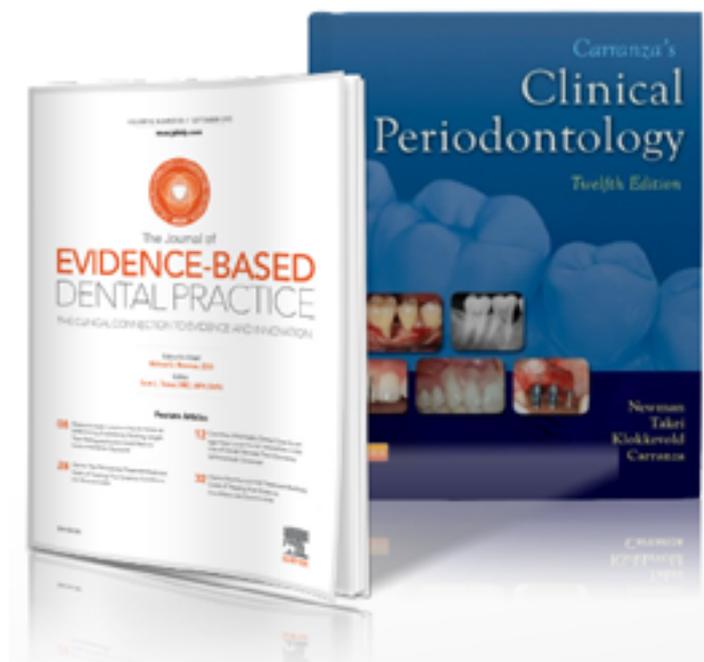


# Trends in Clinical Periodontology and Implant Dentistry

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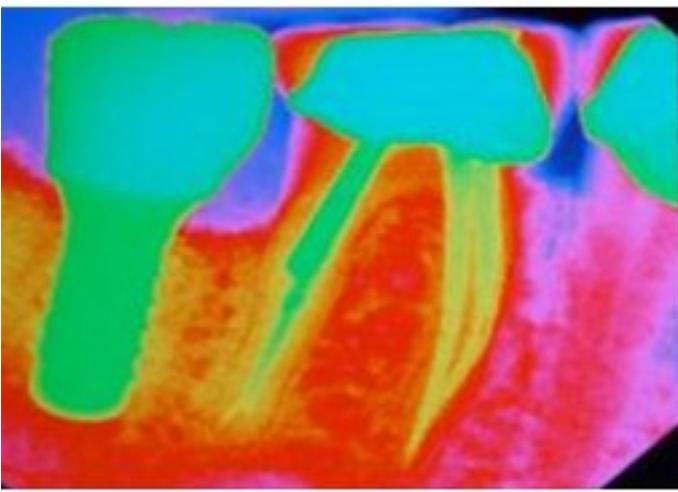
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## FEATURED NEWS

**|Author| Susan Wingrove, RDH, BS.**

The American College of Prosthodontists' Clinical Practice Guidelines: Recall and Maintenance of Patients with Tooth-Borne and Implant-Borne Dental Restorations: Remarks from a Member of the Scientific Panel ([/content/american-college-prosthodontists%E2%80%99-clinical-practice-guidelines-recall-and-maintenance](#))

The American College of Prosthodontists' (ACP) recently published clinical practice guidelines (CPG) for recall and maintenance of patients with tooth- and implant-borne restorations. The unique feature of the ACP guidelines is that the focus was for maintaining the health of tooth- or implant-borne restorations. Considered outside the scope of the CPG's were associated conditions such as bruxism, xerostomia, periodontal disease, and peri-implant disease. Research-based evidence in the literature describing 'best practices' for oral hygiene self-care in the presence of peri-implant mucositis or peri-implantitis is lacking. Recommendations are often fashioned after the available evidence for preventing and managing periodontal conditions for natural teeth. For periodontally compromised patients with implants, please consult a recent systematic review (Salvi and Ramseier, 2015).



*Image courtesy of Daniel Orellana, DDS*

The ACP convened a scientific panel comprised of experts from 4 professional dental organizations, the American College of Prosthodontists (ACP), the American Dental Association (ADA), Academy of General Dentistry (AGD), and the American Dental Hygienists' Association (ADHA). The panel consisted of 7 dentists, with Diane Daubert and Susan Wingrove (author of this article and member of the scientific panel) representing the dental hygiene profession. The other non-dentist member was the executive director of the American College of Prosthodontists.

The target audience for use of these guidelines are general dentists, dental hygienists, prosthodontists, dental specialists, other dental health care providers, allied health professionals, nurses, social workers, students, patients, medical / dental insurance carriers and public health departments.

Recognizing that a customized lifelong professional recall regimen is essential for patients with complex tooth-and implant-borne restorations to provide biological and mechanical maintenance. The scientific panel considered the benefits, harms, and contraindications for the overall oral health of these patients. The consequences of risk for failure of tooth-borne and implant-borne restorations were a particular focus.

Using the literature to develop the CPG, the ACP applied a widely-used rating system (Shekelle et al, 1999). This system categorizes the evidence based upon the study design type or expert evidence and, on that basis, also classifies the strength of recommendations offered.

Resources utilized in developing the Clinical Practice Guidelines (CPG) (Bidra et al, 2016a) included 2 systematic reviews (Bidra et al, 2016b) (Bidra et al 2016c) along with critical evaluations of the literature by the expert panel who arrived at group consensus following detailed discussion. The tooth-borne restoration review included 16 articles from January 1, 1999 to December 31, 2014 (Bidra et al, 2016b) The implant-borne restoration review consisted of 20 articles from January 1, 2004 to December 31, 2014. (Bidra et al, 2016c).

Each point of the CPG's was discussed by the scientific panel to carefully consider the benefits, harms, and contraindications for improving the overall oral health of patients including their natural teeth, tooth- and implant-borne restorations. Contraindications included allergies and side-effects related to home-care products for patients.

In the CPG's, specific guidelines for professional and at-home maintenance for tooth-borne restorations are divided into management of fixed and removable restorations. The CPG's for implant-borne restorations are divided into professional and at-home maintenance, biological and mechanical, and fixed and removable restorations. Biological refers to the patient's oral cavity while mechanical pertains to the prosthesis itself.

Highlights of the CPG's are outlined in this article and a general summary of highlights that apply to both tooth- and implant-borne restoration patients can be found in Box 1 (full guidelines (Bidra et al, 2016a)).

### **Box 1. Summary Highlights for Clinical Practice Guidelines for Tooth- and Implant- Borne Restorations**

✓ **Recall - Provide at least every 6 months.** Patients in higher risk category based on age, ability to perform oral self-care, biological or mechanical complications of remaining natural teeth, tooth- and implant-borne restorations should be advised to obtain a dental professional examination more often than every 6 months, depending upon the clinical situation.

✓ **Professional Maintenance** – Patients with both tooth- and implant-borne restorations are recommended to obtain a professional extraoral and intraoral dental examination, prophylaxis, oral hygiene for the restoration (prosthesis) and use of topical agents as deemed clinically necessary.

- Use powered instruments such as the glycine powder air polishing system, biofilm remover.
- When clinical signs indicate need for occlusal devise, educate & fabricate an occlusal devise to protect fixed restorations. Patients with fixed restorations that have prescribed night time occlusal devised should be advised to wear during sleep.
- For fixed restorations (prosthesis) a detailed examination should be included of the prosthesis and education of patient for any foreseeable problems that could impair optimal function.

✓ **At-home Maintenance** - Patients with restorations should be educated to brush twice daily and use oral hygiene aids: dental floss, water flosser, air flossers, interdental cleaners, and electric toothbrushes.

Other specific highlights of the CPG's are:

### **Tooth-Borne Restorations**

**Professional maintenance: Tooth-borne restorations and At-home maintenance** follow the same recall, professional maintenance and at-home maintenance guidelines in Box 1.

**Professional maintenance: Tooth-borne removable restorations** (i.e. partial dentures) should include examination of the prosthesis, debrided extraorally with acceptable mechanical and chemical methods per type of restoration (prosthetic) material.

Patients should be instructed to sleep without the removable restoration (prosthesis) and be educated on proper prescribed cleaning solution as determined by the type of removable restoration.



*Image courtesy of Marcelo Freire, DDS, PhD, DMSc*

Additionally, with new prosthetic materials for partials, retainers and orthodontic correction devices, new tartar and stain removal chemical products are required that do not harm the prosthesis. This recommendation was particularly emphasized by the expert panel.

**Professional Maintenance: Tooth-borne fixed restorations** will include intracoronal/extracoronal restorations, veneers, single crowns, and partial fixed dental prostheses.

Guidelines are the same as seen in Box 1. Clinicians should also provide a professional prophylaxis including examination of the fixed restoration (prosthesis).

**At-home maintenance: Tooth-borne removable and fixed restorations** will require patient education according to the guidelines listed in Box 1. As a result of panel consensus, specific Instructions should include brushing twice daily, the use of oral hygiene devices: dental floss, water flosser, air flossers, interdental cleaners, and power toothbrushes.

Careful consideration of these guidelines by the scientific panel were based on the importance of biofilm removal and its link to oral systemic disease that

strengthens the use of particular oral hygiene devices with significant studies to support their use. (Swierkot et al, 2013; Wingrove 2013; Goyal et al 2013; USFDA, 2016)

**At-home maintenance: Tooth-borne fixed restorations** require patient education according to guidelines listed in Box 1. For multiple and complex restorations on existing teeth suggest that patients should be advised about the use of oral topical agents such as 5000 ppm fluoride, 0.3% Triclosan, and short-term use of chlorhexidine gluconate only when indicated.

The use of 0.3% Triclosan is based on reviews by the U.S. Food and Drug Administration deeming Triclosan safe to use and with a demonstrated health benefit, but many still have concerns regarding its safety and additional research is needed. Therefore, according to studies, Triclosan is only indicated for patients at high risk of oral disease (USFDA, December 5, 2016; Yee and Gilbert, 2016).

Chlorhexidine gluconate is only approved by FDA supragingivally for infections, only for short term use, and only used when necessary. Side effects could include; stain on natural teeth and/or restoration (prosthesis), alteration of taste, increased calculus formation, and poor compliance due to unpleasant taste (Drake et al, 2011).

**At-home maintenance: Tooth-borne removable restorations.** These patients should be educated with the guidelines listed in Box 1. Specifics should include examination of the prosthesis, cleaned by the patient extraorally with acceptable mechanical and chemical methods per type of prosthetic material.

Patients should be instructed to take out the removable restoration (prosthesis) before sleep and be educated on proper prescribed cleaning solution based on the removable restoration.

### **Implant-Borne Restorations**

**Professional maintenance: Implant-borne restorations (prostheses) and At-home maintenance** follow the same recall, professional maintenance and at-home maintenance guidelines in Box 1.

**Professional maintenance: Implant-borne restoration removable and fixed biological and mechanical** require specific guidance regarding debridement instruments compatible with the type and material of the implants, abutments and restorations, and powered instruments such as the glycine powder air polishing system.

Titanium implant scalers are recommended for titanium implants with multiple studies to support this guideline (Wingrove, 2013, Avila-Ortiz, 2013; Ramaglia et al, 2006).

There are also studies to support the use of a powered air polishing instrument to remove biofilm using glycine powder (Daubert, 2013); however, air polishing does not remove calculus. Today's air polishing systems differ greatly from earlier equipment since different powders are used, and a smaller particle size (Glycine, 25 microns) makes the procedure comfortable and safe for the patient.

**Professional maintenance: Implant-borne restorations (prostheses) biological implant-borne removable-** See guidelines listed on Box 1. Specific guidelines should include examination of the prosthesis which should be cleaned extraorally with acceptable mechanical and chemical methods per type of restoration/prosthetic material.

Patients should be instructed to take out the removable restoration (prosthesis) before sleep and be educated on the proper prescribed cleaning solution based on the removable restoration. Follow the cleaning recommendation including the proper tartar and stain remover based on type of restoration/prosthetic material.

**Professional maintenance: Implant-borne restorations (prostheses) mechanical implant-borne removable-** the guidelines are listed in Box 1. Specific guidelines recommend that professionals adjust, repair, replace or remake any or all parts of the prosthesis and prosthetic components that could compromise function.

**Professional maintenance: Implant-borne restorations (prostheses) biological implant-borne fixed restorations** including implant-supported single crowns, partial fixed dental prostheses, and implant-supported complete fixed arch prostheses.

Patients should be educated per the guidelines listed in Box 1. The patient's inability to perform adequate oral hygiene suggests that it be professionally removed so that the contours of the prosthetic can be reassessed/reconfigured to facilitate at-home maintenance.

Professionals should also consider using new prosthetic screws when an implant –borne restoration is removed and replaced at the professional biological maintenance appointment.

**Professional maintenance: Implant-borne restorations (prostheses) mechanical implant-borne fixed restorations-** in addition to listings in Box 1, patients with multiple and complex restorations on existing teeth should be advised to use oral topical agents such as 5000 ppm fluoride, 0.3% Triclosan (from systematic reviews), and short-term use of chlorhexidine gluconate when indicated.

Many questions have arisen regarding the guideline to use 5000ppm fluoride for implant-borne restoration patients. The fluoride recommendation is specifically within the *professional maintenance guideline category* which means a 5000ppm toothpaste will be professionally prescribed per the following specifications. The specification for unsafe use of fluoride with implants is highly concentrated sodium fluoride (APF) > 3.0 **combined** low pH (acidic) that can remove the oxide layer on implants which can make the titanium prone to corrosion (Wingrove, 2013, Nakagawa et al, 1999; Matono et al, 2016).

To summarize these specifics, Sodium fluoride > 3.0 is only available by prescription and currently the recommendation is for sodium fluoride > 3.0 is to have a **neutral pH** to be safe for long-term use with implants. Triclosan is only

indicated for patients at high risk of oral disease, and Chlorhexidine gluconate should only be used when necessary (USFDA, 2016; Yee and Gilbert, 2016; Drake et al, 2011).

**At-home maintenance: Implant-borne restorations (prostheses) removable and fixed restorations** should be educated as listed on Box 1.

Implants are considered rough surfaces, and according to biofilm engineering studies, hold more biofilm (microbes) than smooth surfaces. Therefore, careful consideration of the guideline for patients with restorations includes education to brush twice daily and use oral hygiene devices: dental floss, water flosser, air flossers, interdental cleaners, and power toothbrushes (Quirynen et al 2002).

**At-home maintenance: Implant-borne restoration (prosthesis) removable** should be according to the guidelines listed in Box 1. Specifically, patients should be advised to clean their intraoral implant components and removable prosthesis twice daily, using a soft brush. The implant component determines the recommended oral topical agent and prescribed cleaning solution.

The ACP, clinical practice guidelines were written with a scientific panel of experts appointed by the ACP, ADA, AGD, and ADHA. Based on two systematic reviews and careful analysis of best clinical practices, feasibility and risk-benefit ratio for patients are reflected in the Clinical Practice Guidelines for recall and maintenance with tooth- and implant borne restorations. The ACP guidelines are available in the Journal of Prosthodontics, reproduced in Journal of Dental Hygiene through agreement with ACP. These guidelines are a baseline with additional updates when new significant evidence becomes available.

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