Top Trends in Periodontology

Vermont State Dental Society
Burlington, VT
September 19, 2019

Rebecca S. Wilder, RDH, MS
Professor & Assistant Dean: Professional Development & Faculty Affairs
Editor-in-Chief: Journal of Dental Hygiene
Executive Leadership Coach
UNC Adams School of Dentistry
Chapel Hill, NC 27599-7450
(919) 537-3766
rebecca_wilder@unc.edu
Evidence-based publications/websites for information on products/treatments

1. **PubMed**: [www.pubmed.gov](http://www.pubmed.gov)
2. **American Academy of Periodontology**: [www.perio.org](http://www.perio.org)
   - *Journal of Periodontology*
     - Guidelines for Referral-2006
     - Comprehensive Periodontal Therapy 2010
3. [www.blackwellpublishing.com](http://www.blackwellpublishing.com)
   - *Journal Clinical Periodontology*
     - Periodontology 2000
     - *International Journal of Dental Hygiene*
5. **International/American Association for Dental Research**: [www.dentalresearch.org](http://www.dentalresearch.org)
   - *Journal of Dental Research*
     - Advances in Dental Research
6. **American Dental Association**: [www.ada.org](http://www.ada.org)
   - ADA Center for Evidence-Based Dentistry [http://ebd.ada.org/en/](http://ebd.ada.org/en/)
   - *Journal of the American Dental Association*
   - **NEW PUBLICATION**: Evidence-based clinical practice guidelines on nonrestorative treatments for carious lesions. JADA October 2018
7. **American Dental Hygienists’ Association**: [www.adha.org](http://www.adha.org)
8. **Canadian Dental Hygienists’ Association**: [www.cdha.ca](http://www.cdha.ca)
   - *Canadian Journal of Dental Hygiene*
9. **Cochrane Collaboration**: [www.cochrane.org](http://www.cochrane.org)
11. **American Heart Association**: [www.americanheart.org](http://www.americanheart.org)
Informative Corporate Websites

12. Procter & Gamble Company: www.dentalcare.com
   Journal of Contemporary Dental Practice
17. PreViser™ -- http://www.previsor.com
20. GC America-- www.gcamerica.com

*List is not all-inclusive. Handout is not to be reproduced without permission from the speaker. 2019

Recent noteworthy publications for Clinical Practice:

**Definitions:**

**Evidence based practice:** EB practice is an approach to the care and treatment of patients wherein the health professional includes the "conscientious, explicit, and judicious use of the most current, best evidence in making clinical decisions regarding the care of individual patients." Evidence-based practice is a process that restructures the way health professionals think about clinical problems. Traditionally, health professionals have placed high value on their accumulated personal knowledge and adherence to long-held standard practices when making clinical decisions. Conversely, an EB approach encourages the professional's integration of the resulting knowledge with clinical expertise and patient preferences to determine the best treatment for individual patients. EB practice therefore requires the blending of research knowledge with provider experience.1-5

---

**Comprehensive Periodontal Therapy—Updated in 2010: Available at**

**Comprehensive Periodontal Examination**

- Scope of Periodontal Therapy
- Periodontal Evaluation
- Establishing a Diagnosis, Prognosis, and Treatment Plan
- Informed Consent and Patient Records
- Treatment Procedures
- Evaluation of Therapy
- Factors Modifying Results
- Periodontal Maintenance Therapy
Common Antimicrobials Agents and How They Affect Biofilm Development and Adhesion

Cetylpyridinium Chloride (CPC): Works by rupturing the cell wall and altering the cytoplasm. CPC also decreases bacterial attachment to the pellicle.

Chlorhexidine (CHX): Works by binding to the pellicle and interfering with salivary mucin function to prevent biofilm accumulation. CHX causes cell lyses and the bacteriostatic concentrations interfere with the cell wall transport system.

Chlorine Dioxide: Works by neutralizing the volatile sulfur compounds that affect oral malodor so the agent is primarily used for cosmetic claims and not therapeutic benefits.

Essential oils (EO): Disrupts cell walls and inhibits bacterial enzymes. EO also decreases the pathogenicity of biofilm.

Stannous Fluoride: The tin ion binds to the bacterial surface which prevents colonization. Also, the accumulation of tin affects the metabolic activity of bacteria and alters cellular aggregation and metabolism.

Zinc Citrate: Zinc citrate or zinc chloride can effect bacterial adherence, alter bacterial metabolic activity and reduce the rate of bacterial growth.

Triclosan and copolymer: With both antimicrobial and anti-inflammatory properties, triclosan and copolymer affect the microbial cytoplasmic membrane causing leakage of the cell contents.

References:

Clinical Practice Guidelines from the American College of Prosthodontists

Tooth-borne Dental Restorations

1. Professional Maintenance:
   (Removable and Fixed)
   - Perform an extraoral and intraoral health and dental examination of existing teeth and components of the prostheses and the prosthesis itself. Identify and correct clinical problems that could result in future complications.
   - Perform oral hygiene interventions (cleaning of all natural teeth and tooth-borne restorations) using professionally accepted mechanical and chemical methods.
   - Use oral topical agents and oral hygiene aids as deemed clinically necessary.
   - Fabricate an occlusal device to protect tooth-borne fixed restorations when indicated.

2. Patient Education and Maintenance:
   - Patients with existing natural teeth and teeth with multiple and complex restorations should be given oral hygiene instructions to brush twice daily with oral topical agents such as toothpaste containing 5000-ppm fluoride and/or toothpaste with 0.3% triclosan.
     - Add supplemental short-term use of chlorhexidine gluconate when indicated.
   - Recommend oral hygiene aids such as dental floss, water flossers, air flossers, interdental cleaners, and electric toothbrushes appropriate for the patient's needs.
   - Patients with occlusal devices should be advised to wear them during sleep, and clean them before and after use with a soft brush and the prescribed cleaning agent.
   - Patients with a removable prosthesis should be advised to remove the prosthesis during sleep, and store it in the prescribed cleaning solution.

3. Patient Recall
   - Recall for dental professional examination every six months as a lifelong regimen.
     - Patients identified as high risk are advised to obtain a dental professional examination more often than every six months.


©2016 American College of Prosthodontists. All rights reserved.

The American College of Prosthodontists thanks Colgate Oral Pharmaceuticals, a subsidiary of Colgate-Palmolive Company, for an unrestricted educational grant to develop these guidelines.
Clinical Practice Guidelines from the American College of Prosthodontists

Implant-borne Dental Restorations

1. Professional Maintenance:
   (Biological and Mechanical)
   - Perform an extraoral and intraoral health and dental examination of existing teeth and components of the prosthesis, and the prosthesis itself. Identify and correct clinical problems that could result in future complications.
   - Perform oral hygiene interventions (cleaning of natural teeth, tooth borne, implant borne restorations, or implant abutments) using professionally accepted cleaning instruments and powered glycine powder air polishing systems compatible with the implants and restoration materials.
   - Use chlorhexidine gluconate as the oral topical agent of choice when an antimicrobial effect is needed clinically.
   - Reassess the prosthesis contours to facilitate at home maintenance.
   - Prosthesis and prosthetic components that compromise function should either be adjusted, repaired, replaced or remade as needed.
   - Consider using new prosthetic screws when an implant-borne restoration is removed and replaced for maintenance.
   - Fabricate an occlusal device to protect implant-borne fixed restorations when indicated.

2. Patient Education and At-home Maintenance:
   - Patients with multiple and complex restorations should be given oral hygiene instructions to use oral topical agents such as toothpaste containing 0.3% triclosan.
     - Add supplemental short-term use of chlorhexidine gluconate when indicated.
   - Recommend oral hygiene aids such as dental floss, water flossers, air flossers, interdental cleaners, and electric toothbrushes appropriate for the patient's needs.
   - Patients with occlusal devices should be advised to wear them during sleep, and clean them before and after use with a soft brush and the prescribed cleaning agent.
   - Patients with implant-borne partial or complete removable restorations should be advised to remove the prosthesis during sleep and store it in the prescribed cleaning solution.

3. Patient Recall
   - Recall for dental professional examination every six months as a lifelong regimen.
     - Patients identified as high risk are advised to obtain a dental professional examination more often than every six months.

The American College of Prosthodontists thanks Colgate Oral Pharmaceuticals, a subsidiary of Colgate-Palmolive Company, for an unrestricted educational grant to develop these guidelines.

### Classification at-a-Glance

#### 2018 Classification of Periodontal and Peri-Implant Diseases and Conditions

**Periodontal Health, Gingival Diseases and Conditions**
- Periodontal Health and Gingival Health
- Gingivitis: Dental Biofilm-Induced
- Gingival Diseases: Non-Dental Biofilm-Induced

**Periodontitis**
- Necrotizing Periodontal Diseases
- Periodontitis
- Periodontitis as a Manifestation of Systemic Disease
- Periodontal Abscesses and Endodontic-Periodontal Lesions

**Periodontal Manifestations of Systemic Diseases and Developmental and Acquired Conditions**
- Systemic Diseases or Conditions Affecting Periodontal Supporting Tissues
- Mucogingival Deformities and Conditions
- Traumatic Occlusal Forces
- Tooth- and Prosthesis-Related Factors

**Peri-Implant Diseases and Conditions**
- Peri-Implant Health
- Peri-Implant Mucositis
- Peri-Implantitis
- Peri-Implant Soft and Hard Tissue Deficiencies
Three Steps to Staging and Grading a Patient

**Step 1: Initial Case Overview to Assess Disease**

- **Screen:**
  - Full mouth probing depths
  - Full mouth radiographs
  - Missing teeth

  Mild to moderate periodontitis will typically be either Stage I or Stage II
  Severe to very severe periodontitis will typically be either Stage III or Stage IV

**Step 2: Establish Stage**

- For mild to moderate periodontitis (typically Stage I or Stage II):
  - Confirm clinical attachment loss (CAL)
  - Rule out non-periodontitis causes of CAL (e.g., caries, root fractures, CAL due to traumatic causes)
  - Determine maximum CAL or radiographic bone loss (RBL)
  - Confirm RBL patterns

- For moderate to severe periodontitis (typically Stage III or Stage IV):
  - Determine maximum CAL or RBL
  - Confirm RBL patterns
  - Assess tooth loss due to periodontitis
  - Evaluate case complexity factors (e.g., severe CAL frequency, surgical challenges)

**Step 3: Establish Grade**

- Calculate RBL (% of root length x 100) divided by age
- Assess risk factors (e.g., smoking, diabetes)
- Measure response to scaling and root planing and plaque control
- Assess expected rate of bone loss
- Conduct detailed risk assessment
- Account for medical and systemic inflammatory considerations

## Staging and Grading Periodontitis

The 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions resulted in a new classification of periodontitis characterized by a multidimensional staging and grading system. The charts below provide an overview. Please visit [perio.org/2017wwdc](http://perio.org/2017wwdc) for the complete suite of reviews, case definition papers, and consensus reports.

### PERIODONTITIS: STAGING

Staging intends to classify the severity and extent of a patient's disease based on the measurable amount of destroyed and/or damaged tissue as a result of periodontitis and to assess the specific factors that may attribute to the complexity of long-term case management.

Initial stage should be determined using clinical attachment loss (CAL). If CAL is not available, radiographic bone loss (RBL) should be used. Tooth loss due to periodontitis may modify stage definition. One or more complexity factors may shift the stage to a higher level. See [perio.org/2017wwdc](http://perio.org/2017wwdc) for additional information.

<table>
<thead>
<tr>
<th>Periodontitis</th>
<th>Stage I</th>
<th>Stage II</th>
<th>Stage III</th>
<th>Stage IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interdental CAL&lt;br&gt;(at site of greatest loss)</td>
<td>1 – 2 mm</td>
<td>3 – 4 mm</td>
<td>≥5 mm</td>
<td>≥5 mm</td>
</tr>
<tr>
<td>RBL</td>
<td>Coronal third&lt;br&gt;(&lt;15%)</td>
<td>Coronal third&lt;br&gt;(15% - 33%)</td>
<td>Extending to middle third of root and beyond</td>
<td>Extending to middle third of root and beyond</td>
</tr>
<tr>
<td>Tooth loss&lt;br&gt;(due to periodontitis)</td>
<td>No tooth loss</td>
<td>≥4 teeth</td>
<td>≥5 teeth</td>
<td></td>
</tr>
</tbody>
</table>

### Complexity

- **Local**
  - Max. probing depth ≤4 mm
  - Mostly horizontal bone loss
  - Max. probing depth ≤5 mm
  - Mostly horizontal bone loss

- **In addition to Stage II complexity:**
  - Probing depths ≥6 mm
  - Vertical bone loss ≥3 mm
  - Furcation involvement Class I or II
  - Moderate ridge defects

- **In addition to Stage III complexity:**
  - Need for complex rehabilitation due to:
    - Masticatory dysfunction
    - Secondary occlusal trauma (tooth mobility degree ≥2)
    - Severe ridge defects
    - Bite collapse, drifting, flaring
    - < 20 remaining teeth
    - (10 opposing pairs)

### Extent and distribution

**Add to stage as descriptor**

- For each stage, describe extent as:
  - Localized (<30% of teeth involved);
  - Generalized; or
  - Molar/incisor pattern
PERIODONTITIS: GRADING

Grading aims to indicate the rate of periodontitis progression, responsiveness to standard therapy, and potential impact on systemic health.

Clinicians should initially assume grade B disease and seek specific evidence to shift to grade A or C. See perio.org/2017wwdc for additional information.

<table>
<thead>
<tr>
<th>Primary criteria</th>
<th>Grade A: Slow rate</th>
<th>Grade B: Moderate rate</th>
<th>Grade C: Rapid rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progression</td>
<td>Radiographic bone loss or CAL</td>
<td>No loss over 5 years</td>
<td>&lt;2 mm over 5 years</td>
</tr>
<tr>
<td>Indirect evidence of progression</td>
<td>% bone loss/age</td>
<td>&lt;0.25</td>
<td>0.25 to 1.0</td>
</tr>
<tr>
<td>Case phenotype</td>
<td>Heavy biofilm deposits with low levels of destruction</td>
<td>Destruction commensurate with biofilm deposits</td>
<td>Destruction exceeds expectations given biofilm deposits; specific clinical patterns suggestive of periods of rapid progression and/or early onset disease</td>
</tr>
<tr>
<td>Grade modifiers</td>
<td>Risk factors</td>
<td>Smoking</td>
<td>Non-smoker</td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>Normoglycemic/no diagnosis of diabetes</td>
<td>HbA1c &lt;7.0% in patients with diabetes</td>
</tr>
</tbody>
</table>

The 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions was co-presented by the American Academy of Periodontology (AAP) and the European Federation of Periodontology (EFP).
Free Publications

5. Special issue: Periodontitis and Systemic Diseases - Proceedings of a workshop jointly held by the European Federation of Periodontology and American Academy of Periodontology. Volume: 84, Number: 4-s April 2013

Free Patient Resources:

American Diabetes Association: Cardiovascular Disease Toolkit http://professional.diabetes.org/ResourcesForProfessionals.aspx?typ=17&cid=60459

- All about Pre-diabetes
- Getting the Very Best Care for your Diabetes
- Taking Care of Type 2 Diabetes
- All About Your Blood Glucose for People with Type 2 Diabetes
- All About Insulin Resistance
- Protect Your Heart: Make Wise Food Choices
- Protect Your Heart: Choose Fats Wisely
- Protect Your Heart: Cook with Heart Healthy Foods
- Protect your Heart: Check Food Labels to Make Heart-Healthy Choices
- Protect Your Heart by Losing Weight
- Recognizing and Handling Depression for People with Diabetes
- Treating High Blood Pressure in People with Diabetes
- Taking Care of Your Heart
- Know the Warning Signs of a Heart Attack
- All About Stroke


- Burning Mouth Syndrome
- Cancer Treatment and Oral Health
- Cleft Lip and Palate
- Developmental Disabilities and Oral Health
Diabetes and Oral Health
Dry Mouth (Xerostomia)
Fillings (Amalgams)
Fluoride
Genetics
Gum (Periodontal) Diseases
Heart Disease and Oral Health
HIV/AIDS
Oral Cancer
Organ Transplantation and Oral Health
Pain (oral, facial)
Pregnancy and Oral Health
Saliva and Salivary Gland Disorders
Sjögren's Syndrome
Spit (Smokeless) Tobacco
Taste Disorders
TMJ (Temporomandibular Joint and Muscle Disorders)
Tooth Decay (Caries)