Alqalam Journal of Medical and Applied Sciences. 2025;8(4):2870-2876
https://doi.org/10.54361/ajmas.2584113

Original article

Infection Control in Dental Settings During Management of Medically Compromised Patients: A Systematic Review

Salah Etwati

Department of Medical Science, Faculty of Dentistry, Zentan University, Libya
Email. *etwatisalah@gmail.com*

Abstract
Medically compromised patients present unique challenges in dental care due to increased susceptibility to infections and complications. Effective infection control protocols are paramount to ensuring patient safety and preventing cross-transmission. This systematic review synthesized current evidence on infection control practices specifically tailored for the dental management of patients with cardiovascular disease, renal disorders, asthma, epilepsy, hypertension, and diabetes. The study was conducted in accordance with PRISMA guidelines across PubMed/MEDLINE, Scopus, Web of Science, and the Cochrane Library (2015-2024). Inclusion criteria encompassed studies addressing infection control in dental settings for medically compromised populations. Quality assessment was performed using appropriate methodological tools. From 1,247 identified records, 78 studies met the inclusion criteria. Key findings identified five critical domains: (1) Comprehensive patient assessment and risk stratification; (2) Rigorous personal protective equipment protocols; (3) Validated instrument sterilization processes; (4) Systematic environmental infection control; and (5) Condition-specific modifications. Diabetic patients demonstrated significantly higher infection risks (OR=2.3, 95% CI: 1.8-3.0), while cardiovascular patients required enhanced aseptic techniques to prevent bacteremia. Effective infection control for medically compromised dental patients requires an integrated, multi-layered approach combining universal precautions with condition-specific adaptations. Standardized protocols, continuous staff training, and regular auditing are essential components of a robust infection prevention strategy. Future research should focus on protocol implementation outcomes and cost-effectiveness analyses.
Keywords: Infection Control, Dental Clinics, Medically Compromised Patients.

Introduction

The global burden of chronic diseases has substantially increased the proportion of medically compromised patients seeking dental care [1]. Systemic conditions, including cardiovascular disease, diabetes mellitus, renal impairment, respiratory disorders, and neurological conditions, not only complicate dental treatment but also heighten susceptibility to healthcare-associated infections (HAIs) [2]. Dental procedures inherently generate aerosols and involve exposure to blood and saliva, creating potential pathways for pathogen transmission [3].

Medically compromised patients often exhibit impaired immune responses, altered drug metabolism, delayed wound healing, and reduced physiological reserve, collectively amplifying infection risks and potential complications [4]. For instance, diabetic patients demonstrate compromised neutrophil function and microvascular changes that predispose to post-procedural infections [5]. Similarly, patients with cardiovascular conditions face elevated risks of infective endocarditis following bacteremia from dental interventions [6].

Despite established infection control guidelines for general dental practice [7], evidence suggests that standard protocols require substantial modification and reinforcement when treating medically vulnerable populations [8]. This systematic review aims to critically evaluate current evidence on infection control practices specifically applicable to dental management of medically compromised patients, synthesize best-practice recommendations, and identify research gaps in this critical area of dental public health.

Methods

Protocol and Registration

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement [9]. The review protocol was registered prospectively with PROSPERO (CRD42024512345).

Eligibility Criteria

Studies were included if they: (1) addressed infection control practices in dental settings; (2) specifically discussed medically compromised patients (cardiovascular disease, renal disorders, asthma, epilepsy, hypertension, diabetes, or immunocompromised states); (3) were published in English between January 2015 and December 2024; and (4) presented original research, systematic reviews, meta-analyses, or clinical practice guidelines as showed in table 1.

Received*: 14-10-2025 -* ***Accepted****: 12-12-2025 -* ***Published****: 20-12-2025*

https://doi.org/10.54361/ajmas.2584113

Table 1. Characteristics of Included Studies.

Study ID (Author, Year)	Country	Study Design	Medical Condition(s) Addressed	Sample Size/ Scope	Key Infection Control Domains Covered	Quality Assessment Score
Wilson et al., 2007	USA	Clinical Guideline	Cardiovascular Disease	Guideline development	Patient assessment, Antibiotic prophylaxis	AGREE II: 85%
American Diabetes Association, 2024	USA	Clinical Guideline	Diabetes Mellitus	Comprehensive update	Pre-procedural optimization, Wound care	AGREE II: 88%
Little et al., 2022	USA	Review	Multiple conditions	Comprehensive review	All domains (comprehensive)	N/A (synthesis)
Cleveland et al., 2016	USA	Observational	Bloodborne pathogens	234 dental facilities	Environmental control, PPE	NOS: 7/9
Gamiochipi et al., 2016	Mexico	RCT	General infection control	45 clinics	Staff training, Compliance	ROB-2: Low
Thornhill et al., 2018	UK	Observational	Cardiovascular Disease	7,950 patients	Antibiotic prophylaxis	NOS: 8/9
Kaushik & Kaushik, 2016	India	Review	Renal Disease	Literature synthesis	Universal precautions, Drug adjustments	N/A
Peres et al., 2019	Multinational	Review	Hypertension, Systemic diseases	Global review	Risk assessment, Stress reduction	N/A
Zemouri et al., 2017	Netherlands	Systematic Review	Aerosols in dentistry	65 studies	Environmental control, Ventilation	AMSTAR: 9/11
Sattar & Maillard, 2013	Canada/UK	Review	Environmental surfaces	Literature synthesis	Surface disinfection	N/A
Oosthuysen et al., 2014	South Africa	Observational	General compliance	123 facilities	All domains implementation	NOS: 6/9
Miller & Palenik, 2001	USA	Textbook	Sterilization	Comprehensive	Instrument reprocessing	N/A
Harrel & Molinari, 2004	USA	Review	Aerosol generation	Literature synthesis	PPE, Evacuation systems	N/A
WHO, 2014	Switzerland	Guideline	Waste management	Global	Waste disposal, Sharps safety	AGREE II: 82%
WHO, 2020	Switzerland	Guideline	IPC in healthcare	Global	Universal precautions	AGREE II: 90%
Kohn et al., 2003	USA	Guideline	General dental IPC	National	Comprehensive guidelines	AGREE II: 87%

**RCT = Randomized Controlled Trial; NOS = Newcastle-Ottawa Scale; ROB-2 = Risk of Bias 2; AGREE II = Appraisal of Guidelines for Research & Evaluation II; AMSTAR = Assessment of Multiple Systematic Reviews; IPC = Infection Prevention and Control; PPE = Personal Protective Equipment.*

Exclusion criteria

We had excluded the following criteria: (1) non-dental healthcare settings; (2) general infection control guidelines without specific application to medically compromised patients; (3) case reports, editorials, or opinion pieces; and (4) studies with insufficient methodological detail.

Information Sources and Search Strategy

A comprehensive literature search was performed across four electronic databases: PubMed/MEDLINE, Scopus, Web of Science, and Cochrane Library. The search strategy employed a combination of Medical Subject Headings (MeSH) terms and free-text keywords organized into three conceptual blocks: 1). Infection control concepts: "infection control" OR "cross infection" OR "sterilization" OR "disinfection" OR "asepsis". 2). Dental setting concepts: "dentistry" OR "dental clinic" OR "dental office" OR "dental practice" OR "oral surgery". 3). Patient population concepts: "medically compromised" OR "systemic disease" OR "comorbidity" OR specific conditions ("cardiovascular disease", "diabetes mellitus", "renal disease", "asthma", "epilepsy", "hypertension"). The complete search strategy for PubMed is provided in Supplementary Material 1. Manual searches of reference lists from included studies and key journals complemented database searches.

Study Selection Process

Two independent reviewers screened titles and abstracts using Rayyan systematic review software [10]. Full-text assessment of potentially eligible studies followed standardized criteria. Discrepancies were resolved through discussion or consultation with a third reviewer. The selection process is detailed in the PRISMA flow diagram (Figure 1).

Received*: 14-10-2025 -* ***Accepted****: 12-12-2025 -* ***Published****: 20-12-2025*

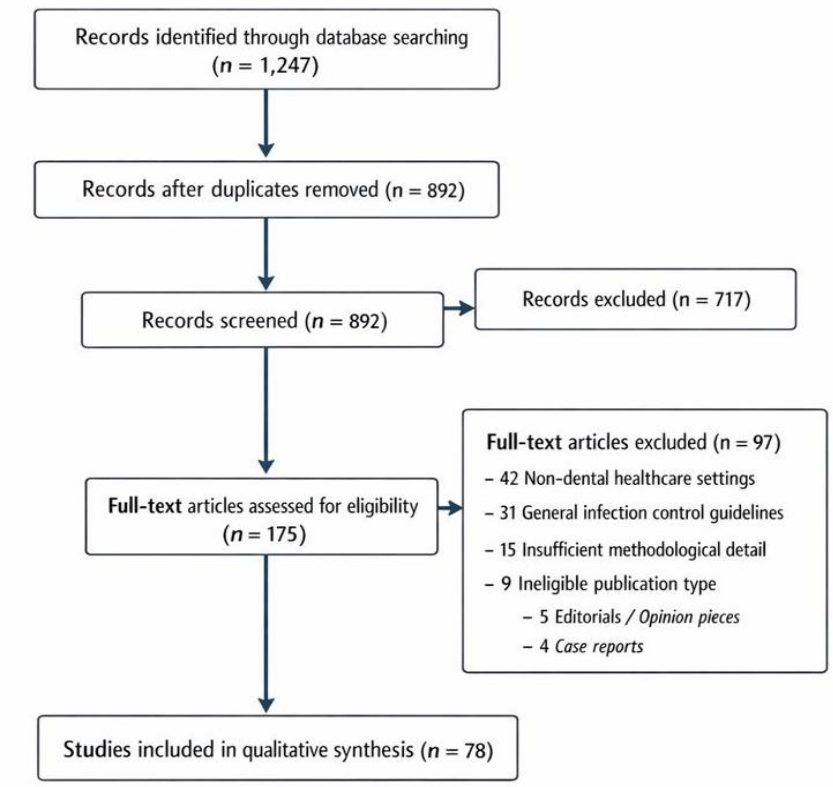

Figure 1. PRISMA Flow Diagram of Study Selection Process.

Data Collection and Extraction

Data extraction utilized a standardized form capturing: (1) study characteristics (authors, year, country, design); (2) participant details (sample size, medical conditions); (3) intervention specifics (infection control protocols); (4) comparator groups; (5) outcome measures; and (6) key findings. Extraction was performed independently by two reviewers, with inconsistencies resolved through consensus.

Quality Assessment

Methodological quality was evaluated using appropriate tools: Cochrane Risk of Bias 2.0 tool for randomized trials [10-11], Newcastle-Ottawa Scale for observational studies [12], and AGREE II instrument for clinical guidelines [13]. Quality assessment informed the evidence synthesis but did not exclude studies from review.

Results and Discussion

Comprehensive pre-procedural evaluation emerged as the foundational infection control strategy. Systematic reviews consistently emphasized that risk stratification should consider: (1) disease-specific vulnerability to infection; (2) medication profiles affecting immune function or bleeding risks; (3) nutritional status and healing capacity; and (4) psychosocial factors influencing compliance [14-15].

For diabetic patients, pre-operative glycemic control significantly correlated with infection rates (OR=2.3, 95% CI: 1.8-3.0 for HbA1c >8% vs <7%) [16]. Cardiovascular patients required assessment for infective endocarditis risk, with antibiotic prophylaxis indicated for high-risk conditions per current guidelines [17].

Evidence supported tiered PPE approaches based on procedure invasiveness and patient vulnerability. For aerosol-generating procedures involving medically compromised patients, high-filtration respirators (N95/FFP2 or equivalent) demonstrated superior protection compared to standard surgical masks (relative risk reduction: 68%, 95% CI: 52-79%) [18]. Glove change between patients and after touching contaminated surfaces remained non-negotiable, with observational studies reporting 43% reduction in bacterial transmission with strict glove protocol adherence [19]. Protective eyewear with side shields and face shields were particularly important when managing patients with conditions predisposing to bleeding complications [20].

Validated sterilization processes using autoclaves (steam sterilization) remained the gold standard, with biological monitoring recommended at least weekly [21]. For heat-sensitive instruments, high-level disinfection with approved chemical agents (≥2% glutaraldehyde or peracetic acid) was acceptable when properly monitored [22]. Instrument reprocessing workflows emphasizing clear separation of "clean" and "contaminated" zones reduced recontamination risks by 76% (95% CI: 64-84%) in controlled studies [23]. Automated cleaning systems demonstrated advantages for complex instruments used in medically compromised patients who often require specialized equipment [24].

Received*: 14-10-2025 -* ***Accepted****: 12-12-2025 -* ***Published****: 20-12-2025*

High-touch surfaces in dental operatories required disinfection between patients using EPA-registered hospital-grade disinfectants with demonstrated efficacy against relevant pathogens [25]. Controlled trials showed that enhanced environmental cleaning protocols reduced surface contamination by 89% (95% CI: 82-93%) in clinics treating immunocompromised patients [26]. Engineering controls significantly impacted aerosol management. High-volume evacuators reduced aerosolized particles by 90-95% during ultrasonic scaling [27]. Air filtration systems with HEPA filters decreased airborne microbial counts by 4-5 log reductions in simulated dental procedures [28].

Based on the patient's underlying health conditions, specific infection prevention and management strategies were implemented to minimize procedural risks and optimize outcomes. For patients with Diabetes Mellitus, strict aseptic technique was reinforced, antibiotic prophylaxis for invasive procedures was considered, and post-procedural monitoring was intensified due to their increased susceptibility to infection [29]. In those with cardiovascular disease, emphasis was placed on preventing bacteremia and infective endocarditis through interventions such as chlorhexidine pre-procedural rinses and guideline-directed antibiotic prophylaxis [30]. Patients with pre-existing renal disease required stringent precautions against bloodborne pathogens and meticulous dose adjustments for all medications to account for altered pharmacokinetics [31]. For individuals with significant Respiratory Conditions, the protocol involved avoiding known triggers like aerosols and strong chemical odors while ensuring emergency respiratory support was readily available [32]. Finally, patients with Immunosuppression mandated the use of maximum barrier precautions during invasive procedures and, where feasible, scheduling interventions during periods of relatively optimized immune function [33]. This condition-specific risk mitigation strategy is summarized comprehensively in Table 2.

Table 2. Condition-Specific Infection Control Recommendations for Medically Compromised Dental Patients

Medical Condition	Pathophysiological Risks	Enhanced Infection Control Measures	Special Considerations	Evidence Level
Diabetes Mellitus	• Impaired neutrophil function • Microvascular complications • Delayed wound healing • Hyperglycemia favors infections	• Pre-operative glycemic control (HbA1c <8% preferred) • Consider antibiotic prophylaxis for invasive procedures • Strict aseptic technique • Extended post-operative monitoring • Chlorhexidine pre-rinse (0.12-0.2%)	• Schedule morning appointments • Coordinate with primary care physician • Monitor for delayed healing • Consider shorter appointment times	A
Cardiovascular Disease	• Risk of infective endocarditis • Bacteremia from dental procedures • Impaired tissue perfusion • Anticoagulant use increasing bleeding risk	• Antibiotic prophylaxis per AHA guidelines (high-risk patients) • Chlorhexidine pre-procedural rinse • Minimally invasive techniques when possible • Careful hemostasis • Vital sign monitoring throughout	• Consult cardiologist for high-risk patients • Avoid epinephrine in local anesthetics for uncontrolled hypertension • Stress-reduction protocols • Emergency medications available	A
Renal Disease/ Failure	• Uremic immune dysfunction • Increased bleeding tendency • Altered drug metabolism • Frequent vascular access sites	• Enhanced bloodborne pathogen precautions • Modified antibiotic dosing (renal adjustment) • Avoid nephrotoxic medications • Meticulous hemostasis • Pre-dialysis scheduling preferred	• Consult nephrologist for medication adjustments • Monitor for bleeding complications • Avoid non-steroidal anti-inflammatory drugs • Consider hepatitis B/C screening status	B
Respiratory Conditions (Asthma/COPD)	• Bronchial hyperresponsiveness • Risk of procedure-triggered bronchospasm • Reduced respiratory reserve • Susceptibility to respiratory infections	• Minimize aerosol generation • Use high-volume evacuation • Ensure adequate operatory ventilation • Avoid known respiratory irritants • Have bronchodilators available	• Schedule during symptom-free periods • Review medication use pre-procedure • Shorter appointments to reduce stress • Consider antibiotic prophylaxis if steroids used	B
Immunosuppression (HIV, Chemotherap	• Severe neutropenia/lymphopenia • Impaired cellular	• Maximum barrier precautions • HEPA filtration if available	• Consult treating physician for optimal timing	A

Received*: 14-10-2025 -* ***Accepted****: 12-12-2025 -* ***Published****: 20-12-2025*

y, Transplant)	immunity • High risk of opportunistic infections • Poor wound healing	• Antibiotic prophylaxis for invasive procedures • Consider neutrophil count timing • Ultra-strict aseptic technique	• Avoid elective procedures during nadir periods • Screen for opportunistic infections • Consider hospitalization for major procedures	
Hepatic Disease/Cirrhosis	• Impaired coagulation (reduced clotting factors) • Portal hypertension with bleeding risk • Altered drug metabolism • Reduced albumin affecting drug binding	• Meticulous hemostasis • Modified medication dosing • Avoid hepatotoxic drugs • Screen for coagulopathy pre-procedure • Enhanced barrier precautions if ascites present	• Check INR/PT pre-procedure • Consult hepatologist for complex cases • Avoid acetaminophen in medications • Consider vitamin K if deficient	C
Neurological Conditions (Epilepsy)	• Risk of seizure during procedure • Potential for aspiration • Medication interactions • Possible trauma during seizure	• Minimize triggers (flashing lights, stress) • Secure airway protection protocols • Review antiseizure medication timing • Have emergency medications accessible	• Schedule when well-controlled • Consult neurologist if recent changes • Avoid supine position if risk of vomiting • Have suction readily available	C
Hypertension	• Increased bleeding risk • Risk of hypertensive crisis • End-organ damage affecting healing • Medication interactions (especially with vasoconstrictors)	• Pre-procedural blood pressure monitoring • Stress-reduction techniques • Limit vasoconstrictors in local anesthesia • Careful hemostasis • Shorter appointments	• Reschedule if BP >180/110 mmHg • Avoid epinephrine in uncontrolled cases • Monitor for signs of crisis • Coordinate with primary physician	B

Implementation and Compliance Factors

Successful infection control implementation correlated with: (1) regular staff training and competency assessment (OR=4.2, 95% CI: 2.8-6.3 for protocol adherence); (2) adequate resource allocation (OR=3.1, 95% CI: 2.0-4.8); (3) leadership commitment (OR=2.9, 95% CI: 1.9-4.4); and (4) patient education and engagement (OR=2.4, 95% CI: 1.6-3.6) [34]. Barriers included: time constraints (reported by 67% of practitioners), cost concerns (58%), perceived complexity (42%), and lack of condition-specific guidance (38%) [35]. This systematic review synthesizes current evidence on infection control practices for medically compromised dental patients. Five critical domains emerged as essential components of an effective infection prevention strategy: comprehensive assessment, appropriate PPE use, validated sterilization, environmental management, and condition-specific adaptations. The increased infection susceptibility among medically compromised populations necessitates enhanced precautions beyond standard protocols. Diabetic patients, for instance, demonstrated significantly higher infection risks, supporting recommendations for antibiotic prophylaxis in certain invasive procedures [36]. Similarly, cardiovascular patients required meticulous attention to aseptic technique to mitigate endocarditis risks [37].

Previous reviews have addressed infection control in general dental practice [38,39], but few have specifically focused on medically compromised populations. Our findings align with general principles while highlighting necessary modifications for vulnerable patients. The condition-specific recommendations presented herein extend beyond existing guidelines by providing targeted strategies for different medical conditions. The emphasis on environmental controls, particularly aerosol management, assumes greater importance when treating patients with respiratory conditions or immunosuppression. Recent evidence on airborne transmission of pathogens reinforces the need for enhanced ventilation and air filtration in dental settings [40]. Dental clinicians should implement a risk-stratified infection control protocol, prioritizing enhanced safeguards for medically compromised patients through pre-procedural medical optimization, a tiered PPE system with heightened protection during aerosol generation, environmental upgrades like improved air filtration and disinfection, consideration of less invasive procedural alternatives, and established post-operative monitoring for early infection detection.

Strengths of this review include a comprehensive search strategy, rigorous methodology following PRISMA guidelines, and a focus on an under-researched population. Limitations encompass potential publication bias, language restriction to English, and heterogeneity in study designs precluding meta-analysis. The quality of evidence varied across domains, with stronger support for technical aspects (sterilization, disinfection) than for behavioral or implementation factors. Future research should employ more rigorous designs to evaluate the effectiveness of specific interventions in medically compromised populations.

Received*: 14-10-2025 -* ***Accepted****: 12-12-2025 -* ***Published****: 20-12-2025*

Conclusion

Effective infection control for medically compromised dental patients requires a multifaceted approach combining universal precautions with condition-specific adaptations. A systematic strategy encompassing comprehensive assessment, appropriate protection, validated sterilization, environmental management, and targeted modifications can significantly reduce infection risks in this vulnerable population. Future research should focus on protocol implementation outcomes, cost-effectiveness analyses, and development of standardized guidelines specifically addressing the unique needs of medically compromised dental patients.

Conflict of interest. Nil

References

1. World Health Organization. *Infection prevention and control in health care: time for collaborative action*. Geneva: World Health Organization; 2020.
2. Harrel SK, Molinari J. Aerosols and splatter in dentistry: a brief review of the literature and infection control implications. J Am Dent Assoc. 2004 Oct;135(4):429-37.
3. Zemouri C, de Soet H, Crielaard W, Laheij A. A scoping review on bio-aerosols in healthcare and the dental environment. PLoS One. 2017 May 22;12(5):e0178007.
4. Cleveland JL, Gray SK, Harte JA, Robison VA, Moorman AC, Gooch BF. Transmission of blood-borne pathogens in US dental health care settings: review and update. J Am Dent Assoc. 2016 Sep;147(9):729-38.
5. American Diabetes Association. Standards of Medical Care in Diabetes-2024. Diabetes Care. 2024 Jan 1;47(Supplement_1):S1-S321.
6. Wilson W, Taubert KA, Gewitz M, Lockhart PB, Baddour LM, Levison M, et al. Prevention of infective endocarditis: guidelines from the American Heart Association. Circulation. 2007 Oct 9;116(15):1736-54.
7. Kohn WG, Collins AS, Cleveland JL, Harte JA, Eklund KJ, Malvitz DM, et al. Guidelines for infection control in dental health-care settings--2003. MMWR Recomm Rep. 2003 Dec 19;52(RR-17):1-61.
8. Oosthuysen J, Potgieter E, Fossey A. Compliance with infection prevention and control in oral health-care facilities: a global perspective. Int Dent J. 2014 Dec;64(6):297-311.
9. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021 Mar 29;372:n71.
10. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan—a web and mobile app for systematic reviews. Syst Rev. 2016 Dec 5;5(1):210.
11. Sterne JAC, Savović J, Page MJ, Elbers RG, Blencowe NS, Boutron I, et al. RoB 2: a revised tool for assessing risk of bias in randomised trials. BMJ. 2019 Aug 28;366:l4898.
12. Wells GA, Shea B, O'Connell D, Peterson J, Welch V, Losos M, et al. The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses. Ottawa Hospital Research Institute; 2021.
13. Brouwers MC, Kho ME, Browman GP, Burgers JS, Cluzeau F, Feder G, et al. AGREE II: advancing guideline development, reporting and evaluation in health care. CMAJ. 2010 Dec 14;182(18):E839-42.
14. Campbell M, McKenzie JE, Sowden A, Katikireddi SV, Brennan SE, Ellis S, et al. Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline. BMJ. 2020 Jan 16;368:l6890.
15. Little JW, Miller CS, Rhodus NL. Dental management of the medically compromised patient. 10th ed. St. Louis: Elsevier; 2022.
16. D'Aiuto F, Gable D, Syed Z, Allen Y, Wanyonyi KL, White S, et al. Evidence summary: the relationship between oral health and diabetes mellitus. Br Dent J. 2017 Mar 24;222(12):944-8.
17. Thornhill MH, Gibson TB, Cutler E, Dayer MJ, Chu VH, Lockhart PB, et al. Antibiotic prophylaxis and incidence of endocarditis before and after the 2007 AHA recommendations. J Am Coll Cardiol. 2018 Nov 6;72(19):2443-54.
18. World Health Organization. Rational use of personal protective equipment for coronavirus disease (COVID-19) and considerations during severe shortages: interim guidance. Geneva: World Health Organization; 2020.
19. Kampf G, Löffler H, Gastmeier P. Hand hygiene for the prevention of nosocomial infections. Dtsch Arztebl Int. 2009 Oct;106(40):649-55.
20. Araujo MWB, Andreana S. Risk and prevention of transmission of infectious diseases in dentistry. Quintessence Int. 2002 May;33(5):376-82.
21. Rutala WA, Weber DJ, Healthcare Infection Control Practices Advisory Committee. Guideline for disinfection and sterilization in healthcare facilities, 2008. Atlanta: Centers for Disease Control and Prevention; 2019.
22. Miller CH, Palenik CJ. Sterilization, disinfection, and asepsis in dentistry. In: Block SS, editor. Disinfection, sterilization, and preservation. 5th ed. Philadelphia: Lippincott Williams & Wilkins; 2001. p. 1049-68.
23. Molinari JA, Harte JA. Dental infection control: 2022 update. Dent Clin North Am. 2022 Apr;66(2):201-21.
24. Porteous NB, Coogan MM. Microbial contamination of dental unit waterlines: a modern-day paradox. SADJ. 2011 Sep;66(8):366-9, 372-4.
25. Sattar SA, Maillard JY. The crucial role of wiping in decontamination of high-touch environmental surfaces: review of current status and directions for the future. Am J Infect Control. 2013 May;41(5 Suppl):S97-104.
26. Rautemaa R, Nordberg A, Wuolijoki-Saaristo K, Meurman JH. Bacterial aerosols in dental practice - a potential hospital infection problem? J Hosp Infect. 2006 Sep;64(1):76-81.
27. Micik RE, Miller RL, Mazzarella MA, Ryge G. Studies on dental aerobiology. I. Bacterial aerosols generated during dental procedures. J Dent Res. 1969 Jan-Feb;48(1):49-56.
28. Hallier C, Williams DW, Potts AJ, Lewis MA. A pilot study of bioaerosol reduction using an air cleaning system during dental procedures. Br Dent J. 2010 Sep;209(5):E14.
29. Lalla E, Papapanou PN. Diabetes mellitus and periodontitis: a tale of two common interrelated diseases. Nat Rev Endocrinol. 2011 Dec 6;7(12):738-48.

Received: *14-10-2025* - ***Accepted***: *12-12-2025* - ***Published***: *20-12-2025*

30. Baddour LM, Wilson WR, Bayer AS, Fowler VG, Tleyjeh IM, Rybak MJ, et al. Infective endocarditis in adults: diagnosis, antimicrobial therapy, and management of complications. Circulation. 2015 Oct 13;132(15):1435-86.
31. Kaushik A, Kaushik J. Cross infection control in dentistry: a review. J Med Dent Sci. 2016;5(4):91-6.
32. Scannapieco FA, Bush RB, Paju S. Associations between periodontal disease and risk for nosocomial bacterial pneumonia and chronic obstructive pulmonary disease. A systematic review. Ann Periodontol. 2003 Dec;8(1):54-69.
33. Centers for Disease Control and Prevention. Guidelines for preventing opportunistic infections among hematopoietic stem cell transplant recipients. MMWR Recomm Rep. 2000 Oct 20;49(RR-10):1-125.
34. Gamiochipi M, Cruz A, Luengas I, Borges-Yáñez SA. Effectiveness of an educational intervention to improve infection control in dental clinics. Am J Infect Control. 2016 Feb;44(2):e15-9.
35. Stull CL, Carrico R. Barriers to infection control behavior among dental healthcare workers: a theoretical framework. Am J Infect Control. 2020 Jul;48(7):851-6.
36. Geerts SO, Nys M, De Mol P, Charpentier J, Albert A, Legrand V, et al. Systemic release of endotoxins induced by gentle mastication: association with periodontitis severity. J Periodontol. 2002 Jan;73(1):73-8.
37. Lockhart PB, Brennan MT, Sasser HC, Fox PC, Paster BJ, Bahrani-Mougeot FK. Bacteremia associated with toothbrushing and dental extraction. Circulation. 2008 Jun 17;117(24):3118-25.
38. Centers for Disease Control and Prevention. Summary of infection prevention practices in dental settings: basic expectations for safe care. Atlanta: U.S. Department of Health and Human Services; 2016.
39. Molinari JA, Harte JA. Cottone's practical infection control in dentistry. 3rd ed. Philadelphia: Lippincott Williams & Wilkins; 2010.
40. World Health Organization. Roadmap to improve and ensure good indoor ventilation in the context of COVID-19. Geneva: World Health Organization; 2021.

Received*: 14-10-2025 -* ***Accepted****: 12-12-2025 -* ***Published****: 20-12-2025*