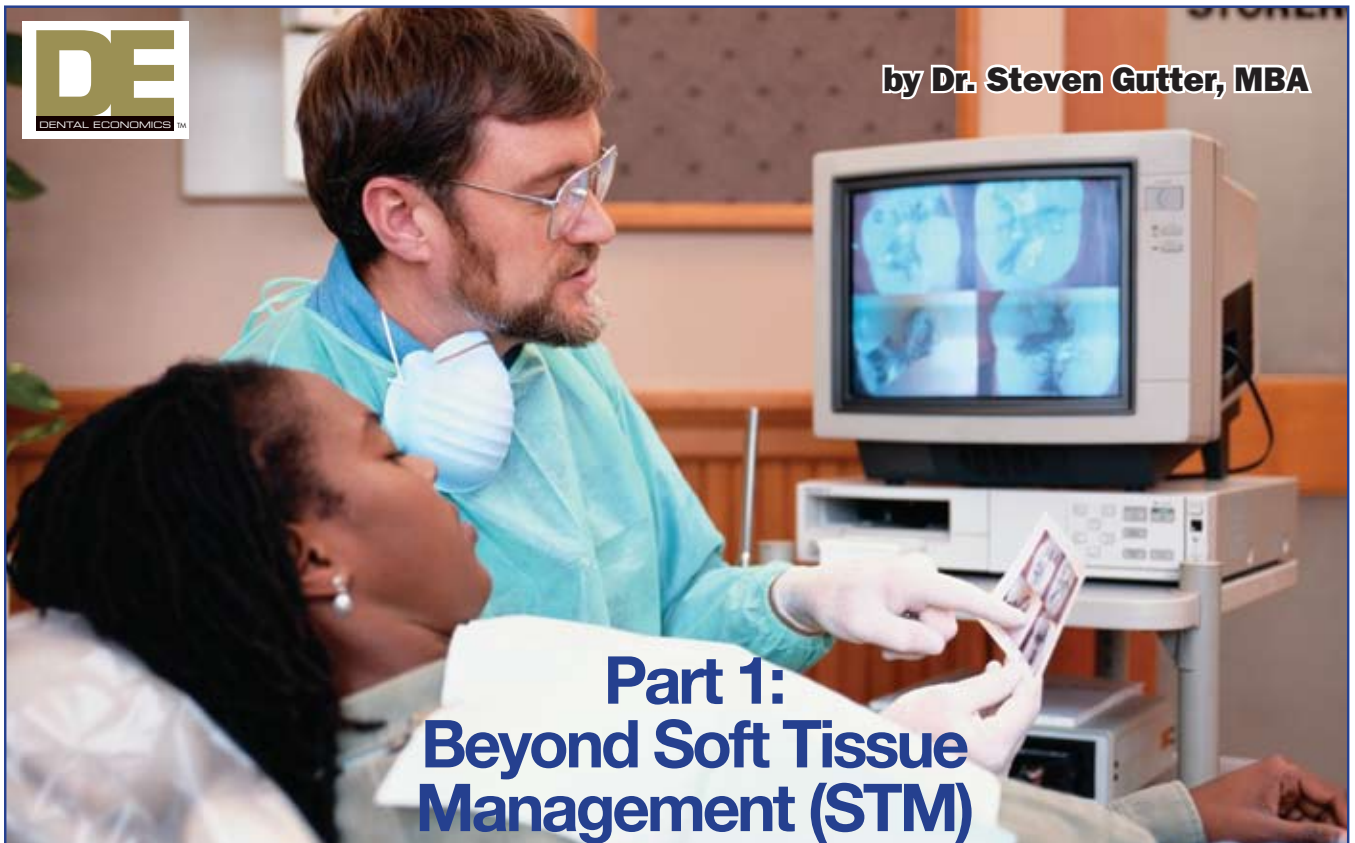


Perio/Hygiene for the 21st Century



by Dr. Steven Gutter, MBA



Part 1: Beyond Soft Tissue Management (STM)

Each of dentistry's previous paradigm shifts has permanently altered the profession. Innovations such as fourhanded dentistry, dental insurance, fluoride, and high-speed handpieces forced dentists to become accustomed to the new way or be forced to close their doors.

The soft tissue management paradigm shift occurred in 1985. At that time, there was a void in the general dentists' treatment of periodontal disease lying between prophylaxis for the general population and surgery for the patients with advanced disease. ProDentec recognized this and brought me and four other dentists together to codify the first soft tissue management (STM)TM protocol, which has since been updated multiple times. The goal was to present an organized and systematic approach to the diagnosis and treatment of early perio breakdown. Following this protocol, general dentists progressed from recommending "super prophylaxis" to presenting appropriate conservative perio treatments. They now perform more meticulous scaling and root planing (SRP) with local and/or systemic chemical adjunctive therapy. Doctors and hygienists inform patients about their disease state and demonstrate appropriate home care techniques. Nonsurgical perio treatment has become a central approach to the comprehensive care of the dental/periodontal patient.

In 1995, the American Academy of Periodontology (AAP) issued its official "Position Statement on Soft Tissue Management" acknowledging that nonsurgical periodontal therapy had become mainstream in GP

offices. The paper re-emphasized the clinical science behind the treatment. Research on new diagnostics, treatments, devices, and technologies furthered the growth and development of STM. Today, STM has evolved into a total team approach. Parts 1 and 2 of this article address the updated clinical treatment of STM, which I call "21st Century Perio/Hygiene"; and Part 3 examines its financial implications, including administration, insurance, and fees.

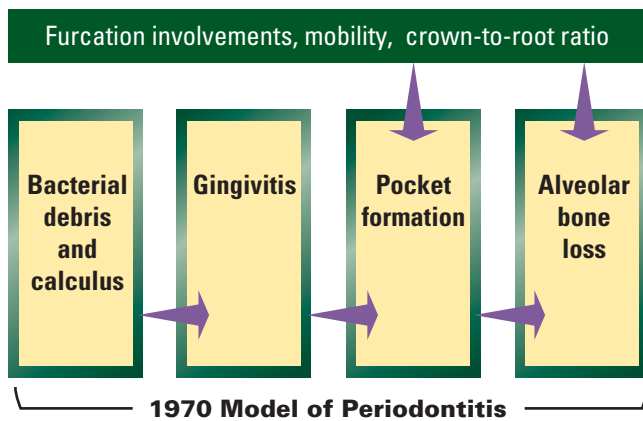
The paradigm shift for dentistry in the 21st century has the following four significant intermingled components:

- 1 The former "drill, fill, and bill" dental model, and the "hygiene department as a loss-leader" approach are outmoded due to fluoride's success in reducing decay and the acceptance of nonsurgical perio protocols.
- 2 Insurance companies have been reducing dental benefits, and dental staff members are re-educating patients while trying to remain "insurance friendly." Some offices have elected to be more "insurance independent" in order to minimize the economic impact of lower fees and more limitations from the carriers.
- 3 Dentistry has moved from a "needs-based" to a "wants-based" profession, with more than 90 percent of today's dental work being "discretionary" treatment; and the majority of it is in the field of long-term restorative and cosmetic enhancements.
- 4 New materials and new technologies are being developed to allow today's practitioner to accomplish dentistry unheard of a mere 10 years ago.

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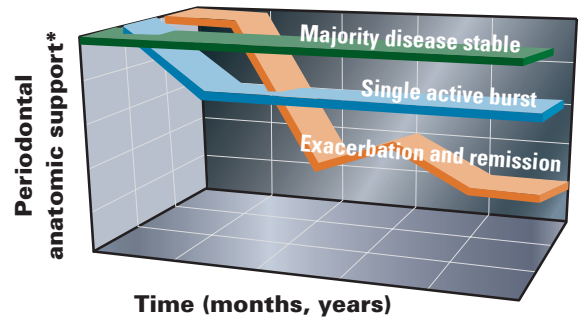
Classic Model of Periodontitis

Fig. 1



Periodontal Disease Progression: Random Burst Model

Fig. 2



*Clinical attachment level or radiographic bone height

A proposed model of periodontal disease progression for teeth or tooth sites that uses a random burst model.

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Important new adjunctive services, such as whitening, tobacco cessation, digital imaging (intraoral video and still photography, and radiography), sealants, bacteriocidal ultrasonic debridement, full-mouth disinfection within 24 hours, halitosis treatment, host modulatory therapy, laser-assisted periodontal treatment (LAPT), DIAGNOdent® laser caries detection, nutritional counseling, total wellness assessment/counseling for enhancing host response in periodontal patients, and locally administered antibiotics are some of the new services offered by the 21st Century Perio/Hygiene department. Today's dental challenge is to keep science in the forefront of decision-making, using research to validate commercial claims and treatment decisions, while still maximizing profitability in the practice.

It's more than the mouth

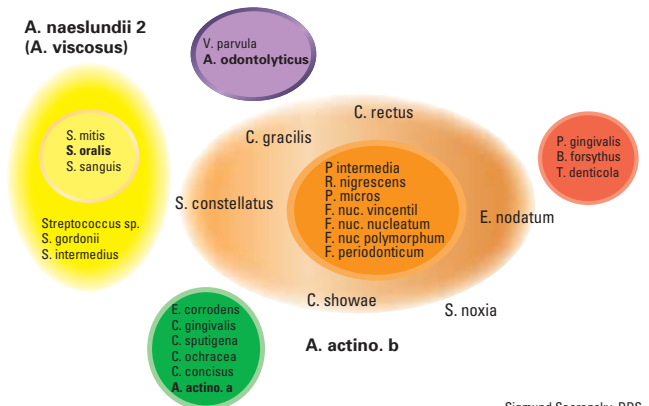
There is now recognition of the association between periodontal diseases and systemic diseases, and research documenting this connection continues to grow. Heart disease, premature birth, diabetes, stroke, and chronic respiratory conditions are significant systemic conditions associated with oral health. The first Surgeon General's Report on Oral Health in America was published in 2000. This comprehensive research asserted the possible role of perio diseases as a risk factor for systemic diseases. Additional research, primarily "intervention studies," is being conducted to prove the extent to which oral infection may be causative, not merely associative, of systemic conditions.

Periodontitis through the decades is illustrated in the figures. The classic model for periodontitis in the 1970s (Fig. 1), evolved into the random burst nonlinear model for periodontal progression in the mid-1980s (Fig. 2). Socransky, et al., researched the understanding of the microbiology of periodontal infections (Fig. 3), and then in 1997, Page and Kornman offered the Current Model of Periodontitis (Fig. 4).

We now focus on a medical/dental model in the management of periodontal infections. Sustained-release antimicrobials have been in use for almost 20 years since

Subgingival Microbial Complexes

Fig. 3

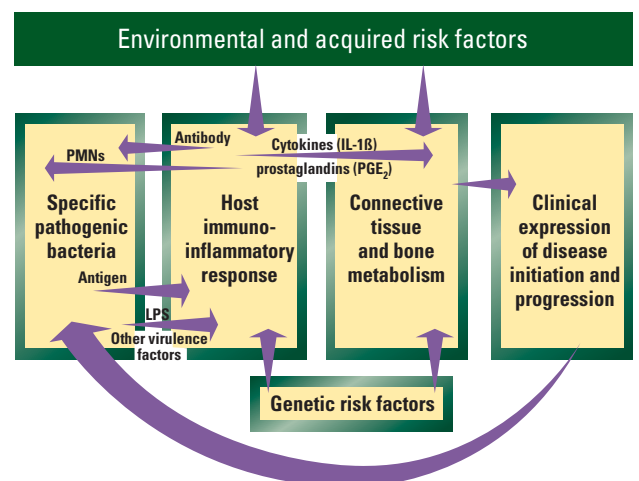


Sigmund Socransky, DDS

Microbial complexes customarily found in subgingival biofilms in patients with periodontitis.

Current Model of Periodontitis

Fig. 4



Page & Kornman, 1997

Max Goodson first pioneered the tetracycline fiber, Actisite, developed by Alza Pharmaceutical. Today, local agents like PerioChip® (chlorhexidine), Atridox® (doxycycline), and Arestin™ (minocycline microspheres) are widely used sustained-release antimicrobials. Systemically delivered antibiotics, host-modulatory therapies like

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Table 1 — Dr. Steven Gutter's 21st Century Perio/Hygiene Treatment Protocol

Insurance	Interval between visits	Treatment Toward 4 Endpoints: 1) Consistent absence of bleeding in all sites; 2) Pockets not getting deeper; 3) Gingival collar tightening around tooth; 4) Minimal volatile sulfur compounds (no halitosis)	Duration	Phase
Exam (D0120) X-rays (D0210)		Probe and chart, X-rays, and tongue scrape and/or interproximal floss upper molar for breath odor assessment		Phase 1
D9630 D1330	Every 2 weeks	Behavior modification period Up to 4X in-office irrigation with antimicrobial Oral hygiene instruction with power toothbrush, interproximal aid (e.g., floss), tongue scraper Prescribe daily rinse and/or irrigation with ClO ₂ and tongue scraper	6 weeks	Diagnosis & behavior modification
2X D4341 & 2X D9630 4381 X # of sites @ \$15-35 per site		Bacteriocidal ultrasonic debridement with or without local anesthesia, scaling and root planing (SRP) Locally administered antimicrobial (LAA, i.e., Arestin™) in PD ≥ 5mm Rx: Chlorhexidine rinse and/or irrigate, bid	14 days	Phase 2
2X D4341 & 2X D9630 4381 X # of sites @ \$15-35 per site	24 hours	Bacteriocidal ultrasonic debridement with or without local anesthesia, scaling and root planing (SRP) Locally administered antimicrobial (LAA, i.e., Arestin™) in PD ≥ 5mm Rx: Chlorhexidine rinse and/or irrigate, bid	14 days	Active treatments
D0180 D4341 &/or D4381	6 weeks	Interim re-evaluation (probe and chart) Re-treat areas where bleeding (SRP and/or LAA) and/or prescribe low-dose doxycycline (LDD-Periostat) If no bleeding, put on 2-month maintenance interval for next re-evaluation	6 weeks	Phase 3
D4910 &/or D4381	6 weeks	Re-evaluation (probe). If bleeding, use adjunctive diagnostics, e.g., culture or DNA micro exam, PST genetics, etc.; then retreat (SRP &/or LAA), p.r.n. Decide on referral and/or systemic antibiotic combo therapy (per Dr. Slots), i.e., ciprofloxacin + metronidazole (500mg ea/bid/q4d), followed by metronidazole + amoxicillin (500mg ea/bid/q4d)	6 weeks	Re-evaluation and stabilization prior to maintenance
D0180	4-6 weeks	Final comprehensive periodontal re-evaluation (probe and chart, PD and BOP, CAL if recession). Evaluate all areas for Endpoints. If unresolved, refer for consultation or, if stable, (i.e., 4 Endpoints are reached), decide on maintenance interval	4-6 weeks	
Fees: 4X (4341, 9630, 1330); (4381) X # of sites ≥ 5mm X \$15-35; 3X re-evaluation (0180). Plus cost of power toothbrush and ClO ₂ and CHX				

Periostat®, and risk profile assessments for prognosis join locally administered antibiotics in the medical management of periodontal disease today.

In 2002, as a member of OraPharma, Inc.'s protocol advisory board, I had the opportunity to help create a state-of-the-art, comprehensive medical/dental treatment approach for the 21st century dental practice. Johnson & Johnson Oral Health Care division, the new owners of OraPharma and Arestin, released their protocol in early 2003.

Minocycline microspheres (Arestin) treatment is the latest addition to the controlled-release chemotherapeutic therapies. Its user-friendliness and efficacy have made it the most popular of these agents. The combination of Arestin and SRP has been shown to be more effective than SRP alone. Arestin™ plus SRP was 26 percent more effective in shifting sites to <5mm probing depths (PD). Average pocket depth reduction for Arestin plus SRP

(~2mm) was about twice as much as SRP alone (~1mm). This reduction makes maintenance of these sites easier and more predictable. In every subset (smokers, molars, PD >5mm, PD >7mm), Arestin plus SRP proved to be more effective than SRP alone. As Bill Killooy, past chair of perio at UMKC Dental School, said about LAA, "It's another important club in your golf bag today to score your best result in a round against periodontal disease."

21st Century Perio/Hygiene treatment protocol

A new era is dawning in the early diagnosis and treatment of periodontal disease, outlined in Table 1. "21st Century Perio/Hygiene" incorporates behavioral therapies for patient acceptance and compliance, practice management principles for implementation, and current clinical research for nonsurgical, full-mouth disinfection using bacteriocidal ultrasonic root debridement therapies

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Table 2 – Current Concept of the Nature of Periodontal Disease by Dr. Ray Williams

- Periodontitis does not affect all people similarly. Much diversity exists among individuals and among teeth with regard to susceptibility to disease.
- Specific innate, acquired, and environmental risk factors contribute to disease susceptibility and to a person's response to treatment.
- Periodontitis, once initiated, does not necessarily progress steadily and linearly if untreated. Rather, periodontitis progresses in "episodes" of attachment loss.
- Specific bacteria and bacterial complexes are the causative agents of periodontitis.
- The host immuno-inflammatory response, although protective, is actually responsible for the tissue destruction of periodontitis.
- The cellular events of wound healing can be modulated with grafts, barrier membranes, and/or biological mediators to foster the maximum regeneration of periodontal attachment structures.
- Periodontitis may be a risk factor for systemic disorders such as cardiovascular disease, diabetes, and low birth weight.

with locally administered antibiotics (Arestin) in probing depths ≥ 5 mm. Combining the mechanical/surgical approaches with medical approaches signals the next exciting stage in periodontal disease therapy. In Table 2 of "A Current Concept of the Nature of Periodontal Disease," Dr. Ray Williams summarizes the guidelines used by today's clinically up-to-date dental practices.

There are five new elements in this "21st Century Perio/Hygiene" treatment protocol, which are as follows:

- 1 A fourth endpoint to therapy is the reduction of volatile sulfur compounds, which are the first indication of periodontal breakdown. This decrease helps motivate the patient to case acceptance and home-care compliance. (See Table 3 – Therapeutic Endpoints.)
- 2 Root treatment is performed with bacteriocidal ultrasonic debridement on the full mouth in one session or within 24 hours in two half-mouth sessions.
- 3 Arestin (Locally Administered Antibiotic—LAA) is applied to pockets ≥ 5 mm during debridement. Locally controlled-release antimicrobials at retreatment (Arestin, Atridox, or PerioChip) are also used p.r.n.
- 4 Periostat (low-dose doxycycline—LDD) may be used with nonresponders in the re-evaluation and retreatment phase of care.
- 5 Systemic antibiotics may also be included in short-term combination therapies for nonresponders.

Phases of the protocol

As the treatment protocol indicates, the approximately six-month therapy has three phases of care. After the initial diagnosis, behavior modification stressing

impeccable plaque control training is given to patients. Patients become willing participants to rid themselves of malodor, biofilms, and bleeding gums. **Phase 1** calls for tongue scraping with home rinsing and/or irrigation using a chlorine dioxide product (Closys[®] or Oxyfresh[®]) and/or a zinc-based mouthwash (Zytex[®] Discus) to chemically neutralize volatile sulfur compounds. Power brushes (Rotadent one step, Sonicare, Oral-B Braun, etc.) enhance outcomes, and embrasure shaped toothpicks and/or proxbrushes are dispensed to simplify interproximal cleaning for patients who will not or do not floss.

Phase 2 is the full-mouth disinfection phase of one- or two-visit, full-mouth SRP within a 24-hour period. Many offices use povidone iodine and/or sodium hypochlorite (bleach) and/or other anti-infective agents in the ultrasonic reservoirs (e.g. Prodentec ProSelect III, Dentsply Cavitron, EMS Piezon, Satelec ACTEON, etc.) for lavage during SRP (either medicament is diluted 10:1 with water). High-speed evacuation prevents patients from swallowing the antimicrobial. Also, on the one- or two-day, full-mouth treatment, Arestin is placed in those sites measuring a ≥ 5 mm probing depth following SRP. The patient is instructed to rinse and/or irrigate with 0.12 percent chlorhexidine (e.g. Peridex[®], Perioguard[®]) for two weeks, b.i.d., for bacterial control.

Phase 3 is 18 weeks of re-evaluation and nonsurgical re-treatment of unresolved sites *prior to* the maintenance phase. Other systemic drugs may be employed to more aggressively treat the resistant infection. They may include short-term combination antibiotics, after at least one re-treatment with SRP and LAA, and/or modulation of the host response enzymes with Periostat (low-dose doxycycline).

This comprehensive care model fosters value in the minds of patients as they become educated about bad breath, bleeding as a sign of active infection, and risk factors for systemic disease. They appreciate their six-month commitment to the treatment. This will be discussed further in Part 3's comparison of insurance-based itemized fees to the nonitemized program fee approach.

This article presents a state-of-the-art, nonsurgical perio program for the general dental office. In Part 2, we will discuss the re-evaluation, therapeutic endpoints, and maintenance or supportive perio therapy. Part 3 will cover financial matters such as administration, insurance, and fees.

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Editor's Note: References available upon request.

Table 3 – Four Therapeutic Endpoints of 21st Century Perio/Hygiene by Dr. Steven Gutter, MBA

1. Consistent absence of bleeding in all sites
2. Pockets don't get deeper (no further loss of attachment—CAL)
3. Gingival collar tightens around tooth (adequate host immune response)
4. Minimal volatile sulfur compounds—No halitosis