

Rapid Periodontal Therapy Prior to Advanced Medical Intervention: A Multidisciplinary Paradigm Shift

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July 1, 2026 Volume 47 , Issue 5 , July/August 2026 Page(s): 241

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Abstract: Increasing evidence suggests chronic periodontal inflammation may contribute to a systemic inflammatory burden, including in medically compromised patients. Studies have demonstrated associations between moderate to advanced periodontitis and numerous chronic medical systemic conditions. As interdisciplinary treatment models become more common, oral health evaluation and periodontal stabilization are emerging as important components of pretreatment medical optimization. This article reviews the relationship between periodontal inflammation and systemic disease, examines current treatment approaches and diagnostic technologies, and presents a multidisciplinary clinical workflow in which medical and dental professionals collaborate to reduce oral inflammatory burden prior to a major medical intervention.

Periodontitis is among the most prevalent chronic inflammatory diseases worldwide. Once viewed as a localized oral infection affecting the supporting structures of the teeth, periodontal disease is increasingly recognized for its potential systemic implications. Research over the past several decades has demonstrated associations between active periodontal disease and elevated systemic inflammatory mediators, including interleukin-6

(IL-6), IL-17, tumor necrosis factor-alpha (TNF- α), C-reactive protein (CRP), and matrix metalloproteinases (MMPs). These cytokines and inflammatory biomarkers are also implicated in chronic systemic diseases, including cardiovascular disease, diabetes, autoimmune disorders, neurodegenerative diseases, and others.

The medical and dental literature is replete with substantial evidence supporting relationships between periodontal inflammation and more than 52 reported systemic inflammatory disorders, including cardiovascular disease and atherosclerosis, diabetes

mellitus, rheumatoid arthritis, chronic respiratory disease and chronic obstructive pulmonary disease, renal dysfunction and dialysis-associated inflammatory burden, cancer

therapy complications, Alzheimer's disease, and more.

Although these relationships remain multifactorial and not necessarily causal, chronic oral inflammation is increasingly viewed as a confounding contributor to systemic disease burden. In some investigations, bacterial components associated with periodontal pathogens have been identified within diseased tissues outside the oral cavity, including atherosclerotic plaques and neurologic tissue. Such findings have intensified interest in whether controlling periodontal infection may positively influence broader medical outcomes.

Toward Periodontal Health Stabilization

Patients preparing for an advanced medical intervention often present with compromised immune function, impaired healing capacity, or elevated systemic inflammation. In these patients, untreated periodontal disease represents an additional inflammatory burden, which may complicate treatment and recovery. Moving forward, the medical and dental communities need to actively engage in enhanced collaboration relating to medical and dental treatment planning synergy to enhance both systemic outcomes and oral/periodontal

health for patients, especially when it comes to medically compromised individuals. For this reason, increased attention is being directed toward periodontal health stabilization

prior to major medical procedures such as cardiac valve replacement or cardiac or other hard-tissue transplantation, orthopedic joint replacement, chemotherapy, radiation therapy,

oncologic surgery, rheumatologic biologic infusion therapy, pulmonary surgery or chronic respiratory disease management, advanced diabetic management, dialysis and renal disease treatment, and others.

Conventional periodontal treatment remains focused on elimination or suppression of pathogenic biofilm and reduction of inflamed periodontal pockets. In medically compromised patients, however, treatment planning may require modification of these treatment strategies to reduce surgical morbidity and accelerate healing.

Potentially highly effective non- to minimally invasive treatment strategies might include laser-assisted periodontal therapy or Perioscopy®, which have emerged as possible treatment approaches in selected patients demonstrating stage 3 or stage 4 periodontitis. These conservative therapies can provide advantages such as reduced postoperative discomfort, decreased bleeding, and improved patient tolerance in medically

fragile patients.

Concurrently, advances in salivary diagnostics and microbial analysis are expanding clinicians' ability to evaluate periodontal disease at a biologic level. Salivary biomarker testing and microbial analysis may help identify inflammatory activity and pathogenic bacterial profiles associated with systemic disease progression.

These technologies should become increasingly relevant in interdisciplinary care models focused on monitoring systemic inflammatory burden before and after periodontal intervention.

A More Structured Collaboration

Therefore, to reiterate, as the medical and dental professions' understanding of oral–systemic relationships expands, a more structured collaboration between physicians and dental clinicians is a necessity when managing patients with chronic medical conditions. The following example of a multidisciplinary workflow begins at the physician level, where oral health screening becomes part of the patient's comprehensive medical assessment. This could begin with a simplified periodontal screening questionnaire attached to the medical practitioner's health form history, enabling medical personnel to identify patients at elevated risk for moderate to advanced periodontal disease.

Screening questions may include:

1. Do your gums bleed during brushing or flossing?
2. Are your gums swollen or tender?
3. Do you experience persistent bad breath?
4. Are any teeth loose or shifting?
5. Did either of your parents lose their teeth because of periodontal disease (gum disease) or at an early age?
6. Has your hygienist or dentist told you that you have gum disease or bone loss?
8. 7. When was your last comprehensive dental examination and radiographic evaluation? Do you floss or use toothpicks or interdental brushes to physically clean between your teeth every day?

One or more positive responses would indicate potential periodontal disease and necessitate referral to a periodontist or a dentist trained in the management of stage 3 or stage 4 periodontitis for periodontal treatment and ongoing oral inflammation management.

The interdisciplinary model also benefits from communication between physician and periodontist regarding relevant medical laboratory findings. Baseline inflammatory biomarkers—including IL-6, CRP, TNF- α , and related mediators—may help establish the patient's systemic inflammatory status prior to periodontal therapy.

The medical provider should share relative lab results in the referral to the dental provider.

A recent blood panel can help determine the values of appropriate cytokine biomarkers, prior to the initiation of periodontal therapy. Biomarkers might include IL-6, IL-17, IP-10, TNF- α , MMP-2, MMP-9, CRP, and any other available pro-inflammatory biomarker, if available. This data can be important in monitoring the patient's successful treatment of periodontitis from the systemic perspective.

Microbial analysis may further guide treatment planning by identifying specific periodontal pathogens and assisting in antimicrobial selection when indicated.

Upon receiving the referral, the periodontist evaluates the patient's oral health. The dentist or periodontist's office will obtain comprehensive periodontal records, including appropriate

radiographs, periodontal charting, indices of disease activity and mobility patterns, as well

as a caries examination. An appropriate diagnosis and treatment plan will then be established. Once diagnosis is completed, advanced periodontal treatment (listed above) is

initiated to minimize delay in the patient's planned medical therapy.

Teeth which are irrational to treat should be removed during periodontal treatment.

Guidelines for tooth extraction might include loose teeth with less than 25% remaining alveolar bone plus significant mobility. These teeth would probably not respond to definitive

periodontal treatment both short and long term. Also, teeth with extensive decay involving the pulp chamber should be extracted at the outset of therapy if they are non-restorable.

Teeth with

small to moderate cavities can be temporarily restored by the treating general dentist or periodontist using

temporary restorative materials.

The dentist initiates appropriate preventative counseling and debridement therapy, ideally within 1 week. Twice-daily oral care by the patient with a focus on interdental plaque control

and gingival surface debridement, along with toothbrushing, is an important aspect of treatment. Patient dental biofilm removal technique education and follow up is critical. In the author's opinion, interdental

patient-directed plaque control is as important as toothbrushing.

The periodontal intervention phase must include comprehensive periodontal debridement utilizing laser-assisted periodontal therapy or Perioscopy, when appropriate, and adjunctive

antimicrobial therapy. This proposed treatment model emphasizes efficiency, with active therapy ideally completed within approximately 1 to 2 weeks before the patient returns to the

medical team for definitive treatment planning.

Following active periodontal therapy, the patient undergoes post-treatment reassessment to evaluate for a reduction in periodontal inflammation, improvement in plaque control, a microbial response, and evidence of tissue healing and stability. Subsequent long-term periodontal maintenance care, both patient-based and professional, is critical to prevent recurrent periodontitis and/or recurrence of the oral-systemic condition. While a conclusive

link between periodontal therapeutic intervention and more favorable long-term cardiac outcomes has not yet been established due to the multifactorial etiologies of both diseases, there is evidence that periodontal treatment improves several intermediate cardiovascular outcome measures.

Integrated Care

This collaborative model positions periodontal care as one component of broader pretreatment medical optimization rather than as an isolated dental procedure. As evidence

surrounding oral–systemic relationships continues to evolve, greater collaboration between

the medical and dental communities will become increasingly important. This will be facilitated by shared medical records, artificial intelligence, and other emerging communication technologies. Future integrated care models may include routine oral health

screening in medical settings, expanded use of salivary diagnostics and biomarker analysis, shared medical–dental inflammatory risk assessments, coordinated treatment planning between physicians and dental specialists, and earlier intervention for periodontal

disease in medically compromised populations.

At the same time, important questions remain unanswered. Additional research is needed to determine which patient populations benefit most from pretreatment periodontal therapy,

which biomarkers are clinically predictive, and whether periodontal stabilization directly improves long-term medical outcomes.

Nevertheless, growing recognition of the relationship between oral inflammation and systemic disease continues to reinforce an increasingly important principle in healthcare: oral health should be considered an integral component of overall patient management, particularly in medically complex individuals undergoing advanced therapeutic intervention.

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References

1. D’Aiuto F, Parkar M, Andreou G, et al. Periodontitis and systemic inflammation: control of the local infection is associated with a reduction in serum inflammatory markers. *J Dent Res*. 2004;83(2):156-160.
2. Carrizales-Sepúlveda EF, Ordaz-Farías A, Vera-Pineda R, Flores-Ramírez R. Periodontal disease, systemic inflammation and the risk of cardiovascular disease. *Heart Lung Circ*. 2018;27(11):1327-1334.
3. Stewart R, West M. Increasing evidence for an association between periodontitis and cardiovascular disease. *Circulation*. 2016;133(6):549-551.
4. Baeza M, Morales A, Cisterna C, et al. Effect of periodontal treatment in patients with periodontitis and diabetes: systematic review and meta-analysis. *J Appl Oral Sci*. 2020;28:e20190248.
5. Callan DP, Evans R, Cobb CM. Periodontal disease, bacteremia, and orthopedic surgery. *Grand Rounds Oral-Sys Med*. 2007;2(2):27-33.
6. Zhao X, Liu Z, Shu D, et al. Association of periodontitis with rheumatoid arthritis and the effect of non-surgical periodontal treatment on disease activity in patients with rheumatoid

arthritis. *Med Sci Monit.* 2018;24:5802-5810.

7. Bueno AC, Ferreira RC, Barbosa FI, et al. Periodontal care in patients undergoing radiotherapy for head and neck cancer. *Support Care Cancer.* 2013;21(4):969-975.

8. Sapey E, Yonel Z, Edgar R, et al. The clinical and inflammatory relationships between periodontitis and chronic obstructive pulmonary disease. *J Clin Periodontol.* 2020;47(9):1040-1052.

9. Otomo-Corgel J, Pucher JJ, Rethman MP, Reynolds MA. State of the science: chronic periodontitis and systemic health. *J Evid Based Dent Pract.* 2012;12(3 suppl):20-28.

10. López del Valle LM, Ocasio-López C, Steffen M. Comparison of levels of salivary cytokines in diabetic and nondiabetic Puerto Rican children: a case-controlled pilot study. *Pediatr Dent.* 2015;37(1):30-34.

11. Sharma P, Fenton A, Dias IHK, et al. Oxidative stress links periodontal inflammation and renal function. *J Clin Periodontol.* 2021;48(3):357-367.

12. Stadler AF, Angst PDM, Arce RM, et al. Gingival crevicular fluid levels of cytokines/chemokines in chronic periodontitis: a meta-analysis. *J Clin Periodontol.* 2016;43(9):727-745.

13. Barros SP, Williams R, Offenbacher S, Morelli T. Gingival crevicular fluid as a source of biomarkers for periodontitis. *Periodontol 2000.* 2016;70(1):53-64.

14. Dang AB, Rallan NS. Role of lasers in periodontology: a review. *Ann Dent Specialty.* 2013;1(1):8-12.

15. McCawley TK, McCawley MN, Rams TE. Immediate effects of laser-assisted new attachment procedure (LANAP) on human periodontitis microbiota. *J Int Acad Periodontol.* 2018;20(4):163-171.

16. Tran AH, Zaidi AH, Bolger AF, et al. Periodontal disease and atherosclerotic cardiovascular disease: a scientific statement from the American Heart Association. *Circulation.* 2026;153(6):e73-e88.