JOURNAL | FAQS

Rethinking periodontal care: A medical condition with a dental solution

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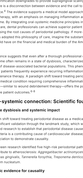
What you'll learn in this article

- Why periodontal disease should be classified as a chronic inflammatory **medical condition** that can be managed and treated like other chronic diagnosis, therapeutic, and collaborative strategies aligned with evidence-based care.
- How **specific high-risk pathotypes** contribute to cardiovascular disease and why standard care models fail to address the underlying biofilm and cytokine exposure driving systemic inflammation.
- What a modern, **evidence-based protocol** for periodontal care looks like, including biofilm control, host modulation, and integration with medical pathways, and why it matters for patient outcomes and healthcare delivery.
- How the **role of the dental hygienist is evolving** into a frontline provider of chronic disease prevention, biofilm control, and early detection, interprofessional collaboration, and active patient communication to address inflammation and reduce risk.



The conventional approach to periodontal therapy has long emphasized mechanical debridement, antibiotics, and surgical intervention. While these procedures address visible signs of disease, research continues to indicate that they do not fully address the underlying biofilm and cytokine exposure that drive systemic inflammation. The risk of the oral microbiome contributing to disease has become increasingly evident, with periodontal pathogens contributing to the development and progression of cardiovascular disease, diabetes, and certain cancers, inflammatory bowel disease, and more.

Periodontal disease affects 45% to 50% of adults globally, with 11.2% classified as severe periodontitis, the sixth most prevalent condition.[1] Traditional approaches, which primarily focus on mechanical debridement and calculus removal, have shown limited long-term impact on disease progression and remain an inefficient model of care.[2]

Now, let's consider the current trends that advocate for redevelopment educational and clinical models to better address the underlying biofilm and cytokine exposure. For patients, there is a disconnection between evidence and the call to action for a new approach. For dental professionals, this disconnection between periodontal therapy, with an emphasis on managing inflammation and restoring homeostasis, and the current clinical model of care, which remains predominately focused on mechanical debridement and surgical intervention, while addressing the root causes of periodontal pathology. A more dental hygiene-centered approach to care, with a focus on biofilm control and inflammation management, could better address the underlying biofilm and cytokine exposure.

Evidence suggests that even after a thorough professional cleaning, the oral microbiome often remains in a state of dysbiosis, characterized by the persistence of pathogenic microorganisms and elevated levels of inflammatory cytokines. Pathogenic bacteria such as Porphyromonas gingivalis, Tannerella forsythia, Treponema denticola, and Aggregatibacter actinomycetemcomitans

Mechanistic evidence for causality

Research has established that high-risk periodontal pathogens create a "triple threat" to arterial health. These bacteria make arterial walls more permeable to bacterial toxins, trigger platelet clumping that accelerates clot formation, and disrupt the body's natural clot-dissolving mechanisms, increasing stroke risk and retention.

Clinical implications: This research establishes that periodontal disease caused by high-risk pathogens represents "a medical condition with a dental solution" requiring specialized treatment protocols. The research suggests that standard periodontal cleanings may not adequately address these cardiovascular disease burdens, fundamentally changing how periodontal disease is diagnosed and treated.[4]

Furthermore, research suggests that periodontal treatment not only mitigates oral inflammation but also demonstrates systemic benefits including improved glycemic control in diabetic patients, reduced cardiovascular risk markers, and improvements in patient-reported outcomes.[5]

The Data Dental research identified five high-risk periodontal pathogens that contribute to cardiovascular and atherosclerotic disease: Porphyromonas gingivalis, Prophyromonas gingivalis, Tannerella forsythia, Treponema denticola, and Aggregatibacter actinomycetemcomitans.

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Clinical evidence and benefits

Cardiovascular health: Periodontal treatment reduces systemic inflammatory markers, improves blood pressure control, and demonstrates potential to reduce measurable changes in cardiovascular risk factors. These findings support the integration of periodontal care into cardiovascular disease prevention and management protocols.[7]

Diabetes management: A systematic review and meta-analysis confirm that periodontal treatment significantly improves glycemic control and reduces inflammation in patients with type 2 diabetes. The magnitude of improvement in glycemic control is comparable to adding a second diabetes medication to treatment.[8]

Systemic inflammation: Significant reductions in high-sensitivity C-reactive protein (hs-CRP) and other inflammatory markers have been observed following comprehensive periodontal treatment, suggesting reduced systemic inflammatory burden.[9]

The current clinical approach to periodontal care and pathology through the hemiarchal scale. As periodontal pathogens and periodontitis associated inflammation progress from the posterior teeth to the anterior teeth, the clinical approach should shift from a focus on the posterior teeth to a focus on the anterior teeth. This shift allows for more comprehensive systemic inflammation management.

Medical model implementation

Redefining treatment objectives

The medical model represents a fundamental shift from symptom management to addressing underlying pathophysiology. Rather than simply removing calculus and managing symptoms, this approach targets:

- Inflammation by measurable outcomes (bleeding on probing, clinical attachment loss, radiographic bone loss, and biomarkers)
- Pathogenic biofilm through antimicrobial protocols and mechanical debridement
- Host response through anti-inflammatory protocols, pro-resolving mediators, and immunomodulation
- Systemic inflammation through monitoring of hs-CRP and other biomarkers

This technology aligns perfectly with the medical model of assisted debridement, antimicrobial therapy, and host modulation, with the dental hygienist as the primary supporting interpreted patient compliance and treatment outcomes in collaboration with medical providers.[10]

Adopting a medical model clinical protocol

Step 1: Comprehensive risk assessment Implementation begins with a thorough evaluation of the inflammatory burden through intraoral, radiographic, and biomarker assessments. This comprehensive assessment establishes baseline inflammatory markers, identifies high-risk pathotypes and systemic risk factors, and automatically combines while educating patients about oral inflammation's connection to cardiovascular and systemic health.

Step 2: Biofilm disclosure Provide a chairside tactile analysis to reveal the patient's biofilm composition. This step creates immediate visual awareness of the microbial challenge and serves as a teaching moment. The disclosure provides a detailed visualization of how the bacteria affect the patient's dentition, creating understanding that drives compliance with the treatment protocol.

Step 3: Self-care instruction Biofilm disclosure causes your patient to understand the importance of biofilm control. Provide personalized instruction on bacteria to prevent maturation into a dysbiotic state with the aim of reducing inflammation and systemic risk. Instruction should include the proper technique and frequency for mechanical biofilm disruption, with emphasis on how specific actions prevent pathogenic growth and inflammation.

Step 4: DNA antibiotic therapy Implement targeted antimicrobial disruption of biofilm, rather than traditional antibiotics, hand scaling, and polishing protocols.

Step 5: Subgingival irrigation Implement daily home care with a focus on the pocket. Research indicates that 1% hydrogen peroxide irrigation for 30 seconds in pockets greater than 3 mm, delivering warm water, sulfonic powder, and hydrogen peroxide, provides the most effective home care for disrupting biofilm and reducing inflammation in the treatment process.

Step 6: Target calculus management shifts the focus to removing hard deposits only after biofilm has been disrupted and inflammation has been reduced. Prophylaxis protocols under maintenance do the linear motion is less intensive.[11]

Step 7: Ongoing monitoring Establish regular assessments to track inflammatory markers, biofilm control, and patient compliance with home care protocols.

Ongoing management maintenance protocols incorporate inflammatory monitoring and biomarker tracking into standard recall appointments. Personalized oral hygiene recommendations and professional cleanings maintain the gains achieved during active treatment.

Professional role evolution

The dental hygienist's expanded role

The medical model recognizes dental hygienists as health care professionals who work in partnership with qualified medical providers. The dental hygienist's understanding how periodontal pathology affects systemic health enables comprehensive patient education and coordinated care delivery.

Future directions: Precision periodontal medicine

Emerging research suggests that future periodontal care will increasingly utilize personalized periodontal therapy. Advances in epigenetic research and pathogenomic profiling may enable clinicians to predict disease risk, monitor treatment response, and tailor interventions based on individual patient factors.

Salivary diagnostic tools, nutritional interventions targeting inflammation, and precision medicine approaches represent the evolution toward truly personalized periodontal care.

Implementation recommendations

- **Team education:** Invest in continuing education focused on the principles of medical model care.
- **Evidence-based protocol implementation:** Establish standardized assessment, treatment, and monitoring protocols that incorporate biomarker testing and systemic risk factors. Ensure all staff are trained with these protocols and understand for a comprehensive oral gente approach to biofilm and inflammation management.
- **Collaborative networks:** Establish relationships with medical providers and specialists to provide comprehensive care.
- **Patient education:** Develop educational materials and campaigns tools for patients to understand the connection between oral health and systemic disease.
- Hygiene technology that provides an eight-step protocol for periodontal care and inflammation management.

Promoting patient ownership

Medical model approach requires clear and comprehensive communication with patients. They need to understand their disease and the risks it poses to other vital organ systems, because it addresses a medical condition with a dental solution. The dental hygienist is positioning to coach the patient through the process.

Conclusion

The evidence overwhelmingly supports treating periodontal disease as a medical condition with a dental solution. The research demonstrates that standard cleanings alone fail to address the underlying biofilm and cytokine exposure that drives systemic inflammation. The medical model of care, with its emphasis on biofilm control, host modulation, and integration with medical providers, offers a more effective approach to patient outcomes and healthcare delivery.

Dental professionals who adopt this evidence-based approach position themselves as healthcare providers who address the underlying inflammatory disease that addresses both oral and systemic health. The transition from reactive treatment to proactive disease management represents the future of dental care and the dental hygienist's expanded role in preventive medicine and early detection of periodontal patients. Those who align with an emerging model of allowing patients to take ownership of their oral health will find themselves at the forefront of healthcare innovation, providing patients with the tools and knowledge they need to place in the field of medicine.

The research is well-established, the clinical protocols and technology are available, and the opportunity for practice transformation is immediate. Implementation begins with the first patient who recognizes that their dental care should address their overall health and the dental professional who understands this essential evolution in systemic health integration. The question you are asking yourself is how to begin the transition to evidence-based care and how to assess the opportunity.

Further reading: Special publications for assessing in medicine and dentistry

Editor's note: This article appeared in the July/August 2025 print edition of Dental Hygiene Practice. Dental Hygiene Practice articles are eligible for continuing education credit. Sign up here.

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