				Duration: 30 min to 74 min	

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Choudhary et al. (2022) ⁶⁸ United States	Non-randomised experimental study	Patients Number: NA	Conical or Isovac HVE	Standard HVE tip	Pediatric and general dental operatories had a single-room layout. Endodontic and periodontic clinics had semiprivate operatories with partial wall barriers between dental chairs.	The orthodontic clinic included a large multi operator clinic space (~35 m × 20 m × 20 m).	High-speed drilling during debonding of orthodontic brackets; enamel and dentin cutting during cavity and crown preparation; slow speed drilling for finishing cavity preparation, polishing, and trimming during crown preparation; removal of dentin and soft tissues during endodontics; and ultrasonic scaling during teeth cleaning.	Conical HVE is likely more efficient in reducing emissions from high-speed drilling than standard-tip HVE
			Location: Intraoral				Duration ranges from 2 min to 15 min	
Dahlke et al. (2012) ⁶¹ United States	Non-randomised experimental study	Mannequins Number: NA	Dental isolation combination system; HVE and rubber dam	HVE	Dental operatory	Not specified	Simulated tooth preparation procedure.	The dental isolation combination system and HVE + rubber dam reduced spatter significantly compared with use of an HVE alone.
			Location: Intraoral				Duration: 10 sec	

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
D'Antonio et al. (2022) ⁶⁴ United States	Non-randomised experimental study	48 mannequins	HVE; Isovac; extraoral suction	No mitigation strategy	Dental operatory	Not specified	High-speed handpiece; air-water syringe; ultrasonic scaler; rubber cup prophylaxis	All ventilation options used were equally effective at reducing respirable aerosols. Local control options such as HVE, ISO, and EOS units were equally as effective during short-term tests.
			Location: Intraoral and extraoral				Duration: 10 min	
Deana et al. (2021) ⁸⁰ Chile	Systematic review	34 guidelines or protocols	HVE; rubber dam	Not specified	Not specified	Not specified	Not specified	Procedures such as the use of HVE and the use of a rubber dam were widely recommended to reduce the generation of aerosols during oral health care.
			Location: Intraoral				Duration: not specified	
Ehtezazi et al. (2021) ⁶⁹ United Kingdom	Non-randomised experimental study	3 mannequins	HVE with air filtration system; extraoral HVE	LVE	Dental operatory	4.4 m x 3.1 m x 2.6 m	Air turbine handpiece; electric contra-angle handpiece; ultrasonic scaler	All aerosol-management interventions were relatively effective. Without aerosol-management interventions, particles (0.05 µm to 0.236 µm) remained at elevated concentrations for longer

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
			Location: Intraoral and extraoral				Duration: 3 min	than the experimental period.
Gheorghita et al. (2022) ⁵³ United States	Non-randomised experimental study	30 mannequins	EOS A: Dental Aerosol System; EOS B: Eighteenth Vac Station	HVE and a saliva ejector without EOS	Dental operatory	4.15 m x 2.6 m with 1 door and 1 window	Class III cavity preparation in the upper front teeth with palatal access	Total number concentrations were 2 times the baseline with both EOS A and EOS B, while without any EOS, approximately 6 times higher.
			Location: Extraoral suction system				Duration: 5 min	
Graetz et al. (2022) ⁵⁵ Germany	Experimental pilot study	20 mannequins	Mobile extraoral scavenger device	No EOS but with HVE	University dental clinic	16.94 m ²	High-speed tooth preparation and different procedures of provider tooth cleaning	No relevant differences between AGPs and the control or among the different AGPs when a high-flow suction system was used. The additional use of a mobile EOS device led to a significantly lower concentration of particles between 0.1 µm and 0.3 µm in diameter.
			Location: Extraoral suction system				Duration: 2 min	

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Graetz et al. (2021) ⁵⁷ Germany	Non-randomised experimental study	8 mannequins	HVE systems with 5 different intraoral suction cannulas: a 6-mm saliva ejector, a 11-mm suction cannula, and 3 types of 16-mm suction cannulas	No intraoral suction during AGP	Dental operatory	Not specified	High-speed tooth preparations; air-polishing	The lowest splatter contamination values resulted when suction cannula of 16 mm of diameter were utilized by a high-flow rate of ≥ 250 l/min
			Location: Intraoral					
			Location: NA				Duration: 6 min	
He et al. (2022) ⁵⁹ Canada	Non-randomised experimental study	180 mannequins	Plastic and metal HVE	Air purifier and no HVE	Dental operatory (single chair)	3.5 m x 3.0 m x 2.85 m	Drilling and scaling procedure	Aerosol reduction measures can effectively remove the aerosol generated by drilling procedures. Air purifiers and HVE used individually reduced aerosol concentration at a rate of 94.8% to 97.6%. Using both measures simultaneously brought the reduction rate to 99.6%.
			Location: Intraoral				Location: 15 min	

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Horsophonphong et al. (2021) ⁶⁰ Thailand	Non-randomised experimental study	Number of mannequins: NA	HVE; extraoral suction system	HVE	Dental operatory	Not specified	Ultrasonic scaler	The extraoral suction device effectively reduced the dissemination of the aerosols and splatters generated during ultrasonic scaling.
			Location: Extraoral suction system				Duration: 10 min	
Kumbarger e Nagraj et al. (2020) ⁷⁷ Not specified	Systematic review	16 articles	HVE; dental isolation combination system; rubber dam	No HVE, conventional dental suction, no rubber dam, no rubber dam plus HVE	Dental operatory	Not specified	Ultrasonic scaling and polishing and restorative procedures	All included studies measured bacterial contamination and not disease transmission via aerosols or viral contamination in aerosols. Some promising results from HVE and HVE + rubber dam. However, evidence was assessed of very low certainty.
			Location: Intraoral				Duration: Not specified	
Lertsookawat et al. (2022) ⁵²	Non-randomised	Mannequins	Negative airflow aerosol chamber	No negative airflow aerosol chamber	Dental clinic	Not specified	Dental scaling using ultrasonic scaler	Negative airflow aerosol chamber reduced <i>L</i> .

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Thailand	experimental study	Number: NA	Location: Extraoral suction system				Duration: 10 min	<i>acidophilus</i> colonies at all tested locations by 86.63%.
Matys and Grzech-Leśniak (2020) ⁵⁸ Poland	Non-randomised experimental study	Mannequins Number: NA	Saliva ejector; HVE; saliva ejector with an extraoral vacuum; HVE with an extraoral vacuum; zirc evacuator; customized HVE (white), designed and prepared by the authors; customized HVE (black), designed and prepared by the authors	Saliva ejector and HVE	Not specified	Not specified	Treatment of caries class I with the round diamond bur (#014) with a high-speed handpiece, low-speed handpiece, with 1 mm diameter sapphire tip with a handpiece H14 of Er:YAG laser Tooth polishing with silicone rubber dental bur with a low-speed handpiece at 1000 RPM and 10,000 RPM Dental calculus removal using ultrasound scaler Duration: 5 min	HVE allowed removing a significant amount of aerosol. The highest efficiency in aerosol reduction was obtained for wider customized HVE. The Er:YAG laser used for caries removal had a low aerosol generation even when working combined with saliva ejector.
Montalli et al. (2020) ⁷⁵ Brazil	Non-randomised experimental study	3 screens	Individual dental biosafety barrier	No individual dental biosafety barrier	Postgraduate dental clinic	Not specified	Drilling	This individual dental biosafety barrier was able to reduce contamination by more than 90% over the

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
			Location: Extraoral				Duration: 1 min	different distances tested (50 cm, 100 cm, and 150 cm).
Narayana et al. (2016) ¹⁰⁹ United Kingdom	Non-randomised experimental study	45 healthy patients	HVE	No HVE	Dental operatory (single chair with ventilation)	20 feet × 15 feet	Ultrasonic scaling	CFUs were significantly reduced with the use of HVE. Combination with CHX (0.12%) preprocedural rinse was more effective than individual methods during ultrasonic scaling procedure
			Location: Intraoral				Duration: 5 min	
Noordien et al. (2021) ⁹ South Africa	Non-randomised experimental study	1 volunteer	Extraoral dental aerosol suction device (DASD) and LVE saliva ejector	LVE alone and HVE plus LVE	Dental operatory	16 m ²	High-speed air turbine directed 1 mm away from molar	Compared to a LVE, the HVE + LVE showed a 53% and the DASD+ LVE showed a 62% reduction in aerosol, droplet, and splatter contamination
			Location: Extraoral suction system				Duration: 5 min	

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Nulty et al. (2020) ⁷⁰ United Kingdom	Non-randomised experimental study	Mannequins Number: NA	External HVE	Without external HVE	Dental operatory	Not specified	Intense (full-blast) 3-in-1 air-water syringe; micromotor high-speed handpiece; air turbine high-speed handpiece; low-speed handpiece; ultrasonic scaling	Aerosol particulate was recorded at statistically significantly increased levels during dental procedures without an external HVE device versus with the device.
			Location: Extraoral suction system				Duration: 1 min	
Piela et al. (2022) ⁶³ United Kingdom	Non-randomised experimental study	Mannequins Number: NA	Dynamic suction devices: Standard HVE suction, Purevac HVE system, Purevac HVE Mirror Tip connected directly to the suction port	No suction	Dental operatory	Not specified	Ultrasonic scaling and high-speed turbine/handpiece treatment	Effective mitigation of aerosols generated from ultrasonic scaling and high-speed handpiece procedures using high-volume dynamic intraoral suction.
			Static suction devices: DryShield Isolation System, standard low-volume suction				Location: Intraoral	

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Rexhepi et al. (2021) ⁶⁷ Italy	Cohort study	Patients 15,574 measurements	Low-volume suction (40 L/min air) Location: intraoral	Measurement of aerosol done at different position	A dental unit located in an open plan clinic	2.8 m × 2.8 m × 3 m	Oral hygiene practices, conservative dental therapy, prosthetic reconstruction, dentoalveolar surgery, implant surgery Duration: 40 min	LVE seemed to reduce PM10 and total particles during dental activities (e.g., ultrasonic scaling), while it showed lower effectiveness in reducing ultrafine PM.
Robertson et al. (2022) ⁷⁹ United Kingdom	Systematic review	Guidance documents	Rubber dam; HVE Location: intraoral	Not specified	Dental operatory	Not specified	Not specified Duration: not specified	46 documents (73%) recommended use of a rubber dam for patients without COVID-19. The use of HVE was recommended for patients without COVID-19 by 46 (73%) documents.
Samaranayake et al. (2021) ⁷⁸ Not specified	Systematic review	17 articles	HVE; rubber dam Location: Intraoral	Not specified.	Dental operatory	Not specified	Not specified Duration: not specified	The use of HVE in reducing bio-aerosols in the clinic environment is effective, which is determined by the suction strength of the appliance, the proximity of the HVE to the operating site, and the number of HVE used.
Senpuku et al. (2021) ⁷³	Non-randomised	3 healthy volunteers	Extraoral suction and intraoral suction	No extraoral or intraoral suction, and no extraoral but	Dental operatory (single chair) in a	Not specified	Simulated scaling	The extraoral suction was effective for reducing

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Japan	experimental study		Location: Extraoral suction system	with intraoral suction	university dental hospital.		Duration: 10 min	droplets and aerosols in the limited area of the left side.
Shahdad et al. (2020) ⁷² United Kingdom	Non-randomised experimental study	23 mannequins	External scavenger device	No extraoral suction	Dental operatory (door closed); some procedures replicated in an open, multichair clinic single bay floor	Dental operatory = 16.8 m ² ; open, multichair clinic single bay floor surface = 10.0 m ²	Air turbine procedures were carried out with standard diamond burs and operated at full speed (360,000 rpm). Ultrasonic scaling at a maximum frequency (30KHz)	The EOS system reduced the peaks in particle concentration in non-mechanically ventilated and mechanically ventilated environments
			Location: Extraoral suction system				Duration: 5 min	
Suprono et al. (2021) ⁶⁶ United States	Non-randomised experimental study	93 students	HVE with intraoral suction device	HVE	Clinic area with multiple open bay cubicles	3,118 sq ft, and each cubicle was 78 ft ²	Ultrasonic scalers	The combination of HVE and an intraoral suction device significantly reduced the amount of microbial aerosol during treatment periods.
			Location: Intraoral				Duration: 20 min	

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
Vernon et al. (2021) ¹⁰¹ United Kingdom	Non-randomised experimental study	Mannequins Number: NA	Rubber dam; HVE	No mitigation strategy	Dental operator	Not specified	Endodontic access procedures on the upper first molar tooth and anterior crown preparation	Use of the high-speed contra-angle handpiece with HVE resulted in no detectable bacteriophage, both on non-splatter settle plates and in air samples taken 6 min to 10 min post-procedure.
			Location: Intraoral				Duration: 4 min	
Yang et al. (2021) ⁷⁶ United States	Non-randomised experimental study	Mannequins Number: NA	Extraoral HVE	Saliva ejector plus high-speed suction	Dental operator	Not specified	High-speed handpiece; ultrasonic scaling	The increase of aerosol (size smaller than 10 µm) level was minimal during dental procedures when using saliva ejector and high-speed suction. Use of extraoral HVE further reduced aerosol levels to below baseline level.
			Location: Extraoral suction system				Duration: 6 min	
Rafiee et al. (2022) ²¹ Canada	Cross-sectional	Patients	51 samples from 7 dental procedures	No HVE (saliva ejector only); no rubber dam	Dental operator	The area has a volume of L (7.87 m) × W (7.59 m) × H (2.66 m) consisting of 6 dental units.	Ultrasonic scaling (HVE and saliva ejector); ultrasonic scaling (saliva ejector only); orthodontic bonding; orthodontic debonding; denture adjustment; tooth prep with rubber dam; tooth prep without rubber dam	Combining HVE + saliva ejector reduces aerosol escape. From the different procedures and aerosol reducing methods used, ultrasonics with HVE + saliva ejector yielded the lowest particle concentration.

Author(s), date, country	Study design	Number and type of observations	Type and location of aerosol reduction method	Comparison(s)	Dental setting	Size of clinic	Type and duration of AGP	Summary of findings
			Location: extraoral suction system				Duration: 40 min	

CFU: colony forming units; CHX: chlorhexidine; DASD: dental aerosol suction device; EOS: extraoral scavenger; HEPA: high-efficiency particulate air; HVE: high-volume extraction; LEV: local exhaust ventilation; PM: particulate matter; NA: information not available in articles.

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 S4. Personal protective equipment study characteristics

Author(s), date, country	Study design	Setting	Intervention(s)	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings	Remarks
Afzha et al. (2016) ⁸¹ India	Randomized controlled trial	Dental college	Protective eyewear	No protective eyewear	Scaling and root planing for 30 min	Aerosol contamination of contact lenses	Overall, the results of this study indicate low microbial contamination of contact lens in Group A (contact lens with protective eyewear) when compared to Group B (contact lens without protective eyewear) which is statistically significant ($p < 0.01$).	Scaling and root planing were rendered with piezoelectric ultrasonic scalers in combination with HVE.
Bridgman et al. (2021) ⁸² New Zealand	Experimental study	Simulated setting	The air-fed mask under plastic hoods with a low air consumption 20L/min	<ul style="list-style-type: none"> • N95 mask and goggles • Air-fed mask on 150L/min • Air-fed mask on 300L/min • Air-fed mask on 300L/min combined with an N95 mask 	High-speed handpiece for 10 min	Head and neck area contamination	The N95 mask did not prevent nasal and mouth contaminations, but the combination of an air-fed mask with a sealed hood prevented these contaminations. Although goggles worn tightly did prevent contamination, the air-fed mask system was far more comfortable and did not fog up.	–

Author(s), date, country	Study design	Setting	Intervention(s)	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings	Remarks
Checchi et al. (2021) ⁸³ Italy	Experimental study	Periodontal private clinic	FFP2 used for 8, 16, 24, 32, 40 h	Unused FFP2 mask	Procedures that involved the use of ultrasonic devices and high-speed handpieces for 8 h to 40 h	BFE	Results based on BFE of 5 respirators measured at 8, 16, 24, 32, and 40 h of usage indicate no significant difference when tested. The respirator and control are compared at each time. Moreover, the non-significant effect of time on BFE of the tested respirators is confirmed by multilevel analysis (GLM). In light of these results, it is clear that this type of FFP2 can probably be considered effective for multiple working hours and days.	–
Ionescu et al. (2021) ⁸⁴ Italy	Experimental study	Simulated setting	<ul style="list-style-type: none"> • Surgical mask, no HVE • Surgical mask, HVE • FFP2 respirator, HVE • FFP3 respirator, HVE • Surgical mask and face shield, HVE 	–	High-speed handpiece for 10 sec	Viral load	The combination of mask or respirator and face shield reduced viral loads below the detection limit, thus decreasing the risk of the operator's being contaminated. In the experimental setup of our study, surgical masks and N95 (FFP2) or FFP3 respirators were equally effective in protecting the operator, whereas HVE did not seem to decrease the risk	The PPE were tested adjunctly with HVE

Author(s), date, country	Study design	Setting	Intervention(s)	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings	Remarks
			<ul style="list-style-type: none"> FFP2 respirator and face shield, HVE 				of experiencing aerosol contamination.	
Sabra Rita de Assis et al. (2022) ⁸⁵ Brazil	Experimental study	Simulated setting	IBCD	No IBCD	High-speed handpiece for 1 min	CFU	When comparing contamination in 2 clinics with and without the use of the IBCD, the results showed that the barrier was able to reduce air contamination derived by orthodontic procedures during patient consultation by 97% compared to its non-use ($p < 0.05$). The results of this study showed that the use of the biosafety device is an effective means to reduce air contamination by more than 99% of bacterial contamination around the main droplet/aerosol source.	–
Teichert-Filho et al. (2020) ⁸⁶ Brazil	Experimental study	Simulated setting	Rigid protective device	No device	High-speed handpiece for 1 min	The observation of the dye	In the simulated dental procedure without the device, the dye was observed on the face of the mannequin, surgical gloves, apron (chest, legs, fists), and face shield, as well as on the dental chair (backrest, light reflector) and floor. The dye was found on the operator's	–

Author(s), date, country	Study design	Setting	Intervention(s)	Comparator(s)	Type and duration of AGP	Outcome measure(s)	Summary of findings	Remarks
							clothes under the apron, revealing the possibility of contamination. In contrast, in the simulated dental procedure using the device, the dye was observed only on the surgical gloves, apron (fists), inside the pipe system and internal walls of the acrylic chamber.	
Villa and Grenon (2021) ⁸⁷ United States	Experimental study	Dental setting	Cupola	Without the cupola With cupola and drape	High-speed handpiece for 1 min	Spread of droplets and aerosols	The mean number of 0.3 μm particles with no cupola was 3777 (SD: ± 556), with the cupola was 2068 (SD: ±1468) and with the cupola and drape was 2031 (SD: ± 1108) (<i>p</i> < 0.015). The mean number of 0.5 μm airborne particles with no cupola was 65 (SD: ± 7), with the cupola was 29 (SD: ± 28), and with the cupola and drape was 28 (SD: ± 23) (<i>p</i> < 0.05). The cupola is effective at decreasing aerosols and droplets generated during simulated dental procedures.	–

BFE: bacterial filtration efficiency; CFU: colony forming unit; FFP: filtering face piece; HVE: high volume evacuator; IBCD: individual biosafety capsule device

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

Author(s), date, country	Study design	Number of participants	Setting	Intervention(s) and protocol	Comparators	Outcome measure	Summary of findings	Remarks
				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

Author(s), date, country	Study design	Number of participants	Setting	Intervention(s) and protocol	Comparators	Outcome measure	Summary of findings	Remarks
								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 K_n and K_{n+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

Author(s), date, country	Study design	Number of participants	Setting	Intervention(s) and protocol	Comparators	Outcome measure	Summary of findings	Remarks
				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

REFERENCE

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Supplementary Table S6. Fallow time study characteristics

Author(s), date, country	Study design	Number and type of observations	Dental settings	Dental setting characteristics	Type and duration of AGP	Post-procedure duration	Use of aerosol mitigation	Calculation of fallow time	Fallow time	Main finding
College of General Dentistry (2020) ¹⁰³ United Kingdom	Review	83 articles/documents	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	ACH is a huge factor in determining fallow time. Fallow time varies according to the procedure, ventilation rate, high-volume suction used, rubber dam, and length of procedure. Shortest times (10 min) are recommended for ≥10 ACH, with high-volume suction used and with or without rubber dam.
Choudhary (2022) ⁶⁸ United States	Non-randomised experimental study	Patients Number: Not specified	Pediatric + General, Endo + Perio, Orthodontic	Not specified	High-speed drilling Low-speed drilling Ultrasonic scaling	Not specified	Dental suction used = 8.2 mm tip with flow rate 74 standard cubic feet per minute at 7.0 Hg (2095.44 LPM; Henry Schein 1400 RAMVAC standard model).	Not specified	Not calculated	When present, appeared transient regardless of dental clinic configuration. Authors imply this is sufficient evidence to reduce fallow time to 5 min.

Author(s), date, country	Study design	Number and type of observations	Dental settings	Dental setting characteristics	Type and duration of AGP	Post-procedure duration	Use of aerosol mitigation	Calculation of fallow time	Fallow time	Main finding
					Duration: Not specified					
Clarkson et al. (2020) ¹⁰⁴ United Kingdom	Rapid review	30 documents	Not specified	Not specified.	Not specified	Not specified	Not specified	Not specified	2 min to 180 min	Same fallow time between non-COVID and COVID patients. Use of aerosol-mitigation strategies and increase the number of air changes per hour.
Ehtezazi et al. (2021) ⁶⁹ United Kingdom	Non-randomised experimental study	3 mannequins	Typical dental surgery room	4.4 m x 3.1 m x 2.6 m. All non-experimental air-conditioning equipment was turned off during the experimental work, and the	Air turbine handpiece, electric contra-angle handpiece, and ultrasonic scaler	15 min	Low-volume suction, high-volume suction (intraoral) with air filtration system, high-volume suction (extraoral), and air cleaning system	Estimation of fallow time was performed by linear regression of particle concentrations at each sample location	28 min to 34 min without any intervention; 26 min with low-volume suction; 21 min	All aerosol-management interventions evaluated were relatively effective in controlling aerosols generated by the dental handpieces. The use of high-volume intramural suction HVS(IO) or the HVS(IO) combined with the ACS was

Author(s), date, country	Study design	Number and type of observations	Dental settings	Dental setting characteristics	Type and duration of AGP	Post-procedure duration	Use of aerosol mitigation	Calculation of fallow time	Fallow time	Main finding
				average room temperature and relative humidity over the study period were 27°C and 67%, respectively	Duration: 3 min			following cessation of AGPs and was calculated as the time at which the extrapolated particle concentration decreased below the upper baseline particle concentration	with high-volume suction	enough to reduce the fallow time to 0 min. In the absence of aerosol-management interventions, particles in the range of 0.05 µm to 0.236 µm remained at elevated concentrations within the macro-environment (locations 5-6, >50 cm) for longer than the experimental period.
Fennelly et al. (2022) ⁹⁹ United Kingdom	Non-randomised experimental study	70,524,717 particles recorded Mannequin	Typical dental surgery room	Mechanically ventilated clinic at Cork University Dental School and Hospital	Ultrasonic scaling and high-speed drilling Duration: 6 min (1 min intervals)	Not specified	High-volume evacuation and high-volume evacuation plus local exhaust ventilation	Not specified	49 min to 280 min	High-volume evacuation and high-volume evacuation plus local exhaust ventilation eradicated all procedure-related aerosols, and the enclosure stopped procedure-related aerosols escaping. If no mitigation procedures done, then fallow time increases to 71 min or even 126 min.

Author(s), date, country	Study design	Number and type of observations	Dental settings	Dental setting characteristics	Type and duration of AGP	Post-procedure duration	Use of aerosol mitigation	Calculation of fallow time	Fallow time	Main finding
Li et al. (2021) ¹⁰⁰ China	Non-randomised experimental study	Mannequins Number: Not specified	Dental clinic	36 m x 2.7 m x 2.3 m. Indoor room temperature and relative humidity (23°C, 52%). Ceiling ventilation with 6 ACH.	Ultrasonic scaling Duration: 2 min	40 min	HVE intraoral (3 cm ² aspirator tip and at the high flow rate, 300 L/min of air.)	The fallow time estimation was studied by the linear and exponential regressions of the particle counts in the post-procedure duration. Fallow time was calculated as the time by the particle counts decreased below the baseline levels.	27 min to 35 min	Without any mitigation measures, the estimated fallow time in the single dental surgery environment with 6 ACH is in the range of 27 min to 35 min. High-volume evacuation cannot eliminate the fallow time to 0 min but can reduce it by 3 min to 11 min Although the ACH was recommended from 6 to 12 ACH, the relationship between the fallow time and ACH value was not well-investigated. Some other factors of fallow time include duration of dental treatment, dental procedures, ventilation type, and number of dental providers.
Robertson et al. (2022) ⁷⁹ United Kingdom	Rapid review	75 articles	Not specified	Not specified.	Not specified	Not specified	Not specified	Not specified	2 min to 180 min	Fallow time ranged from 2 min to 180 min in 26 documents. Longer fallow period for patients with COVID-19. Although most documents recommended similar durations. Fallow

Author(s), date, country	Study design	Number and type of observations	Dental settings	Dental setting characteristics	Type and duration of AGP	Post-procedure duration	Use of aerosol mitigation	Calculation of fallow time	Fallow time	Main finding
										periods can decrease to a minimum of 10 min.
Shahdad et al. (2021) ⁶² United Kingdom	Non-randomised experimental study	Mannequins Number: Not specified	Multichair open clinic and closed surgery in a dental teaching hospital	Not specified	Cavity and crown preparation	30 min	High-volume suction and saliva ejector	Estimated from the aerosol measurements by calculating how long it took from the end of the procedure for the aerosol	10 min	Largest fallow time was found in the case of the non-mechanically ventilated environment with windows closed throughout. The estimates for the required fallow time were notably smaller for the procedures in the hospital mechanically ventilated closed and open bays. Usually, the aerosol

Author(s), date, country	Study design	Number and type of observations	Dental settings	Dental setting characteristics	Type and duration of AGP	Post-procedure duration	Use of aerosol mitigation	Calculation of fallow time	Fallow time	Main finding
					Duration: 20 min			concentration in each size range to revert to within a threshold of 5% of the mean value before the procedure. A conservative approach was adopted, with the overall fallow time taken as the longest identified for each particle size range.		levels were found to return to pre-procedure levels within less than 10 min (with 6 ACH). Fallow time estimates were larger for the procedures in which the tooth being operated on was alternated every 5 min.
Vernon et al. (2021) ¹⁰¹ United Kingdom	Non-randomised experimental study	Mannequins Number: Not specified	Clinical surgery	9 ACH	Root canal access and full crown preparation	20 min	High-volume aspiration (with saliva ejection), rubber dam and aspiration, and an aspiration Jet 25 aerosol extraction device	Not specified	Not calculated	The HSCAH eliminated any aerosol within 6 min of procedure completion. This evidence strongly suggests there is no need for a prolonged fallow period with this handpiece. Where a HSCAH is not available, a

Author(s), date, country	Study design	Number and type of observations	Dental settings	Dental setting characteristics	Type and duration of AGP	Post-procedure duration	Use of aerosol mitigation	Calculation of fallow time	Fallow time	Main finding
					Duration: 20 min		with a flute shaped end piece.			rubber dam was equally effective in reducing air contamination shortly after conclusion of an AGP.

ACH: air changes per hour; AGP: aerosol-generating procedures; HVS (IO): high-volume suction intraoral; HSCAH: high-speed contra-angle handpiece