



# Accelerated Periodontal Instrumentation: Fast Tracking Clinical Success!

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2. \_\_\_\_\_

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## Periodontal Debridement Evaluation:

% of periodontal cases seen per month: \_\_\_\_\_

Your definition of "success": \_\_\_\_\_

\_\_\_\_\_

Instrumentation utilized and % of each (i.e. Hand, power): \_\_\_\_\_

Adjunctive therapy utilized and % of each: \_\_\_\_\_

\_\_\_\_\_

Average amount of time (days/weeks) for case completion from 1<sup>st</sup> to 4<sup>th</sup> quad: \_\_\_\_\_

Case success rate: \_\_\_\_\_

Patient perception of value/ success: \_\_\_\_\_

Your level of satisfaction with "success": \_\_\_\_\_

What does this seminar title mean to you? What are your expectations?:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**ADHA Policy Definition of Optimal Oral Health –**  
***a standard of health of the oral and related tissues which enable an individual to eat, speak, or socialize without active disease, discomfort or embarrassment and which contributes to general well-being and overall health. - 1999***

**I. American Academy of Periodontology • 1999 Classifications**

*“Classification systems are necessary in order to provide a framework in which to scientifically study the etiology, pathogenesis, and treatment of diseases in an orderly fashion”*

- A. Faults with the 1989 AAP Periodontal Disease Classifications
  - 1. Considerable overlap in disease categories
  - 2. Absence of a gingival disease component
  - 3. Inappropriate emphasis on age of onset of disease and rates of progression
  - 4. Inadequate or unclear classification criteria
- B. 1999 AAP Periodontal Classifications
  - Gingival Diseases - new classification
  - Chronic Periodontitis - replaces Adult Periodontitis
  - Aggressive Periodontitis - replaces Early-Onset Periodontitis
  - Periodontitis as a Manifestation of Systemic Diseases - New, single standing classification
  - Necrotizing Periodontal Diseases - replaces Necrotizing Ulcerative Periodontitis
- C. 1999 AAP Periodontal Classification - New Categories
  - Periodontal Abscess
  - Periodontic-Endodontic Lesions
  - Developmental Acquired Deformities and Conditions

**II. Colonization Sites for Pathogens**

- A. Buccal epithelium
- B. Dorsum of the tongue
- C. Supragingival tooth surface
- D. Periodontal pocket
- E. Crevicular fluid; root cementum; pocket epithelium
- F. Tonsils

**III. Full-Mouth vs. Partial-Mouth Disinfection**

- A. Partial-Mouth Disinfection
  - Traditional quadrant scaling and root planing over a 6 week period of time
  - 4 - 6 consecutive sessions
  - Quadrant or sextant therapy
  - Reinfection potential?
  - Patient/ Client centered approach?
- B. Full-Mouth Disinfection
  - Scaling and root planing 4 quads in 24 hours
  - Application of chlorhexidine to all intra-oral niches and tongue disinfection
  - 2x a day rinse/ spray of tonsils with chlorhexidine for 2 months

**III. Full-Mouth vs. Partial-Mouth Disinfection**

- C. FMD Research Results
  - Reduction in probing depth and gain in clinical attachment for up to 8 months
  - Reduction in oral malodor
  - Greater reduction in spirochetes and motile organisms in subgingival flora
  - Eradication of *P. gingivalis*
  - Both chronic and early-onset populations
  - Dental Hygiene Assessment

#### IV. Dental Hygiene Assessment

- A. Health History/ Patient Update Form
- B. Review current oral hygiene routine
  - Determine current usage & frequency of usage of oral malodor products
- 1. Causes of Oral Malodor
  - Gram Negative, anaerobic bacteria
  - Food Debris
  - Production of volatile sulfur compounds
  - Basic pH
- 2. 4 Types of Volatile Sulfur Compounds
  - Hydrogen Sulfide ~ Associated with healthy patients
  - Methylmercaptan ~ Associated with periodontal patients
  - Dimethyl Sulfide
  - Dimethyl Disulfide

##### Smell the Rest of the Story

- Hydrogen Sulfide = Rotten eggs
- Methyl Mercaptan = Present in feces
- Skatole = Present in feces
- Cadaverine = Corpses
- Putrescine = Decaying meat
- Isovaleric Acid = Feet



- 3. Relationship of Periodontal Disease to Oral Malodor & VSCs Potential Role in Periodontal Disease
  - Bleeding on probing and pocket depth has been correlated with production of VSC's
  - Deep pockets are more likely to promote growth of VSC-producing organisms
  - Tongue coating 4 - 6x greater
  - Periodontal Pathogenesis of VSC
  - Increase in permeability of oral mucosa
  - Increase of penetration of endotoxin
  - Suppression of DNA synthesis
  - Interference with collagen and protein synthesis
- C. Clinical Examination & Cancer Screening
  - 1. Oral CDx; Vizalite, VelScope, etc.
- D. Periodontal examination
  - 1. Diamond Probe 2000 - Detects sulfides
  - 2. Ultrasonic Probe - works like a sonogram; computerized measurement; PAL measurements; identifies areas for sight specific therapy
- E. Note the condition of the surface of the tongue - Coating, thickness, color, texture
- F. Identification of restorations that need replacing

#### V. FMD Clinical Protocol

- A. Pain control
- B. Full-mouth instrumentation: Complete 1 arch per appointment within 24 hours beginning with the mandible
- C. Full-mouth disinfection
  - 1. Subgingival irrigation; Disinfection of the oral mucosa/ tonsillar area & Tongue
  - 2. Use of sustained release antimicrobials
- D. FMD Disinfection Protocol
  - 1. Tongue disinfection - Brushing with chlorhexidine for 60 seconds then scrape/deplaque surface
  - 2. Rinsing with chlorhexidine 2x for 60 seconds
  - 3. Subgingival irrigation and/or placement of sustained release antimicrobial
  - 4. Performed after completion of each arch

## V. FMD Clinical Protocol – con't

- E. Antimicrobial Options
  1. Chlorhexidine – affects bacteria and neutralizes VSC
  2. Essential oil – affects bacteria
  3. Essential oil/ zinc/ CPC – affects bacteria and neutralizes VSC
  4. Stannous fluoride – affects bacteria
  5. Site specific therapy

## VI. Controlled Release Antimicrobial Options

- A. Effective Pharmacotherapy
  1. The drug must reach the sites of disease activity, namely the base of the pocket
  2. The drug must be delivered at the bacteriostatic or bactericidal concentration
  3. The drug must be retained long enough to provide an efficacious result
- B. Measuring Success
  1. Primary Clinical Outcome Variables
    - a. Gain in clinical attachment
    - b. Gain in alveolar bone
  2. Secondary Clinical Outcome Variables
    - a. Reduction in probing depth
    - b. Decrease in inflammation
    - c. Decrease in microflora and/or biochemical by-products
- C. Controlled Delivery Devices
  1. Provides delivery of drug for more than one day
  2. Provides minimum inhibitory concentrations for periodontal pathogens
  3. Better subject compliance
  4. Enhanced or improved pharmacokinetic active agent in proximity to the disease
  5. Delivery of a lower total dose of drug at a more controlled concentration
- D. Controlled Release Systems
  1. 2.5 mg/ 35% Chlorhexidine chip (PerioChip)
  2. 10% Doxycycline gel (Atridox)
  3. 1 mg minocycline powder/ microspheres (Arestin)
  4. Silver wafer
  5. 25% Tetracycline fiber
- E. Enzyme Suppression Therapy
  - A. Subclinical Dose Doxycycline

## VII. FMD Scheduling

- A. Schedule 2 appointments of appropriate time to scale, root plane and disinfect one arch within 24 hours of each other
- B. Schedule 2 month recare - provide subgingival disinfection procedures
- C. Other Clinical Considerations

## VIII. Plaque Control Devices and Antimicrobial Agents Options

- A. Manual Devices
- B. Automated Devices
- C. Fluoride, Calcium & Phosphate Utilization

*Suspected or confirmed caries in the past 12 months = candidate for professionally applied and daily use of fluoride*

- D. Tongue Deplaquing Disinfection
  1. Mechanical options
  2. Chemotherapeutic options



## The Tongue

- Major contributor in healthy mouths to oral malodor
- The tongue coating contains
- Dead epithelial cells • Food Debris
- Blood cells • Bacteria
- The geography of the tongue provides ideal environment for oral malodor production
- Similar bacteria found on the tongue are also found in periodontal pockets
- The increase in bacteria found on the tongue and in periodontal pockets greatly increase oral malodor
- Scraping/ Deplaquing the tongue will reduce malodor significantly

### Tongue Cleaning with Scraper More Effective than Brushing

- Groups refrained from tongue cleaning 48 hours prior and switched regimes with a wash out period
- 45% reduction in VSC with toothbrush
- 75% reduction in VSC with plastic scraper

### Brushing vs. Scraping and Taste

- Improvement in taste was seen in both groups
- 2 weeks taste improvement especially with the tongue scraper group
- Tongue cleaning improves taste sensation & seems to reduce the substrata for putrefaction, rather than microbial load...

### Tongue Scraping vs. Brushing

- More effective in reducing total number of organisms
- Safer than brushing
- Produces a cleaner tongue
- More comfortable than brushing

### Effect of 4 Mouthrinses on Oral Malodor

- 4 Week study/ 99 subjects
- Compared BreathRx, Listerine & Oxyfresh with Zinc
- BreathRx the most effective
  - Reduced OM within 4 hours
  - Only rinse to reduce OM from baseline



### Considerations for Alcohol-Free Rinses

- Mucosal & bacterial dehydrogenases that metabolize alcohol to acetaldehyde are present in the oral cavity
- Acetaldehyde is a toxic & carcinogenic substance
- Acetaldehyde remains in the oral cavity after consumption of alcohol beverages
- Enzyme deficits can lead to greater concentrations of acetaldehyde
- Alcohols effect on membrane lipids can also enhance the penetration of carcinogenic substances into deeper layers of the oral mucosa

### Populations Warranting Alcohol-Free Options

- Certain Oral Conditions
  - Xerostomia
  - Radiation therapy
  - Sjogrens Syndrome
  - Previous history of/ or suspected oral cancer
- Smokers
- High alcohol consumption
- Recovering alcoholics
- Children
- Asian population (genetic deficiency)

### **Fresh Breath Opportunities!**

- Only 16% of Americans regularly use a tongue-cleaning device
- Only 1 in 4 regularly clean the back of the tongue
- 85% cited bad breath as their #1 turn off
- 96% feel more confident when they have fresh breath ~ many are NOT aware of the tongue connection!

### **Neutralize VSC Production**

- Eliminate bacteria producing VSC
- Use antibacterial mouthrinse/ breath spray specific for VSC
- Known agents to neutralize VSC
  - Zinc
  - Chlorhexidine
  - Chlorine dioxide

## *Goals ☺ Action Items*

How will you implement API/FMD?

What benefits will be realized from API/FMD?

What additional products/ agents will you need to order to implement API/FMD?

Establish timeline for implementing API/FMD

## IX. Resources – visit sites below of archived issues, articles, etc.!

*Dimensions of Dental Hygiene* ~ FREE ~ [www.dimensionsofdentalhygiene.com/](http://www.dimensionsofdentalhygiene.com/)

*The Journal of Practical Hygiene* ~ FREE ~ <http://www.mmcpub.com/jph/subscribe.aspx>

*Journal of Periodontology* • 312-787-5518 • \$ 90.00 per year • [www.perio.org](http://www.perio.org)

*Modern Hygienist* ~ FREE ~ <https://www.advanstar.com/subscriptions/subscribe.asp?subid=183>

*PERIO Reports* ~ FREE with *HygieneTown* ~ [www.perioreports.com/](http://www.perioreports.com/) [www.hygienetown.com](http://www.hygienetown.com)

*RDH Magazine* ~ FREE ~ [www.subscribe-rdhmag.com](http://www.subscribe-rdhmag.com)

ACCESS

FREE with Membership

*Journal of Dental Hygiene*

FREE with Membership

### THE AMERICAN DENTAL HYGIENISTS' ASSOCIATION

1-800-243-ADHA • [adha.org](http://adha.org)

*Online National Dental Hygiene List Serves/ Groups/Resources:*

[www.dentalcompare.com](http://www.dentalcompare.com) – Electronic hygiene newsletter, product comparison site and more!

[www.hygienetown.com](http://www.hygienetown.com) – join an electronic hygiene community with a vast variety of topics!

[myrdh.com](http://myrdh.com) – Click on purple ribbon to join as a RDH “lister”

[Subscribe-hygienists@adha.net](mailto:Subscribe-hygienists@adha.net) – moderated by ADHA go to [www.adha.org](http://www.adha.org) to join

[www.In2Hygiene.com](http://www.In2Hygiene.com) – A ‘MySpace’ with ‘teeth’!

## X. Product Resources

### A. Diagnostics

1. OralCDx: Sullivan-Schein; VizaLite: Zila; VelScope: LED Dental, Inc.
2. Diamond Probe 2000: PerioDigm at 888-737-4620
3. BANA Test: OraTec Corp. at 800-368-3529

### B. Local Delivery – online comparison/list at:

<http://www.dentalcompare.com/matrix/310/Periodontal-Pocket-Therapies.html> .

### C. Oral Malodor Complete Product Lines

#### 1. **Discus Dental - BreathRx Products at 800-826-9711**

Active Ingredients: Thymol; eucalyptol; zinc and cetylperidium chloride (CPC in mouthrinse and tongue gel/spray only). *Now available retail!*

Product line includes: Prophy Pak includes tongue scraper, education sleeve with whitening information and floss with or w/o prophy tools; mouthrinse; floss; tongue spray; tongue scraper; patient starter kit; mints; chewing gum; toothpaste; in addition to take home & professional Fluoridex fluorides, Protégé ultrasonic inserts, hand instruments & PerioRx/ chlorhexidine gluconate..

#### 2. **Oxyfresh - Oxyfresh Products - individual distributors**

Active Ingredient: chloride dioxide.

Product line includes: toothpaste; mouthrinse with or without fluoride and/ or zinc; dental gel with aloe; mints; tongue scraper and toothbrush.

#### 3. **Rowpar Pharmaceuticals - CloSYS Products at 800-643-3337**

Active Ingredient: chloride dioxide.

Product line includes: toothpaste; mouthrinse; oral spray; tongue scraper; patient starter kit.

#### 4. **U.S. DenTek - Breath Remedy - OTC**

Active Ingredient: benzalkonium chloride.

Product line includes: mouthrinse; toothpaste; tongue spray; breath drops & tongue scraper.

#### 5. **Damon System Braces** - locate a Damon orthodontist at [www.damonbraces.com](http://www.damonbraces.com)

## XI. Seminar Bibliography and Resources Available Upon Request

Many supporting articles and resources can be accessed at [www.EducationalDesigns.com](http://www.EducationalDesigns.com) – for bibliography, please e-mail [info@educationaldesigns.com](mailto:info@educationaldesigns.com)

See related articles at: <http://www.dentalcompare.com/featuredarticle.asp?articleID=153> and

<http://www.dentalcompare.com/featuredarticle.asp?articleID=158> - HYGIENE/PERIO Dentalcompare

Presents past feature located at [www.dentalcompare.com](http://www.dentalcompare.com)

## Full Mouth vs. Quadrant (Partial Mouth) Periodontal Therapy

Full-mouth disinfection (FMD) was introduced in 1995 and was designed to target intraoral niches and periodontal pockets and reduce the likelihood of reinfection of previously treated areas.

### **Partial Mouth Protocol:**

- Traditional quadrant scaling and root planing over a 6 week period of time at 2 week intervals
- 4 – 6 consecutive sessions
- Quadrant or sextant therapy
- Reinfection potential?
- Patient/ Client centered approach?

### **Research Protocol - FMD:**

- Scaling and root planing 4 quads in 24 hours with hand instruments
- Application of chlorhexidine to all intra-oral niches
- Tongue disinfection
- 2x a day rinse and/or spray of buccal mucosa and tonsil area combined with daily tongue disinfection

### **Research on the efficacy of FMD has proven that this protocol:**

- Improves probing depth and increases clinical attachment for up to 8 months.
- Reduces oral malodor
- Decreases spirochetes and motile organisms in subgingival flora
- Eliminates *P. gingivalis*

### **FMD provides the following additional benefits:**

- Fast-tracking of aesthetic treatment
- Rapid healing and/or assessment for surgical intervention
- Facilitates client-centered approach
- Minimizes time spent in Phase I therapy by facilitating control of treatment planning and patient compliance



*Contemporary research on adjunctive therapies always begins with full-mouth therapy that is completed in one to two weeks using both hand and powered instrumentation. This substantial body of research utilizing this process of care provides the full rationale to accelerate periodontal instrumentation in daily practice.*

❖ **Optimal Oral Health** - *A standard of health of the oral and related tissues which enable an individual to eat, speak, or socialize without active disease, discomfort or embarrassment and which contributes to general well-being and overall health – ADHA, 1999.*

## PROPOSED ACCELERATED INSTRUMENTATION PROTOCOL:

*2 appointments of appropriate length scheduled within 24 hours – to 2 weeks • ½ mouth per appointment*

1. Pre-procedural antimicrobial rinse for 30 seconds
  2. Anesthesia administration/ pain control procedures
  3. Instrumentation
    - a. Powered instrumentation with self-contained water / medicament reservoir and antimicrobial irrigant
    - b. Hand instrumentation
  4. Placement of locally delivery/ control release medicaments
  5. Tongue deplaquing/ scraping with antimicrobial/VSC neutralizing agent
  6. Post-procedural rinse for 30 seconds with antimicrobial/VSC neutralizing agent
  7. Professional fluoride treatment/ application
  8. 2 to 3 month evaluation
    - a. Utilization of diagnostic devices to assess clinical outcome
    - b. Placement of local delivery / controlled release agent for nonresponsive sites / or prescription for subgingival dosage doxycycline:
      - i. 2.5 mg chlorhexidine chip
      - ii. 10% doxycycline gel
      - iii. 1 mg minocycline microsphere power
      - iv. 20 mg systemic/ subgingival dosage doxycycline bid
    - c. Appropriate recare schedule
  9. Re-evaluation at appropriate time with referral for non-responsive cases.
- *Daily oral hygiene should include toothbrushing; interdental cleansing and tongue deplaquing along with appropriate adjunctive chemotherapy for caries prevention, sensitivity control and antimicrobial benefits.*

## IMPLEMENTING & INTEGRATION:

- Full-mouth disinfection, or accelerated instrumentation, accounts for a client- and clinician centered approach to periodontal therapy that maximizes clinical outcomes while providing immediate benefits.
- Utilization of ultrasonics in FMD protocols will greater increase the likelihood of success and provide patients with the high-tech therapy they appreciate and deserve.
- Completing periodontal instrumentation within 1 to 2 weeks is an easy factor to control that will lend to fast-tracking aesthetic treatment plans, healing, and referral.