



**Contemporary Clinical Periodontics  
2011**



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**Patient Status**

- Medical
- Medication
- Dental
- Psychological
- Financial
- Habits

**American Society of Anesthesiology**

**ASA I: A patient without systemic disease:  
a normal healthy patient**

**ASA II: A patient with mild systemic  
disease**

**ASA III: A patient with severe systemic  
disease that limits activity, but is  
not incapacitating**

**ASA IV: A patient with incapacitating  
systemic disease that is a  
constant threat to life**

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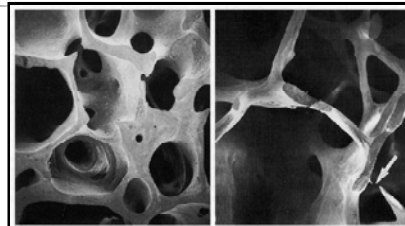
**Medications (examples)**

- Blood thinners: Bleeding
- Steroids: Impaired wound healing
- Inhalants: Coughing during Sx
- Bisphosphonates (IV, Oral): ONJ
- Organ Transplant meds: Wound Healing
- Antineoplastic meds: Wound Healing

## Primary Indications for Bisphosphonates

Osteoporosis  
Osteopenia  
Multiple Myeloma  
Paget's Disease  
Breast CA Therapies  
Prostate CA ADT

## Osteoporotic Bone Loss



Normal

Osteoporosis

Dempster DW, J Bone Miner Res. 1986;1:15-21.  
Reprinted with permission, Amer. Soc. for Bone and Mineral Res.

## Significance of Hip Fractures

- "1 out of 4 patients will die from a hip fracture within a year"
- "50 % will die within 5 years after a hip fracture"

*NIH 2000 Conference on Osteoporosis*

*Col, et al. J.Am.Med.Assoc. 1997; 227: 1140*

*Cooper. Am.J.Epidemiol. 1993*

## Risk factors for Osteoporosis

- **Age** (Older, higher the risk)
- **Race** (Caucasians and Asians have higher risk)
- **Weight** (small boned and thin women increase risk)
- **Family** (heredity)
- **Lifestyle** (Smoking, lack of exercise, alcohol increase risk)

*Ref: National Osteoporosis Foundation, 2009*

## "T-Score" (Diagnosis of Bone Conditions)

Indicates level of bone health (Using DXA)

- Normal scores ( +/- 1.0 s.d of mean)
- Osteopenia (bet. minus 1.0 – 2.5 s.d of mean)
- Osteoporosis (below minus 2.5 s.d of mean)

*Ref: National Osteoporosis Foundation, 2009*

## Osteoporosis Drugs- Oral (FDA approved, 2010)

- Fosamax
- Fosamax with Vit D (*approved 5-05*)
- Actonel
- Actonel with Calcium (*approved 9-05*)
- Boniva (*approved 5-05*)

### **Osteoporosis Drugs- IV** (FDA approved, 2010)

- **Aredia (30 mg iv/ mo)\***
- **Zometa (30 mg iv/ mo)\***
- **Reclast (5 mg iv/ yr)\*\* , 2009**

\* *Rx for Multiple Myeloma, Ca*

\*\* *Rx for Osteoporosis*

### **Bone Biopsy Data**

- **Alendronate (Fosamax) = 2-3 years**  
normal mineralization
- **Risendronate (Actonel) = 3-5 years**  
normal mineralization

*Erickson. Bone 2002; 15: 613*  
*Ste-Marie. Calcif. Tissue Int 2004; 75: 469*  
*Roschger. Bone 2001; 29: 185*

### **Incidence of ONJ**

- **IV = 20%** (*Boonyapakorn. Oral Oncol 2008; Feb 15*)
- **Oral = 0.34%** (*Mayrokokki. J.Oral Max Surg. 2007; 65: 415*)
- **Oral = 4%** (*USC dental school, J.Am.Dent.Assoc. Jan. 5, 2009*)

### **Potential "Co-morbidities" for ONJ**

- **A. Periodontitis** (*Oral Oncol.2008; Feb 15*)
- **B. Extractions** (*Oral Oncol 2008; Feb 15*)
- **C. Rx Steroids** (*J.Clin.Endocr.Metab. 2005; 90: 1294*)
- **D. Diabetes mellitus** (*ibid 2007; 92: 1172*)
- **E. Smoking** (*Osteoporos.Int. 2007; June 28*)

**"To date, no well-controlled prospective studies of treatment outcomes exist for ONJ"**

*Wade and Suzuki. Grand Rounds Oral-Sys Med. 2007; 2: 46*

### **Case Report: Fosamax Rx**

- **Pt: 57 y.o. male**
- **CC: Pain upper front tooth**
- **Med Hx: Fosamax (bisphosphonate) q 7 d,4 yrs**
- **Dental Hx: Missing teeth, Periodontitis**
- **Oral Image: "Get me out of pain"**

*Suzuki, Jon. Temple University Grad Perio Clinic , Feb 15, 2009*

**"Odds ratios for ONJ increase with\* ..."**

- Hx of Oral Bisphosphonates (3+ yrs)
- Hx of IV Bisphosphonates (6+ mos)
- One or more Co-Morbidities

\* Suzuki, J.B. Unpublished Data January 1, 2010

**ADA Recommendations**

- A. "Routine" Dental Tx is OK
- B. Dental Exams before or early in Rx Bisphosphonates
- C. OHI reduces risk
- D. CTX blood test is inconclusive
- E. "Drug Holiday" may not reduce risk

J. Am. Dent. Assoc. 2008 (Sept).  
ADA Council on Scientific Affairs.

**Fosamax has extended benefit for 5 years**

- 1,100 female pts, 55-81 years
- 10 years on Rx Fosamax
- Osteoporosis protection for 5 years after stopping drug
- Conclusion: "Protective benefit for at least 5 years"

Black, D. J. Am. Med. Assoc 2006 (Dec)

**Dental Tx for Rx Bisphosphonate Patients**

1. Observe wound healing in 1 tooth or sextant (2 mos)
2. Antimicrobial Rinses bid
3. Tx ASAP Endo, Sinus tracts, purulence, severe Periodontitis, Abscess
4. Non Sx perio tx with limited flaps
5. Regeneration (?); no evidence
6. Implants (?); caution

J. Am. Dent. Assoc. 2008 (Sept).  
ADA Council on Scientific Affairs.

**Rx Antibiotics (Begin 1-2 days a dental appt)**

- Rx Amoxicillin, 500 mg, #24, tid  
OR (if pen allergy)
- Rx Metronidazole, 500 mg, #24, tid
- Rx Clindamycin, 150 mg, #16, bid
- Rx Ciprofloxacin, 500 mg, #24, tid
- Rx Azithrocin ("Z Pack"), 5 days x 2

**Rx Antibiotics (Begin 1-2 days a dental appt)**

- Rx Amoxicillin, 500 mg, #24, tid  
OR (if pen allergy)
- Rx Metronidazole (Antabuse analogue)
- Rx Clindamycin (Ulcerative colitis)
- Rx Ciprofloxacin (Tendon ruptures)
- Rx Azithrocin (Gastic upset)

**“In general, oral and iv bisphosphonates have a distinct benefit to health and improvement of mineral bone density.”**

**“Dental professionals should not recommend discontinuation of these medications for any reason.”**

Jon B. Suzuki

### **Risk Management in Dental Treatment Planning**

- Medical Hx (annual, update each appt, ink, signed)
- Vital signs (BP, resp optional, temp optional)
- BWS (q 18 mos) ; FMX (q 4-5 yrs) ; pan optional
- Consent form (signed, witness, ink)
- Treatment Options (Best, Conservative, None)
- Consequences of “no tx”

### **Treatment Plan**

1. Review Med/Dental Hx
2. Dx: Periodontitis /Insurance Codes
3. Initial Tx:
  - OHI
  - Occlusal Control
  - Rx CHX, phenol, Cetylpyridium rinses
  - Ultrasonics Scaling/RP/Polish
  - Evaluation (4-6 weeks)
4. Periodontal Surgery
5. Maintenance ( q 3 mos)

### **Antimicrobials\***

- Chlorhexidine, 0.12% (Peridex, Periogard, Oris)
- Phenols/Essential Oils (Listerine)
- Cetylpyridium Cl (Crest ProHealth)
- Stannous Fluoride

*\*FDA Approved*

### **PATIENT PREPARATION PRE-PROCEDURAL RINSING**

- Safety for both Patient and Clinician
- A “pre-procedural” rinse reduces risk of SBE
- Reduces airborne oral microbes.



### **Office Periodontal Emergencies**

- Head and Neck Exam: Palpate for Submandibular Lymphadenopathies
- Temperature



## Why Ultrasonics First?

1. Monitor wound healing
2. Monitor OH
3. Antibiotics (prn) work better
4. Accurate probing (code 4355)

## Full Mouth Debridement

- Ultrasonic debridement of entire mouth  
(20-60 minutes)
- Followed by quadrant Scaling and Root Planing (60 minutes each)

## Full Mouth Disinfection

- Quirynen. J.Dent.Res 1995; (Aug) 74, 1459-1467
- Bollen. J.Clin.Perio 1996; (Oct) 23: 960-970.
- Vandekerckhove. J.Perio 1996; (Dec) 67: 1251-1259
- Mongardini. J.Perio 1999; (Jun)70: 632-645

## Full-mouth disinfection and Diabetics

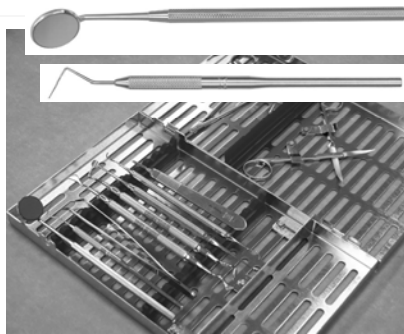
- Reduces Plaque Index
- Reduces Bleeding on Probing
- Reduces Pockets
- Gain of attachment (3,9 months)
- Significant reduction in serum HbA 1c  
(full mouth disinfection must be q 3 mos)

*Schara.J.Int.Acad Periodontol 2006; 8: 61*

## "Non-Surgical Periodontal Therapies"

Curettes  
Col 13/14  
McCall 17S / 18S

Curettes  
Graceys 1/2, 5/6  
(Ant)  
Graceys 11/12,  
13/14 (Post)

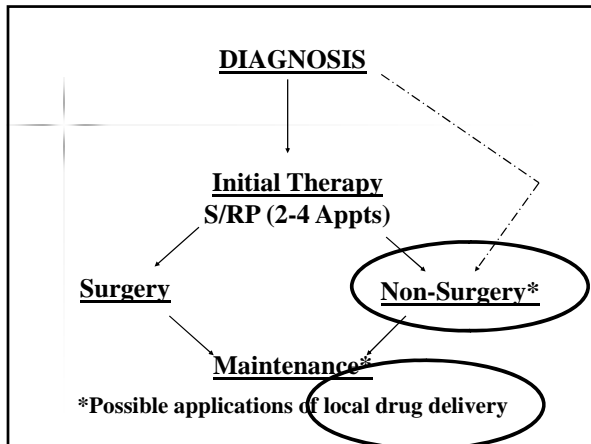


## [www.Hufriedy.com](http://www.Hufriedy.com)

"Thought Leaders"

"Dr. Suzuki"

"Instrument Lists"



**Local Drug Delivery**

Periochip\* (CHX), Omnia- 3 M  
 Atridox\* (Doxycycline), Tolmar  
 Arestin\* (Minocycline), J & J Orapharma

(\* FDA approved in USA )

**Arestin**

- Polymer microspheres
- Resorbable
- Minocycline (Tetracycline)

**Insurance Code: Local Drug Delivery\***

D 4381

Localized delivery of antimicrobial agents via a controlled release vehicle into diseased crevicular tissue, per tooth, by report

\* Am.Acad.Perio. Newsletter. Dec. 2004 (nomenclature and descriptor revised)

- New Classification System for the Periodontal Diseases**
1. Gingival Diseases
    - a. Plaque induced
    - b. Nonplaque induced
  2. Chronic periodontitis
    - a. Localized
    - b. Generalized
  3. Aggressive periodontitis
    - a. Localized
    - b. Generalized
  4. Periodontitis as a manifestation of systemic diseases
    - a. Associated with systemic diseases
    - b. Associated with genetic disorders

**Dental Plaque, Inflammation, and Systemic Diseases**

## Clinical Implication

- Periodontitis, as an oral infection, may contribute to risk factors for Systemic Diseases
- Periodontal therapy should reduce the risk for selected systemic diseases

## Heart Disease and Periodontitis

- 25% incr. risk for MI
- 9760 pts, 14 years
- Periodontitis - yes assoc.
- Gingivitis - no assoc.
- Caries - no assoc

*DeStefano. Br. Dent. J. 1993; 306:688*

## Periodontitis ⇨ Stroke (CVA)

NHANES I Sample, 9,962 pts\*

\*Hx MI, CVA, Cancer excluded

**"2 x Risk of CVA with Periodontitis"**

Plaque:

- Cytokines↑, Inflamm↑, Clotting↑ → Thromboembolism
- Platelet aggregation → Thromboembolism
- Lipids↑, Fibrinogen↑, C-reactive protein↑ → CVA/CVD

*Wu. Arch. Int. Med. 2000; 160: 2749*

## Meds contributing to Osteoporosis

- Glucocorticoids  
(tx allergies, inflammation, autoimmune)
- Anti-cancer drugs
- Thyroid hormones
- Immune-suppressive drugs (Cyclosporine A)
- Antacids

## Heartburn meds increase risk for Osteoporosis\*

- 1 year on meds
- 44% Increased Risk for Hip Fractures
- 1 year + on meds  
(Biol. Gradient longer on meds increases risk)
- 2 ½ X risk of Hip Fractures
- Gastric pH ↑ Calcium absorption ↓

*\*Yang, X. J. Am. Med Assoc 2006 (Dec)*

## Recommendations for Patients on Heartburn Meds\*

- Monitor meds closely
- DXA of bone annually
- Calcium-rich Diet
- Periodontal Exam

*\*Yang, X. J. Am. Med Assoc 2006 (Dec)*



**Meds contributing to Osteoporosis**

- **Glucocorticoids**  
(tx allergies, inflammation, autoimmune)
- **Anti-cancer drugs**
- **Thyroid hormones**
- **Immune-suppressive drugs** (Cyclosporine A)
- **Antacids**
- **Antidepressants**
- **Diabetes meds**

**Periodontitis: Gastric Ulcers and Gastric Cancers**

- **4,504 patients, NHANES III**
  - **20-59 years of age**
  - ***H. pylori* seropositivity**
- Conclusion: Pockets > 5mm Increase risk for *H. pylori* seropositivity**

Dye. *Amer J. Public Health* 2002; 92: 1809

**Oral Bacteria (*C. rectus*) and *H. pylori***

- **Cross reactivity antigens between:**  
*C. rectus* and *H. pylori*
  - **Induce Immune Rxs in periodontium and stomach**
- Conclusion: "Relationship between bacteria in stomach and oral cavity"**

Okuda. *J Periodontol* 2003; 74: 123

**Pancreatic Cancer and Periodontitis**

- **51,000 male physicians**
- **Periodontitis increases risk for Pancreatic Cancer by 64%**
- **"Periodontitis infections may trigger generalized inflammation"**

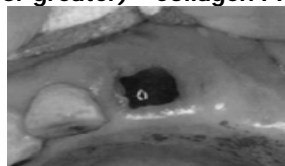
Michaud, Dominique. *J. Natl Cancer Inst.* 2007; 99: 171-175.

**Wound Healing: Extraction Sockets**

**"Bone resorption (40-60%) from facial in 3 yrs"**

Labial Plate (less than 2 mm thick)=Matrix Plug, DFDBA

Labial Plate (2 mm or greater)= Collagen Plug



**Ridge Preservation following Extractions**

- **Allograft\*** (Grafton, MineralOss, Biohorizons)  
\*Non-radiated, non-ethylene-oxide sterilized
- **Collagen Plug w/ or w/out sutures**
- **Do Nothing**

## Extraction Sockets

- I. Bone + Soft tissue
- II. No Bone + Soft tissue
- III. No Bone + No Soft tissue

**TD**

### A Positive Correlation Between Occlusal Trauma and Peri-implant Bone Loss: Literature Support





Carl E. Misch BS, DDS, MDS,\* Jon B. Suzuki DDS, PhD, MBA,† Francisco M. Misch-Dietsh, DCD, DDS, MDS,‡ and Martha W. Bidez, PhD¶

Occlusal trauma may be defined as an injury to the attachment apparatus as a result of excessive occlusal force.<sup>1</sup> There is currently controversy as to the role of occlusion in the bone loss observed after the delivery of an implant prosthesis.<sup>2</sup> There is generalized agreement that early implant failure may be associated with overload (Fig. 1).<sup>3,4</sup> However, some articles state that peri-implant bone loss without implant failure is primarily associated with biological

*The relationship between occlusal overload and peri-implant bone loss remains a controversial topic in implant dentistry. A causal relationship between the incidence of marginal bone loss next to an implant and occlusal overload is not clear. These papers demonstrate occlusal overload on implants may increase the incidence of marginal bone loss. (Implant Dent 2005;14:108-116)*

**Key Words:** occlusion, endosseous implants, crestal bone loss, marginal bone loss, peri-implant bone loss

**What bone graft should you use?  
...and in what order of preference?**

<b>Autograft</b>	Transplants from one region to another in the same individual.	<b>Same Human</b> 
<b>Allograft</b>	Transplants from one individual to a genetically non-identical individual of the same species.	<b>Different Humans</b> 
<b>Xenograft</b>	Transplants from one species to another.	<b>Man : Animal</b> 
<b>Alloplast</b>	Transplants of inorganic (synthetic/natural) or polymer derived bone substitutes.	<b>Man : Synthetic</b> 

## Implacare™

Unreinforced resin curettes produce the least alteration of the titanium implant surface following instrumentation, while gold plated metal and reinforced resin curettes significantly alter the titanium surface.

**SEM Study of Titanium Implant Surfaces Treated with Implant Curettes. University of Colorado, Denver, Colorado, USA**

**CONTEMPORARY IMPLANT DENTISTRY**  
THIRD EDITION

**Chapter 42**

**Maintenance of Dental Implants: Implant Quality of Health Scale**

Jon B. Suzuki, Carl E. Misch, Diana Bronstein, Lynn D. Terracciano-Mortilla


**CARL E. MISCH**

Elsevier-Mosby Co. 1-08

## Periimplantitis

- 1. Check Occlusion of Implant
- 2. Ultrasonic debridement with "specialized tips"
- 3. Scale with Implant Scalers
- 4. CHX Irrigation of Implant
- 5. Rx Arestin therapy (Off-FDA Label)

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