Focus on Dental Implant Success-
Maintenance and Home Care
Susan S. Wingrove RDH, BS  April 22, 2016

Entire Team—Identify and confidently talk with patients about their treatment options and the benefits of implants for tooth replacement.

Hygienist’s Role: Assess, Identify, and Maintain
1. Speak to patients on tooth replacement and implants options
2. Assess and monitor implant tissue and bone health
3. Maintain implants, recommend home-care protocols, and recognize the signs of peri-implant disease.

Identify Existing Patients—Do Chart Review
- Missing one of more teeth with no replacement
- Patients with fixed bridge, partial, or denture
- Patient with failing root canal
- Patients with ‘baby teeth’ or congenitally missing teeth

Bone Density; determines healing time and how the area is restored
D1 Bone: Compact dense cortical bone, 3-4 months healing time, Oak.
D2 Bone: Porous compact cortical bone, 3-4 months healing, Spruce/ white pine.
D3 Bone: Course trabecular-less cortical bone, 4-6 month healing time, Balsa wood.
D4 Bone: Fine trabecular-minimal cortical bone, 6-9 month healing time, Styrofoam.

Wolf’s Law: Bone must be stimulated to be maintained.

Summary
To place implants successfully you need BONE / Tissue
TISSUE FOLLOWS BONE!

Key Points on Tooth Replacement with Implants
- Bone width decreases 25 % in the first year after a tooth is lost or extracted
- Bone height decreases 4mm in the first year
- 40-60 % of ridge width can be lost in first 2-3 years
- 0.5%-1% bone continues to resorb yearly for the patient’s life
- Over 60% of partial denture patients do not wear their partials after 4 years
- Only 35% still wear partials after 10 years
- Loss of clasp/attachment teeth 44% in 10 years
**Summary of Treatment Options: Advantages/ Disadvantages**

<table>
<thead>
<tr>
<th>Treatment Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>Implants</td>
<td>Preserves bone and maintain facial structure. Speak and eat with confidence</td>
<td>Potentially longer time to complete a phased treatment plan.</td>
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<tr>
<td>Permanent Bridge</td>
<td>Less time to complete treatment</td>
<td>Requires grinding down of healthy adjacent teeth and loss of bone under pontic. Replacement needed about every 10 years</td>
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<tr>
<td>Partial Denture</td>
<td>Less time to complete treatment</td>
<td>Tooth and bone loss Cont. Does not preserve bone and facial structure preservation.</td>
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<tr>
<td>Denture</td>
<td>Less time to complete treatment</td>
<td>Extensive bone loss and facial structure—premature aging appearance. Difficulty to taste and chew.</td>
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**Implant Designs: Transosteal, Subperiosteal, & Endosteal (Root Form)**

Endosteal: Including TAD implants & Mini Implants

- Placed directly into the jawbone
- May replace one or more teeth
- Available in a variety lengths, diameters, and designs
- Threaded and cylinder (press-fit)
- Restoration-Prosthesis is attached

**Restorative Options; what does the patient want?**

- Removable by the patient—Overdentures
- Non-removable by the patient—Crowns, Bridges, Full fixed (All-on-4™, Pro Arch™)
- Cemented or Screw retained
- Fixed/ Removable by Dental Professional (All-on-4™, Pro Arch™)
  - Secured on 4 or more implants
  - Maintains bone and reduces need for bone grafting
  - Restores esthetics, chewing, and taste sensation

**Develop Treatment Options: Discuss when Doctor does exam**

- Define patient’s needs and expectations
- Understand patient’s motivation and time commitments
- Present all treatment and prosthetic options
- Outline final treatment plan with Doctor
- Patient accepts treatment or is schedule for Consult

*It may not be the ideal treatment, be sure it is what the patient wants!*

**Current Research**

ACP- American College of Prosthodontists Guidelines & Systematic Reviews


Summary—Current Research for Safe Instrumentation

- Titanium Scalers are the instruments of choice, due to biocompatibility ‘like metals’.
- Ideal made of medical grade titanium/ Rockwell hardness of < 40.
- To Probe or Not to Probe— Wait 6 months following restoration/prosthesis
- Implant Surfaces—Machined versus Roughened-Roughened is surface of choice
- Biocompatible Implant Surface Treatments found on over 80% of implants
- Ultrasonic scalers can be used for lavage AVOID the implant surface and prosthesis.
- Lasers by hygienists are currently not recommended around implants.

*Key References-Current Research for Safe Instrumentation Available upon request

Implant Maintenance

Peri-Implant Maintenance Steps for Success

- Review patient’s medical history
- Assess and monitor the implant
- Safe instrumentation of implants
- Make home-care recommendations

Is the patient contraindicated for implant therapy?

- Controlled diabetic or periodontal patients are good candidates
- Evaluate patients who are immunosuppressed, taking anticoagulants, steroids, or bisphosphonates case by case.

Medical History / Risk Assessment: Chair-side tests for risk factors

- BON (osteonecrosis) risk level— (Serum CTx (C-telopeptides
- C-Reactive Protein (hsCRP) – Inflammation
- Diabetes – HbA1C (Glucose and HbA1c) Detect diabetes
- Perio-Metabolic Profile (Comprehensive test for 8 risk factors) – Periodontal disease, heart disease, and diabetes
- Vitamin D test—indicator of potential health risks of systemic diseases

Five Step Assessment Protocol

- Visual soft tissue assessment
- Probe and/or palpate for signs of infection
- Assess for calculus and cement
- Assess for mobility and/or pain
- Assess for bone level


Guidelines for Probing

Use a flexible probe, record baseline at 6 months post loading and gently probe using light 0.15N of pressure. Record if inflammation, bleeding, cement, or exudate is present.

Palpating Implant for Signs of Infection

- Place a finger on buccal and lingual of the ridge just below the implant
- Keeping pressure on each side of the ridge, move upward toward the implant restoration
• If the implant is infected, pus or blood will ose up from the sulcus surrounding the implant

**Assess for Calculus and/or Cement**

• Insert floss in contacts on both sides of the implant, wrap floss in circle and criss-cross in front.
• Move in shoe shine motion in peri-implant crevice.
• Check floss- If frayed or roughened- Calculus and/or cement is present.

**Assess the Implant- Mobility and Pain**

• Use 1-2 mirror handles to gently assess the implant crown(s).
• Ask the patient if they are experiencing pain around implant (VAS scale 1-10).
• Doctor evaluate for occlusal trauma, loose screw, lack of osseointegration, may need to be referred back to surgeon.
• If mobility or pain- take radiograph to assess the sources.

**Asses the Implant- Bone Level “Final Step is Critical!”**

• Take a radiograph to accurately monitor crestal bone level around the implant(s) by using a measurable device.
• Look for unexplained bone loss if crater appearance, cement could be the cause.
• Measure any bone loss for sign of peri-implantitis

**Guidelines for Radiographic Monitoring**

1-4 Implants: Make Vertical Bitewing or Periapical (PA) of each implant.
5 or more implants: panorex or individual PA’s of all implants.

**Note:** All taken at implant placement, cover screw, restoration, 6 months and 1 year, continue on 1-year intervals.

**3D Technology—Implant Dentistry:** CBCT (Cone beam computed tomography) facilitates detection of bone lesions on the facial, lingual, and proximal aspects. If unexplained inflammation is identified for 2 consecutive recare visits—obtain a CBCT

**Summary- Maintenance X-Ray Protocol**

• Parallel images showing threads clearly
• Once a year post load-bone loss 0.5-1.0mm
• Interceptive treatment if additional bone loss >2mm.
• CT Scan if signs of Peri-Implant disease
• Subsequent radiographs if pocketing/ infection
• COPY of all radiographs to treating surgeon

**Instrumentation Protocols**

**Narrow Base Implants**- Scale with longer, multi-bent implant scaler (e.g. Wingrove L3-4) using short horizontal strokes to dislodge if calculus present on these implants, crowns/bridge or frameworks.

**Wide Base Implants**- Scale with universal posterior implant scaler (e.g. Wingrove B5-6) using short horizontal strokes to dislodge if calculus present on implants, crowns or bridge.

**Single implant, ball / locator attachment, bar-retained implants (includes Mini implants)** - Scale with designated implant scaler (e.g. Wingrove N128-L5 mini) using short horizontal strokes if calculus present. Debride the screw indentation on top of bar and in locator implant with tip of designated instrument (e.g. Wingrove N128-L5mini).
Exposed threads - Posterior or anterior implants scale any exposed threads with shorter radius blade tip of an implant scaler (e.g. Wingrove N128-L5mini) in horizontal side-to-side motion one thread at a time gently like stairs.

Full Fixed Prosthesis/ Supra Structures (includes All-on-4™) - Scale with longer multi-bent blade implant scaler (e.g. Wingrove L3-4) using short horizontal strokes.

Mucositis/ Implantitis - Debride with proper implant scaler for the design of implant/ prosthesis. Apply antimicrobial 2-4 times daily. Re-evaluate in 3-6 weeks.

Peri-Implant Hyperplasia - Non-surgical. Debride with titanium implant scaler. OHI- rubber tip stimulator, apply antimicrobial 2 times daily, and recommend 3-4 month recare schedule.

Cement Residue - Debride with titanium implant scaler to dislodge the cement using short horizontal strokes (e.g. Wingrove N128-L5mini) and curette any granulation tissue.

Polishing Protocol - Use rubber cup, not brush with non-abrasive paste. Aluminum oxide, Tin Oxide, APF free prophy paste (e.g. Silica prophy paste ideal).

Recare Implant Maintenance Interval
- First year every 3 months
- After first year every 4-6 months if healthy & if any health risks or inflammation / bone loss recommend every 3 months.

GPAP—Subgingival Air Polishing Protocol – Air-n-Go Perio Easy®, EMS Air-Flow® proven safe for implants with use of Perio glycine powder. Use first prior to implant maintenance to remove biofilm. Insert implant safe tip into peri-mucosal seal carefully and active the tip 5 seconds per site. Not intended to remove calculus, compliments power and hand scalers in elimination of biofilm.

*Daubert, D. Subgingival Air Polishing—Use of glycine powder with New Technique may offer benefits to periodontal and implant maintenance therapy. Dimension of Dental Hygiene Journal December 2013

New Techniques - Varnish for Implants
Cervitec® Plus (Ivoclar Vivadent)
- 1% CHX and Thymol
- Targeted application-Clear
- Effective bacterial control for exposed areas
- Difficult to reach areas
- Proven studies on bio-compatibility with titanium implants

Removable Prosthesis
- Ask patient to remove overdenture
- Observe, difficult or too easily removed?
- Flip overdenture over, assess for worn or missing O-rings, caps, and /or clips
- Replace if needed, O-ring, Locator caps recommended once a year, clips as needed.


Unique Products for Implant Maintenance-
Air-n-Go Perio Easy®, Perio glycine powder- biofilm remover (Acteon), OptraGate, Cervitec Plus Varnish, Proxyt (Ivoclar Vivadent), Wingrove Titanium Implant Scalers Go-to-Kit (PDT), Pro Polish (Directa).

Key References for Implant Maintenance available upon request
Home Care Protocols

Biofilm

Implants more susceptible to inflammation and bone loss from bacterial Plaque

BioFilm and Peri-Implant Disease

- Gram-negative anaerobic bacterial infiltrate within biofilm. Organisms from these are found both periodontal and peri-implant disease.
- Systemic diseases and medications that induce xerostomia can cause bacterial plaque accumulation and exacerbate disease.
- To eliminate Biofilm—need to Kill Bacteria, Break up Biofilm, and Eliminate VSC's (Toxins are toxic to tissues)

*R. Downs, J.Banas, M. Zhu An invitro study comparing a two-part activated chlorine dioxide oral rinse to chlohexidine. [Link](http://www.surgicalrestorative.com/articles/2015/01/an-effective-alternative-to-chlorhexidine.html)

Home-Care & Monitoring Guidelines

Starts with good post surgical care routine

Individualized home care routine—goal of keratinized tissue and daily removal of biofilm around implants.

*More in Chapter 8 Peri-Implant Therapy for the Dental Hygienist textbook. Wiley.com

Focus on Implant Home Care; RDH Magazine Sept 2013/ The implant is ready to rock’n’roll: Are you ready to perform? Jan 2015 RDH Magazine.

Post-Surgical Home Care

✓ First day drink only clear liquids, soft diet for next few days
✓ Take antibiotics and pain medications as needed
✓ Brush with extra soft toothbrush to clean teeth and gums (do not brush incision area), power toothbrushes—wait 1-2 weeks.
✓ Floss once a day except incision surgical site.
✓ Avoid wearing temporary prosthesis to let tissue heal
✓ Use salt water rinses or an non-alcohol antimicrobial rinse if prescribed by surgeon 2 times daily—

Implant Home Care Guidelines

- Brush 2 X daily with low-abrasive dentifrice (i.e. TePe Implant Brush/ Compact Tuft)
- Floss 1-2 X daily with dental tape or use water flosser
- Use Inter-dental brush, rubber tip stimulator, and /or water irrigation unit
- If inflammation use non-alcohol antimicrobial rinse or 1:10 in irrigation unit

Protocol for flossing implants

- Insert tape mesial and distal without removing the floss
- Criss-cross in front, move in shoe-shining motion to remove plaque biofilm from peri-implant crevice.

Chlorhexidine (CHX)

- CHX approved by FDA for gingivitis not periodontitis, supra, and for infections 3-6 weeks.
- Recommend Non-Alcohol –only one on market GUM
- Side-effects: stain on natural teeth, alteration of taste, increased calculus formation, poor compliance, permanent stain to resin restorations, and not recommended for long-term use.

**Chlorine Dioxide**

- Antimicrobial, antiviral, and antifungal mouthrinse
- Recommended to use until healing is complete and for long-term home care.
- Pre-Post rinse for Clinicians in Operatory
- Safe to use long-term on implants and following regenerative procedures


**Water Irrigation Unit- Water Flosser**
Highly recommended for patients to use for the reduction of plaque/biofilm, inflammation, and hard-to-reach emergence profiles around implants.

- Single Implants- Waterpik® Plaque Seeker® tip one to two times daily.
- Full fixed prosthesis/ bar-retained implants- PikPocket™ Tip twice daily with a diluted antimicrobial rinse in 1:10 water dilution.
- Letter of Medical Necessity- (FSA/HRA/HAS). Can give to patients for reimbursement, not all plans will reimburse, see link in resources, end of handout.


**Fluoride and Implants**
Stannous FL can cause etching, roughness on implants/esthetic restorations and >3.0 Sodium Fl with low PH (acidic) can remove the oxide layer / make implants more prone to corrosion.


**Stimulators- How to keep tissue healthy around implants**
Use once daily: Place tip flat in-between teeth, not poking tissue. With firm pressure, roll the tip so tissue blanches (changes color). Repeat 5-10x mesial & distal for each implant. **Note: These tools are used for stimulating the tissue, not cleaning. Still need to use Water Flosser or Implant Floss to remove biofilm.**

**Home Care—Removable Bar Overdenture**
- Brush twice daily with low-abrasive dentifrice
- Floss once daily with threaded or specialty implant floss or use water flosser.
- Use interdental brush, rubber tip stimulator, or Soft picks once daily

**Home-Care: Removable Prosthesis**
- Soak dentures in commercial denture cleaner, white household vinegar 1:1 water, Fresh Guard (Efferdent), or ProClean (Premier).
- Brush thoroughly, rinse off antimicrobial rinse
- Do a visual check to see if O-rings, Locator-caps and/or clips are missing or worn.

**Home Care—Full Fixed /Supra Structure (e.g. All-on-4™/ Pro Arch™)**
- Brush twice daily with low-abrasive dentifrice
- Floss once daily with threaded or specialty implant floss in shoe-shine motion
- Use interdental brush, rubber tip stimulator, or Soft picks if recommended.
- Use water irrigation with antimicrobial rinse in 1:10 dilution, 1-2 times daily on low power. Avoid the sulcus of the implant

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Disease Complications

Peri-Implant Disease: Peri-Implantitis including Cement Residue

Collective Terms to Know
- **Periodontal Disease** - Gingivitis, Periodontitis
- **Peri-Implant Disease** - Mucositis, Peri-Implantitis
- **Periodontal Therapy** - Periodontal and Peri-Implant Disease

Guidelines for Healthy, Mucositis or Peri-Implantitis
- Early < 4mm PPD, No BOP, No Exudate, **No Radiographic Bone Loss**
- Moderate > 6mm PPD at one site; Possible BOP and/or Exudate, **Radiographic Bone Loss 25% to 50% of the implant length.**
- Advanced > 8mm at one site; BOP, Exudate Present, **Radiographic Bone Loss > 50% of the implant length**


**2013 Clinical Recommendations—AAP Peri-Implant Disease**
- Identify risk factors associated with peri-implant disease
- Establish radiographic baseline at placement and at final prosthesis.
- Monitor implants health and determines inflammatory complications as a part of a regular periodontal maintenance program.
- Establish an early diagnosis and intervention.


**Key Risk Factors for Peri-Implant Disease**
- Previous periodontal disease
- Smoking
- Poor plaque control- inability to clean
- Uncontrolled diabetes
- Occlusal overload combined with excessive plaque

**Protocol for Cement Residue Implantitis –Non-Surgical**
- Chart review –type of cement and ease of removal
- Radiograph if cement present and ease of removal
- Apply anesthetic, debride with titanium implant scaler (Win N128)
- Re-evaluate in 1 month to assess if symptoms are resolved.
- If cement is not able to be removed by titanium instrument – Flap surgery


**Pearls of Peri-Implant Disease- Combination of Diagnostic Data**
- ✓ Probe/ Palpate for presence of inflammation and suppuration
- ✓ Radiographic changes in bone levels can be aided by CBCT—to identify facial, lingual and proximal bony lesions
Cement Implantitis– found around entire circumference/ removal of any cement residue is critical.

Early detection is key!

Unique Tools for Regeneration- Co-Designed by Susan Wingrove
ACE Probes-the next generation of probes, a straight furcation probe that is both flexible and more accurate with a newly designed periodontal probe on the other end that is designed for patient comfort.

Queen of Hearts- a universal, periodontal finishing curette with longer, closed-face cutting edges capable of reaching all furcations and difficult-to-reach root concavities.

Wingrove Titanium Implant Scalers-‘Go-to-Kit’- A specifically designed set of medical grade Titanium universal implant scalers with Rockwell hardness of 28-30 for safe, effective removal of calculus under Hader bars, exposed implant threads, implant crown and bridge, as well as fixed or removable prostheses. All Available through Paradise PDT, Inc.

Resources:
1) AAP Website. www.perio.org
2) Medical & Dental Billing/ Codes, Contact Kathi Carlson (612) 916-4331 kcarlson@dentalwriter.com Website: Dentalwriter.com
3) Dentists Select- OraCare https://www.dentistselect.net/sample_request/ Video upon request.
4) TePe- http://professionals.tepeusa.com/pages/healthy-smiles-21
6) O’Hehir University: Contact Erika Story (866) 821-2320 Erika@ohehiruniversity.com Website: www.ohehiruniversity.com
7) Network to C.A.R.E. www.straumann.us/rdh
8) Wingrove Dynamics Website: www.wingrovedynamics.com

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