THE LITTLE
DENTAL DRUG BOOKLET

Handbook of Commonly Used Dental Medications

2017-2018

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CONTENTS

SUBJECT INDEX

DRUG INDEX

DRUG INDEX

SECTION I

Doctor's Name

Address

Phone Number

Patient's Name Date

Patient's Address Age

Rx Drug Name Dosage/Size

Disp Number of tablets, capsules, ounces to be dispensed. (Roman numerals may be added as precaution for commonly abused drugs).

The amount of drug prescribed is the responsibility of the prescribing clinician and is based on their estimate of individual patient need – see **NOTE** on page 21.

Sig Directions on how the drug is to be taken.

Doctor's Signature

State License Number

DEA Number (if required)

Fill Generic (This note, if appropriate, added to the prescription, allows the pharmacist to fill with the least expensive generic drug available.)

NOTE: The prescriptions in this booklet are intended for the adult population. Pediatric dosage is indicated when appropriate with a note to see the Pediatric Oral Dosage table on pages 81-83.

PRESCRIPTION REQUIREMENTS

1) Date

2) Full name, address, and date of birth of patient (some states also require patient's weight)

3) Name and address of prescriber

4) Signature of prescriber

If class II, III, IV drug, a Drug Enforcement Agency (DEA) number is necessary.

If a DEA class II-V drug, in the state of California and several other states, a special tamper-proof prescription form printed only by state-approved printers is required. Check with your state dental society for details and contact information for authorized printers. **Note:** These prescription forms are required for all class II-IV drugs, but can also be used for all prescriptions.

COMMON ABBREVIATIONS

i, ii, iii	one, two, three
q	every (as in "every" 6 hours)
d	day
h	hour
prn	as needed
stat	at once, immediately
bid	twice daily
tid	three times a day
qid	four times a day
	Example: tid = 3 times a day q8h = every 8 hours

ABBREVIATIONS CAN BE ERROR-PRONE,
IF IN DOUBT, WRITE IT OUT!

For more information about avoiding dangerous, error-prone abbreviations, see http://www.ismp.org/tools/errorproneabbreviations.pdf

USEFUL INTERNET WEBSITES

American Association of Orthopedic Surgeons, American Dental Association,
March 2013, Prevention of Orthopaedic Implant Infection in Patients Undergoing Dental Procedures
http://www.aaos.org/research/guidelines/PUDP/dentalexecsumm.pdf
http://www.ada.org/en/publications/ada-news/viewpoint/my-view/2013/january/my-view
(*interesting and worthwhile discussion on the development of the guidelines*)

American Dental Association, Antibiotic Prophylaxis guidelines in dentistry
http://www.ada.org/en/member-center/oral-health-topics/antibiotic-prophylaxis

American Heart Association Guidelines for the Prevention of Infective Endocarditis, April 2007
http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.106.183095

Dental Management Protocols for Medically Complex Patients and HIV-Infected Patients; as well as a health history translated into 40 languages and a health history interview sheet.
http://www.dental.pacific.edu/departments-and-groups/professional-services-and-resources/dental-practice-documents

National Institute of Dental and Craniofacial Research
Information on a wide range of dental problems and their management
http://www.nidcr.nih.gov/OralHealth/Topics/

Organ Transplant Patient Management Suggestions
http://www.nidcr.nih.gov/OralHealth/Topics/OrganTransplantationOralHealth/OrganTransplantProf.htm

Website to purchase the Little Dental Drug Booklet

http://www.wolterskluwercdi.com

Hard copy: http://webstore.lexi.com/Store/Reference-Handbooks-for-Dentists/The-Little-Dental-Drug-Booklet

Electronic (App): http://webstore.lexi.com/Store/PDA-Software-for-Dentists/Little-Dental-Drug-Book-Electronic

Note: Links to specific sites and/or documents can change unpredictably so please accept my apologies if the link does not work. You can email me with any questions (pgjacobs@pacbell.net).

SECTION II

Situations and the Appropriate Medications to Be Used

1) ANXIETY CONTROL/ ANXIOLYSIS

Ambien (Zolpidem)
Ativan (Lorazepam)
Halcion (Triazolam)
Valium (Diazepam)
Vistaril (Hydroxyzine)

NOTE:

Anxiolysis, the decrease of anxiety in a fully alert and responsive patient, requires no permit. The following medications are for anxiolysis.

Sedation, the mental and physiological slowing of the patient with medication may require a special permit in some states depending on the age of the patient and the level of sedation. If you intend to use medication to sedate a patient, you should acquire training and certification in such procedures.

In California, and possibly other states (check your state law), to give oral sedation to a child <13 years of age requires a special oral sedation permit from the State Board of Dental Examiners. Oral sedation means anything given by mouth that will sedate or relax the child. This would include sedative / hypnotics (barbiturates, benzodiazepines), anti-histamines, narcotics, and chloral hydrate.

MEDICATIONS: ANXIETY CONTROL/ ANXIOLYSIS

Rx **Valium* 5 mg**

Disp 4 tablets

Sig Take 1 tablet in evening before going to bed and 1 tablet 1 hour before your appointment

INGREDIENT: Diazepam

CAUTION: Patient should not drive themselves to or from the appointment. Do not prescribe to pregnant women.

NOTE: Half-life: 44 to 100 hours

Rx **Ativan 1 mg**

Disp 2 tablets

Sig Take 1 tablet in evening before going to bed and 1 tablet 1 hour before your appointment

INGREDIENT: Lorazepam

CAUTION: As for Valium

NOTE: Half-life: ~12 hours

Rx **Halcion 0.25 mg**

Disp 4 tablets

Sig Take 1 tablet in evening before going to bed and 1 tablet 1 hour before your appointment

INGREDIENT: Triazolam

CAUTION: As for Valium

NOTE: Half-life: 1.5 to 5.5 hours

MEDICATIONS: ANXIETY CONTROL/ ANXIOLYSIS

Rx **Vistaril* 25 mg**

Disp 8 capsules

Sig Take 2 capsules in evening before going to bed and 2 capsules 1 hour before your appointment

INGREDIENT: Hydroxyzine

Rx **Ambien 5 mg**

Disp 2 tablets

Sig Take 1 tablet 30 minutes before appointment

INGREDIENT: Zolpidem

NOTE: Some patients may require a 10 mg dose

No drug is completely safe during pregnancy and zolpidem does cross the placental barrier which can adversely affect/sedate the unborn child.

Ambien is rated safer, (FDA category C) for pregnant patients, than the benzodiazepines which are rated FDA category D or X, depending on the drug.

With zolpidem's short half-life, experience in pregnant patients, and single use for a dental procedure, it makes a reasonable choice when indicated.

*For pediatric dosage, see pages 81-83.

2) ACUTE PAIN

Mild to Moderate	Acetaminophen Aspirin Celebrex (Celecoxib) Ibuprofen Naproxen
Moderate to Severe	Acetaminophen and Codeine Synalgos-DC Ultracet Vicodin Vicoprofen
Severe	Dilaudid Percocet Percodan

All prescription narcotic pain medications can be filled generically.

NOTE: The number of tablets suggested in the "Disp" section of the prescriptions in this booklet are just that, *suggestions* for the **average patient**. The practitioner should prescribe as many tablets as needed based on the amount and duration of pain or problems expected by each individual patient. Keep in mind that prescribing too many tablets, especially narcotics, can have detrimental effects, so proper judgment is important. The risk of too few tablets is less than the risk of too many, especially when prescribing narcotics for severe pain. If the pain or problem is persisting longer than expected, having the patient contact you is better than them taking a medication that is not working for too long a time.

NOTE: Chronic Head and Neck Pain is a complex diagnostic and therapeutic problem. If you do not have special training in this area, refer patient to a dentist or physician who does.

All states require dentists to possess a DEA registration and many states also have a drug tracking system they are encouraged to utilize. Dentists should check their state's requirements.

Dentists are advised to check the controlled substance record/drug tracking system for all new patient opioid prescriptions and any time a patient appears to require, or they request, more than 3 days of narcotic medication.

Because of a national epidemic of narcotic abuse, the Center for Disease Control has provided guidelines (March 2016) for primarily chronic narcotic prescribing/utilization. These recommendations also include advice for acute narcotic use, which is the most common need in dental practice. They suggest that narcotic use be limited to 3 days and that the maximum prescribed amount should not exceed 7 days. Leftover drugs from dental prescriptions have been implicated as an initial source of narcotics in a large number of what is now called opioid use disorder, previously called narcotic addiction.

ACETAMINOPHEN WARNING:

1. Warn patient not to combine APAP-containing narcotic combinations with over-the-counter APAP or other APAP-containing products such as NyQuil and some Theraflu products.
2. Do not exceed a maximum single dose of 650 mg of APAP (in narcotic combination) or a maximum daily dose of 4 g.
3. If patient has liver disease, consult with MD relative to APAP use. Risk is increased with alcohol use and unintentional ingestion of more than one source of acetaminophen-containing prescription or OTC product (see comment 1).

Most pain in dentistry is in the "mild to moderate" range. The nonsteroidal anti-inflammatory drugs, combined with acetaminophen, are a very powerful pain control combination and should be used first for dental pain or in anticipation of dental pain secondary to a dental procedure.

ASPIRIN TOLERANT:

Ibuprofen
400 to 600 mg 4 times a day
(breakfast, lunch, dinner, and before bed)

Start medication at time of the procedure and use for next several days to prevent pain from starting (preemptive analgesia). Ibuprofen is a very effective pain medication, especially for inflammatory / dental pain.

If pain is not controlled, then add on **acetaminophen** 500 mg to the ibuprofen.

If pain is severe, then drop the acetaminophen and add on **hydrocodone and acetaminophen** combination product to the ibuprofen (ie, 2 Vicodin [hydrocodone 5 mg and acetaminophen 300 mg/tablet] or generic equivalent).

If pain is very severe (ie, dry socket or equivalent), consider **oxycodone and acetaminophen** (ie, 1 to 2 Percocet [oxycodone 5 to 10 mg and acetaminophen 325 mg/tablet])

The above narcotics should only be used for 24 to 72 hours along with the ibuprofen, then back to the less powerful drugs. **Do not exceed acetaminophen 4 g daily.**

ASPIRIN ALLERGIC / INTOLERANT:

Acetaminophen* (OTC) **(see *Warning** on page 22)
650 mg 4 times a day (not to exceed 4 g per 24 hours)

If pain is not controlled, stop acetaminophen and switch to:
Tylenol #3, Vicodin, or **Ultracet** (which contain acetaminophen)
If pain is very severe (ie, dry socket or equivalent), consider:
Percocet or equivalent for 24 to 72 hours

MEDICATIONS: PAIN (MILD-MODERATE) OTC

Available over-the-counter (OTC)
Nonsteroidal anti-inflammatory drugs (NSAIDs)

Rx **Aspirin 325 mg (OTC)**

Disp To be determined by practitioner

Sig 1 to 2 tablets every 4 to 6 hours (maximum adult dose: 4,000 mg/24 hours)

NOTE: See Note 2 under Ibuprofen below – it applies to all NSAIDs including aspirin.

Rx **Ibuprofen 200 mg (OTC)**

Disp To be determined by practitioner

Sig 1 to 2 tablets every 4 to 6 hours (prescription maximum adult dose: 3,200 mg/24 hours)

NOTE 1: Ibuprofen is available over-the-counter as Motrin IB, Advil, and many other brands in 200 mg tablets.

NOTE 2:

a) NSAIDs should never be taken together, nor combined with aspirin. NSAIDs have anti-inflammatory effects as well as producing analgesia.

b) An allergy / intolerance to aspirin constitutes a relative contraindication to all NSAIDs.

c) Aspirin and the NSAIDs may increase post-treatment bleeding and GI bleeding.

d) Risk may be increased with duration of use or preexisting cardiovascular risk factors or disease. Carefully evaluate individual cardiovascular risk profiles prior to prescribing.

MEDICATIONS: PAIN (MILD-MODERATE) OTC

Available over-the-counter (OTC)
Nonsteroidal anti-inflammatory drugs (NSAIDs)

Rx **Aleve (OTC)**

Disp To be determined by practitioner

Sig Take 2 tablets to start, then take 1 tablet every 8 to 12 hours up to 3 tablets (660 mg) per day

INGREDIENT: Naproxen sodium 220 mg/tablet

NOTE: See Note 2 under Ibuprofen on page 24 – it applies to all NSAIDs.

MEDICATIONS: PAIN (MILD-MODERATE) OTC

Available over-the-counter (OTC)
(For patients allergic to aspirin and other NSAIDs)

Rx **Acetaminophen 325 mg (OTC)**

Disp To be determined by practitioner

Sig Take 500 to 650 mg every 4 to 6 hours

PRODUCTS INCLUDE: Tylenol, Mapap, and many others

NOTE:

1. Acetaminophen can be given if patient has allergy, bleeding problems, or stomach upset secondary to aspirin or NSAIDs.
2. Warn patient not to combine acetaminophen-containing narcotic combinations such as Percocet, Vicodin, Ultracet, and Tylenol #3 with over-the-counter acetaminophen or other acetaminophen-containing products such as NyQuil and some Theraflu products.
3. Do not exceed a maximum single dose of 650 mg of acetaminophen (in narcotic combination), or a maximum daily dose of 4 g.

MEDICATIONS: PAIN (MILD-MODERATE) Rx

Require Prescription (Rx)
Nonsteroidal anti-inflammatory drugs (NSAIDs)

Rx **Ibuprofen 600 mg**

Disp 28 tablets

Sig Take 1 tablet 3 times per day

NOTE: For severe pain, 600 mg can be given up to 4 times per day.

Maximum adult dose: 3,200 mg/24 hours

The above is the prescription dose. The same dosage can be accomplished using 3 of the 200 mg over-the-counter tablets.

NOTE: See Note 2 under Ibuprofen on page 24 - it applies to all NSAIDs.

All Rx NSAIDs can be taken with food to minimize risk of stomach upset.

MEDICATIONS: PAIN (MILD-MODERATE) Rx

Require Prescription (Rx)
Nonsteroidal anti-inflammatory drugs (NSAIDs)

Rx **Celebrex 200 mg**

Disp 15 capsules

Sig Take 2 capsules stat, followed by an additional 200 mg if needed on day 1, then 1 capsule every 12 hours

INGREDIENT: Celecoxib

NOTE: Celebrex has a sulfa moiety and should be used with caution in patients allergic to sulfa drugs.

Prolonged use (which seldom, if ever, occurs in dental settings), may increase the risk of cardiovascular events.

NOTE: See Note 2 under Ibuprofen on page 24 - it applies to all NSAIDs.

All Rx NSAIDs can be taken with food to minimize risk of stomach upset.

MEDICATIONS: PAIN (MODERATE-SEVERE)

All narcotics are "scheduled" and require DEA license to prescribe

The following is a guideline to use when prescribing codeine with acetaminophen (Tylenol):

Codeine No. 2 = Codeine 15 mg
Codeine No. 3 = Codeine 30 mg
Codeine No. 4 = Codeine 60 mg

Rx	**Tylenol #3**
Disp	16 tablets
Sig	Take 1 tablet every 4 to 6 hours as needed for pain
	INGREDIENTS: Acetaminophen* 300 mg; Codeine 30 mg
	NOTE: For pediatric liquid preparation, see page 82 under Pediatric Oral Dosages.
	SCHEDULE III

***See Acetaminophen Warning** on page 22.

NOTE: The above can be filled generically, and probably will be.

Rx **Synalgos-DC**

Disp 28 capsules

Sig Take 1 to 2 capsules every 4 to 6 hours as needed for pain

INGREDIENTS: Dihydrocodeine 16 mg; Aspirin 356.4 mg; Caffeine 30 mg

SCHEDULE: III

Rx **Vicoprofen**

Disp 16 tablets

Sig Take 1 tablet every 4 to 6 hours as needed for pain (do not exceed 5 tablets in 24 hours)

INGREDIENTS: Hydrocodone 7.5 mg; Ibuprofen 200 mg

SCHEDULE: II

Rx **Ultracet**

Disp 36 tablets

Sig Take 2 tablets every 4 to 6 hours (do not exceed 8 tablets in 24 hours)

INGREDIENTS: Acetaminophen* 325 mg; Tramadol 37.5 mg

SCHEDULE: IV

NOTE: Treatment should not exceed 5 days.

***See Acetaminophen Warning** on page 22.

NOTE: All of the above can be filled generically.

MEDICATIONS: PAIN (MODERATE-SEVERE)

Rx **Vicodin (or select other brands available)**

Disp 16 tablets

Sig Take 1 to 2 tablets 4 times/day as needed for pain (not to exceed 4 g acetaminophen/day)

INGREDIENTS: Hydrocodone 5 mg; Acetaminophen* 300 mg

OTHER BRAND NAMES: Norco (contains 325 mg APAP), Xodol

SCHEDULE: II

***See Acetaminophen Warning** on page 22.

MEDICATIONS: PAIN (SEVERE)

All narcotics are "scheduled" and require DEA license to prescribe

Rx **Dilaudid 2 mg**

Disp 16 tablets

Sig Take 1 to 2 tablets every 4 to 6 hours for pain

INGREDIENT: Hydromorphone

SCHEDULE: II

Rx **Percodan**

Disp 16 tablets

Sig Take 1 tablet every 6 hours for pain (not to exceed 4 g aspirin/day)

INGREDIENTS: Oxycodone 4.84 mg; Aspirin 325 mg

SCHEDULE: II

Rx **Percocet 5 mg**

Disp 16 tablets

Sig Take 1 to 2 tablets every 4 to 6 hours for pain (not to exceed 4 g acetaminophen/day)

INGREDIENTS: Oxycodone 5 mg; Acetaminophen* 325 mg

OTHER BRAND NAMES: Primlev, Roxicet, or generic equivalent

SCHEDULE: II

***See Acetaminophen Warning** on page 22.

NOTE: All of the above can be filled generically.

3) INFECTION (Bacterial)

Amoxicillin
Augmentin (Amoxicillin and Clavulanate)
Azithromycin (Zithromax)
Cephalexin
Clindamycin (Cleocin)
Dicloxacillin
Erythromycin
Metronidazole (Flagyl)
Penicillin V Potassium

MANAGEMENT OF A DENTAL BACTERIAL INFECTION

1. Make the correct diagnosis:

    a. Signs and symptoms of an oral bacterial infection: Swelling, often pain and radiolucency, associated with teeth or gums.
    b. Signs and symptoms of a systemic bacterial infection; the above, plus fever, and often malaise.

2. Management of infection before antibiotics:

    a. Most direct and effective treatment; incise and drain/irrigate.
    b. Do the endodontic procedure, or extract the tooth, or reduce the pus pocket.

3. Decision to add antibiotics into the management of the infection:

    If the patient has swelling plus fever or other systemic manifestations and/or patient is immunocompromised, prescribing antibiotics in addition to removal of the nidus of infection would be prudent.

4. Prophylactic antibiotics are seldom, if ever, necessary for extraction or endodontic procedure in healthy patients not showing systemic manifestations of a bacterial infection. If you feel it is needed, then a one-time loading dose, consistent with the AHA recommendations for the heart (see page 87), is the appropriate choice to establish blood levels during the duration of the bacteremia caused by the procedure. Antibiotics for the following 2 to 5 days has not been documented as being of any additional value.

Good Antibiotic Stewardship means prescribing the correct antibiotic, at the correct dose, for the correct amount of time.

ANTIBIOTIC DECISION MAKING

1. Common drugs of choice for dental infections:

   Penicillin or **Amoxicillin**

2. If no response in 48 to 72 hours then use:

   A. Clindamycin (best choice)

   or **B. Cephalexin** or **Dicloxacillin**

   or **C.** Some dentists elect to add **Metronidazole** to the **Amoxicillin**

3. If no response to choice **B** or **C** in 24 to 48 hours then use:

   Clindamycin

   (Be sure to incise and drain and/or irrigate, if appropriate)

IF PATIENT IS ALLERGIC TO PENICILLIN

1. First common drug of choice is:

   Clindamycin

2. If no response in 48 to 72 hours then use:

   Azithromycin (Zithromax)

NOTE: If no response to above protocol, refer to or consult with an oral-maxillofacial surgeon, endodontist, periodontist, or infectious disease physician.

If infection persists and patient is taking bone-antiresorptive drugs, such as bisphosphonate, then consider the possibility of antiresorptive drug-associated osteonecrosis.

See page 79 for sinus infection treatment.

MEDICATIONS: INFECTION (BACTERIAL)*

Rx **Amoxicillin 500 mg**

Disp 30 tablets

Sig Take 1 tablet 3 times per day

Rx **Augmentin 500 mg**

Disp 30 tablets

Sig Take 1 tablet 3 times per day

INGREDIENTS: Amoxicillin 500 mg; Clavulanate Potassium

NOTE: Augmentin is amoxicillin protected from penicillinase breakdown by clavulanate.

Rx **Cephalexin 500 mg**

Disp 40 capsules

Sig Take 1 capsule 4 times per day

Rx **Clindamycin 300 mg**

Disp 30 capsules

Sig Take 1 capsule 3 times per day

NOTE: All antibiotics have risk of pseudomembranous colitis, especially clindamycin.

*For pediatric dosage, see pages 81-83.

MEDICATIONS: INFECTION (BACTERIAL)*

Rx **Dicloxacillin 500 mg**

Disp 40 capsules

Sig Take 1 capsule 4 times per day

Rx **Erythromycin base 250 mg**

Disp 40 tablets (enteric coated)

Sig Take 1 tablet 4 times per day

NOTE: Erythromycin has a high risk for drug-drug interactions, cardiac problems, and stomach upset.

Rx **Metronidazole 500 mg**

Disp 40 tablets

Sig Take 1 tablet 4 times per day

NOTE: Warn patient to avoid alcohol ingestion while taking metronidazole as an interaction may occur.

Rx **Penicillin V Potassium 500 mg**

Disp 40 tablets

Sig Take 1 tablet 4 times per day

*For pediatric dosage, see pages 81-83.

Rx **Azithromycin (Tri-Pak)**

Disp 1 pack

Sig Take 1 tablet per day for 3 days

NOTE: Also comes as **Z-Pak**, 5 day dosing

Azithromycin has been associated with QT-interval prolongation and heart arrhythmias, especially in patients with cardiovascular events and/or electrolyte abnormalities (do not use, or use with caution in these patients).

*For pediatric dosage, see pages 81-83.

4) INFECTION (Fungal)

Clotrimazole (formerly Mycelex)

Diflucan (Fluconazole)

Nystatin (ointment, cream, oral suspension, powder, tablets)

*COMMON DRUGS OF CHOICE FOR ORAL FUNGAL INFECTIONS**

The first common drugs of choice for local treatment of oral fungal infections are:

Clotrimazole (previously known as Mycelex) **Troche** or
Nystatin Tablets

The common drug of choice for systematic treatment of oral fungal infections is:

Diflucan (fluconazole)

The common drug of choice for angular cheilitis is:

Nystatin and Triamcinolone Cream (formerly Mycolog II)

(Rx on page 58)

NOTE: Chlorhexidine Gluconate (Rx on page 68) has been shown to be of value to help control oral fungal infections, especially immunosuppressed HIV-infected patients. (Symptomatic patients rinse 2 times per day; asymptomatic patients rinse 1 time per day at night.)

* For pediatric dosage, see pages 81-83.

Rx **Clotrimazole** (formerly Mycelex) **Troche 10 mg**

Disp 70 troches

Sig Dissolve 1 troche in mouth 5 times/day until gone; leave any prosthesis out during treatment and soak prosthesis in nystatin liquid suspension overnight

INGREDIENT: Clotrimazole

NOTE: The troche contains sucrose, risk of caries with prolonged use (>3 months) especially if mouth is dry (see caries management in Anticaries Agents on pages 63-67).

Rx **Nystatin Tablets**

Disp 30 tablets

Sig Dissolve 1 tablet in mouth until gone, 4 times per day

INGREDIENT: 500,000 units of nystatin per tablet

NOTE: The soluble tablet is more effective than an oral suspension, but is sometimes hard to find.

Rx **Nystatin Oral Suspension**

Disp 300 mL

Sig Use 1 teaspoonful for 2 minutes 4 times per day and expectorate

INGREDIENT: Nystatin 100,000 units/mL; vehicle contains 50% sucrose and not more than 1% alcohol.

NOTE: High risk of dental decay with prolonged use (>3 months).

Rx **Nystatin Cream, Ointment, or Powder - Select One**

Disp 15 g or 30 g tube

Sig Apply liberally to affected areas 2 to 3 times per day

INGREDIENTS:

Cream: 100,000 units nystatin per gram, aqueous vanishing cream base

Ointment: 100,000 units nystatin per gram, polyethylene and mineral oil gel base

Powder: 100,000 units nystatin per gram
May be sprinkled into dentures.

Rx **Diflucan 100 mg**

Disp 16 tablets

Sig Take 2 tablets the first day and 1 tablet each day thereafter until resolved

INGREDIENT: Fluconazole

NOTE: To be used if *Candida* infection does not respond to local oral drug

5) INFECTION (Viral)

Abreva (Docosanol)

Denavir (Penciclovir)

Valtrex (Valacyclovir)

Viroxyn (Benzalkonium Chloride and Benzocaine)

Xylocaine 2% Viscous (Lidocaine)

Zovirax (Acyclovir capsule, ointment)

HERPES SIMPLEX MANAGEMENT

Oral herpes simplex is a viral disease. Secondary attacks occur primarily on lips, but when they occur inside the mouth, they occur as clusters of pinpoint ulcers on attached (overlying bone) mucosa. Aphthous ulcers are not herpes. Aphthous ulcers occur primarily on unattached mucosa (see pages 52-53).

PRIMARY ATTACK

- **Xylocaine 2% Viscous** (palliative)
- **Valacyclovir** (Valtrex) (best if started within 3 days of onset)
- Fluids and liquid food supplements

SECONDARY ATTACK

- **Valacyclovir** at first indication of attack (burning, tingling)
- May supplement with topical **Acyclovir** (Zovirax) ointment or **Penciclovir** (Denavir) and/or **Docosanol** (Abreva) as needed.

PROPHYLAXIS: ACUTE

- **Valacyclovir** 500 mg, 4 caplets twice daily for 1 day (separate doses by 12 hours); therapy should be initiated at the first sign of any prodrome such as tingling, burning, or itching

PROPHYLAXIS: CHRONIC

- **Valacyclovir** and **Acyclovir** have both been used effectively and safely for the long-term management of HSV infection. Please consider a consultation with the patient's physician if you feel such treatment is appropriate.

Rx **Xylocaine 2% Viscous**

Disp 100 mL

Sig Use 15 mL to rinse around oral cavity no more than every 3 hours as needed to relieve pain then expectorate (do not exceed 8 doses/day)

INGREDIENT: Lidocaine

Rx **Zovirax 200 mg (Initial episode HSV infection)***

Disp 50 to 60 capsules

Sig Take 1 capsule 5 times per day for 7 days

INGREDIENT: Acyclovir

Rx **Zovirax 200 mg (Recurrent episode HSV infection)***

Disp 50 capsules

Sig Take 1 capsule 5 times per day for 5 days (begin at the earliest signs of disease)

INGREDIENT: Acyclovir

*Alternative options are available for immunocompetent patients.

Rx **Zovirax Ointment 5%**

Disp 15 g

Sig Apply thin layer to lesion 6 times per day for 7 days

INGREDIENT: Acyclovir

Rx **Denavir Cream 1%**

Disp 5 g

Sig Apply every 2 hours during waking hours for a period of 4 days

INGREDIENT: Penciclovir

Rx **Valtrex 500 mg**

Disp 8 tablets

Sig Take 4 tablets at first sign of attack and then take 4 tablets 12 hours later

INGREDIENT: Valacyclovir

NOTE: Not for HIV patients; may cause thrombocytopenia.

Rx **Abreva (OTC) Cream 10%**

Disp 2 g

Sig Apply to lesion 5 times per day; start at first sign of cold sore or fever blister and continue until healed.

INGREDIENT: Docosanol

Rx **Viroxyn** (available only through dental office or online)

Disp 2 tubes

Sig Break the tube, rub ulcer/starting herpes lesion with fluid until it becomes numb. Discard tube. Repeat once 12 hours later, if needed.

INGREDIENTS: Benzalkonium Chloride 0.13% and Benzocaine 7.5%

NOTE: Viroxyn can be obtained at www.viroxyn.com.

6) ORAL SOFT TISSUE PROBLEMS

Aphthous Ulcers	Benadryl/Kaopectate Dexamethasone elixir Fluocinonide ointment (formerly Lidex) Temovate ointment Triamcinolone paste
Necrotizing Ulcerating Gingivitis	Betadine
Allergy	Benadryl
Oral Autoimmune Disease (Lichen Planus, Pemphigoid, Pemphigus)	Dexamethasone elixir Fluocinonide ointment (formerly Lidex) Prednisone Temovate ointment Triamcinolone paste
Aphthous (Cauterizer)	Debacterol
Angular Cheilitis	Nystatin and Triamcinolone cream (formerly Mycolog II)
Magic Mouthwash	

APHTHOUS ULCERS (CANKER SORES) MANAGEMENT

Aphthous is considered an autoimmune disease with poorly understood triggering causes. The lesions occur exclusively on unattached (cheek, floor of mouth, etc) mucosa (as opposed to secondary herpes simplex, which, intraorally, occurs only on attached mucosa).

Treatment for canker sores is divided into 3 sections:

1. Prevention
2. Pain relief
3. Pharmacological treatment

PREVENTION

Avoid triggering foods:

Nuts, chocolate, acidic fruits, or foods patient identifies by experience

Avoid trauma:

Toothbrush trauma, cheek bite, etc

Avoid stress:

Now that is useless advice... who has the time to avoid stress?

Avoid sodium lauryl sulfate:

A soap found in most toothpaste and mouthwashes. Consider Biotene Dry Mouth toothpaste.

Consider an antimicrobial mouthrinse:

Chlorhexidine Gluconate (Rx on page 68) or **Listerine.** For prevention only. Do not prescribe for treatment – it does not work to treat lesion and the alcohol stings.

APHTHOUS ULCERS (CANKER SORES) MANAGEMENT

PAIN RELIEF

Products which coat the lesion or numb the ulcers or do both:

Coat and numb lesion:

Orabase
Zilactin
Kank-A

Coat lesion only:

Liquid Carafate
Benadryl / Kaopectate (Rx on page 55)
Canker Cover

PHARMACOLOGICAL TREATMENT

Corticosteroids *to reverse the autoimmune process (all are by prescription):*

Triamcinolone paste (often not potent enough) (Rx page 56)

Fluocinonide ointment (formerly Lidex) (Rx page 56)

Temovate ointment (Rx page 56)

Dexamethasone elixir (Rx page 57)

On rare occasions, use **Prednisone** (oral), 40 mg/day for 7 days (Rx page 57)

Cauterizing (Chemical) Treatment:

Debacterol (Rx page 58)

(ACUTE) NECROTIZING ULCERATING GINGIVITIS (ANUG OR NUG)

NUG is a specific bacterial (spirochetal) infection.

TREATMENT STEPS:

1. **Clindamycin** or **Metronidazole** to treat infection (Rx pages 36-37)
2. **Chlorhexidine Gluconate** (Rx page 68) or **Betadine** to aid in treating infection
3. **Hydrogen peroxide** rinse and/or warm saline rinse
4. Short-term pain medication as needed (see page 21)
5. Dental cleaning when patient is comfortable

Rx	**Betadine solution**
Disp	8 oz
Sig	Rinse 1 teaspoonful in mouth for 1 minute and expectorate, 2 times per day
	INGREDIENT: Povidone-iodine 10%
	NOTE: Not to be used in patients allergic to iodine. Solution should be completely expectorated (*it tastes awful, they will want to spit it all out*).
	For short-term use only, maximum 2 days.

MEDICATIONS: ORAL ALLERGY

Rx **Benadryl 25 mg**

Disp 16 tablets

Sig 1 to 2 tablets, 3 to 4 times per day (do not exceed 300 mg/day)

INGREDIENT: Diphenhydramine

NOTE:
1. Use 3 to 4 times per day for 4 days depending on duration of allergic reaction
2. Alert patient to probable sedation/sleepiness side effect from this drug.

Rx **Benadryl syrup (mix 50/50) with Kaopectate**

Disp 8 oz total

Sig Rinse 1 tablespoonful in mouth for 1 minute as needed to relieve pain or burning, then expectorate

MEDICATIONS: ORAL AUTOIMMUNE DISEASE

Rx **Fluocinonide ointment* 0.05%** (formerly Lidex)

Disp 15 g

Sig Apply thin layer to oral lesions 2 to 4 times per day

Rx **Temovate ointment* 0.05%**

Disp 15 g

Sig Apply thin layer to oral lesions twice daily for up to 2 weeks (maximum dose: 50 g/week); discontinue application when control is achieved; if no improvement is seen, reassessment of diagnosis may be necessary

INGREDIENT: Clobetasol

Rx **Triamcinolone paste 0.1%**

Disp 5 g

Sig Apply thin layer to affected area 3 times per day. Press a small dab (about ¼ inch) to the lesion until a thin film develops; a larger quantity may be required for coverage of some lesions. For optimal results, use only enough to coat the lesion with a thin film; do not rub in.

NOTE: If stronger corticosteroid is needed, use Fluocinonide

***NOTE:** Label on the tube of these products will say "for external use only." Use in mouth is considered "off-label." These drugs have been and are used safely, as directed, on oral mucosa for oral inflammatory/autoimmune diseases. Patient should be informed of off-label use.

Rx **Dexamethasone elixir**

Disp 500 mL

Sig Rinse with 5 mL for 2 minutes 4 times/day and expectorate

INGREDIENT: Dexamethasone 0.5 mg/5 mL

Rx **Prednisone 5 mg**

Disp 40 tablets

Sig Take 4 tablets in AM and 4 tablets at noon for 5 days

CAUTION:

1. Take medication with food
2. Use with extreme caution. This is a potent systemic dosage. Consult with patient's physician, an oral medicine dentist (at dental schools), or *Drug Information Handbook for Dentistry* if questions on dosage, indications, or contraindications arise.

MEDICATIONS: APHTHOUS (CAUTERIZER)

Rx **Debacterol**

Disp 1 tube

Sig Break internal glass tube, touch saturated cotton tip to thoroughly dried ulcer (warn patient, ***it will hurt!***). Hold in place for 5 to 10 seconds.

INGREDIENT: Sulfonated phenolics and sulfuric acid

NOTE: Debacterol can be obtained from most dental supply companies.

ANGULAR CHEILITIS
(CRACKING IN THE CORNER OF THE MOUTH)

Rx **Nystatin and Triamcinolone cream** (formerly Mycolog II)

Disp 15 g

Sig Apply sparingly to corners of mouth 2 to 4 times/day. Therapy should be discontinued when control is achieved; if no improvement is seen, reassessment of diagnosis may be necessary.

INGREDIENT: 100,000 units nystatin per gram
0.1% triamcinolone acetonide

MAGIC MOUTHWASH

Clinicians and patients are convinced that ***their*** Magic Mouthwash is great for use in a specific application. However, an investigation of this "product" (*Pharmacist's Letter*) reveals that there is no specific formulation for Magic Mouthwash. Most formulations contain viscous lidocaine or diphenhydramine for analgesia and Maalox, Milk of Magnesia, sucralfate, or a similar antacid to coat the surface of the mucosa. The other ingredients are an antibiotic (tetracycline) to reduce bacterial flora around the lesion, though other mechanisms of action have been postulated, and/or an antifungal (nystatin) to stop fungal growth, and/or a corticosteroid (hydrocortisone, dexamethasone) to reduce inflammation. The usual instructions are to use every 4 to 6 hours, hold in mouth for 1 to 2 minutes, then expectorate. Patients should be instructed to shake bottle well before using and not to eat or drink for 30 minutes after use.

Here is a good example of a magic mouthwash*:

Viscous lidocaine 2%	150 mL
Diphenhydramine 12.5 mg/5 mL	20 mL
Hydrocortisone (Solu-Cortef)	100 mg
Tetracycline or Doxycycline	2 g
Nystatin suspension	20 mL

Swish and expectorate 15 to 30 mL every 4 to 6 hours

Alternatively, here is a good example of a magic mouthwash without steroids*:

Viscous lidocaine 2%	1 part
Diphenhydramine 12.5 mg/5 mL	1 part
Maalox	1 part

Swish 5 mL, hold and expectorate; repeat no more than every 4 hours

*The pharmacist needs detailed instructions to formulate the correct rinse; just writing for "Magic Mouthwash" is not specific enough.

7) MISCELLANEOUS

Dentin Hypersensitivity*

Anticaries Agents*

Antiplaque / Antigingivitis Agents*

Halitosis / Oral Malodor

Probiotics, Prebiotics and Oral Health

Necrotizing Ulcerating Periodontitis
(HIV-associated Periodontal Disease)

Muscle Relaxants

Periodontal Disease

Salivary Problems

Sinus Infection Treatment

Dry Socket

Pediatric Oral Dosages

***NOTE:** Check www.ada.org/public for most current list of over-the-counter consumer products that have the ADA Seal of Acceptance.

SUGGESTED STEPS IN RESOLVING DENTIN HYPERSENSITIVITY:

A thorough exam to rule out any other source for the problem such as tooth fracture, occlusal trauma, or irreversible pulpitis, must be done first. The most common reason for persistent hypersensitivity is bruxing.

TREATMENT STEPS: Start with Step 1.

Progress through steps as needed, until hypersensitivity is controlled.

Step 1. **Home treatment** with a desensitizing toothpaste containing potassium nitrate (or stannous fluoride) (used to brush teeth at least 2 times per day, as well as a thin layer applied to affected teeth and left overnight, each night for 3 to 4 weeks). Tell patient not to use tartar control toothpaste. It may slow natural occlusion of dentinal tubules by preventing calcium precipitation.

Step 2. **In office**, apply glutaraldehyde/HEMA preparation to exposed root surface (eg, Glu/Sense, GLUMA Comfort Bond & Desensitizer).

Step 3. Apply potassium nitrate-based toothpaste in a bleaching tray for 10 to 30 minutes a day as needed.

NOTE: This is the best way to prevent bleaching sensitivity.

Step 4. Coat exposed root surface with light cured self-etching resin (eg, Clearfil SE Bond, Clearfil Protect Bond).

Potassium nitrate is the active ingredient in all FDA-approved desensitizing toothpastes (**Crest Sensitivity Protection**, **Sensodyne**, **Colgate Sensitive**, **Oragel Sensitive**, etc), except **Crest ProHealth** which contains stannous fluoride.

NOTE: Check the ADA website - www.ada.org/public - for current listing of ADA-accepted consumer products.

MANAGING DENTAL CARIES AS A DISEASE

The cause and mechanism of dental caries is well understood, yet there is not yet consensus on caries management as new treatments continue to evolve. In September 2011, an ADA expert panel evaluated the existing evidence for caries prevention. Dietary improvement (decreased exposure to fermentable carbohydrates/sugar), topical fluorides, and sealants have the highest levels of evidence for caries prevention and should be used first.

If these are not enough, only 2 adjunctive modalities, Xylitol and Chlorhexidine-Thymol varnish, had adequate science and expert opinion support to recommend them (Nonfluoride Caries – Preventive Agents: Executive Summary of Evidence-Based Clinical Recommendations, ADA Expert Panel. *JADA.* 2011;142(9):1065-1071).

A more recent randomized clinical trial demonstrated beneficial effects using topical fluoride and 0.12% chlorhexidine gluconate rinse based upon bacterial challenge (A Randomized Clinical Trial of Anticaries Therapies Targeted according to Risk Assessment [Caries Management by Risk Assessment]. *Caries Res.* 2012;46(2):118-129).

XYLITOL: Xylitol is a natural sugar that cariogenic bacteria cannot metabolize into tooth-dissolving acidic by-products. Its presence alters the oral bacterial environment and decreases the risk of decay.

DOSAGE: Chew 2 sticks of gum for 5 to 10 minutes, 3 to 4 times/day (discontinue use if TMJ symptoms occur) or suck on xylitol candy (6 to 10 g/day, spread throughout the day).

NOTE: Not for children 5 years or younger, due to risk of choking.

SOURCES: www.xlear.com, www.epicdental.com, and other brands.

CHLORHEXIDINE-THYMOL VARNISH: 1:1 mixture is useful for root caries, presumably by killing the cariogenic bacteria responsible for decay.

DOSAGE: Apply layer of varnish to roots every 3 months (in-office procedure).

NOTE: There is not good evidence to support the use of this combination or any concentration of chlorhexidine alone for the control of coronal caries.

SOURCES: Cervitec Plus, www.ivoclarvivadent.com

– also –

Consider the CariFree System® – information at www.carifree.com
They focus on caries and have designed a scientific anticaries system for clinical practice, including caries risk assessment, bacterial load measurement, and a complete product line focused on pH, biofilm modification, and remineralization.

Fluorides to "harden" tooth structure*:

Of course, OTC toothpaste (1,000 to 1,500 ppm)
and consider OTC fluoride rinses (230 ppm)

High Caries Rate:

Rx: Sodium fluoride (5,000 ppm) gel or toothpaste
and
Fluoride varnish (22,600 ppm) applied every 6 months

*See ADA topical fluoride guidelines – http://ebd.ada.org/~/media/EBD/Files/JADA_updated_executive_summary_Nov_2013.ashx

FLUORIDE: PRESCRIPTION SYSTEMIC

Rx **Sodium Fluoride tablets** (tablet size based on table below*)

Disp 120 tablets

Sig Chew and dissolve 1 tablet in mouth, swish, then swallow, once per day, preferably before bedtime after brushing

NOTE: Chewing and swishing the fluoride in mouth is very important. Much of the protective effects are topical.
*1 mg of fluoride equals 2.2 mg of sodium fluoride

ADA Recommended Supplemental Fluoride Dosage Schedule

	Concentration of fluoride ion in drinking water (ppm)		
Age (years)	**<0.3**	**0.3 to 0.6**	**>0.6**
6 mo to 3 y	0.25 mg	0	0
3 to 6 y	0.50 mg	0.25 mg	0
6 to 16 y	1 mg	0.50 mg	0

FLUORIDE: PRESCRIPTION TOPICAL

Rx **Neutral Sodium Fluoride gel / toothpaste 1.1 (5,000 ppm)**

Disp 2 oz

Sig Brush on teeth or place 1 teaspoonful of gel in fluoride tray and apply to teeth for 3 to 5 minutes, or while you are in the shower, once per day

COMMERCIAL PRODUCTS:

ControlRx (3M)
Neutracare Home Topical (Oral-B)
Prevident Gel or Toothpaste (Colgate)
Many other brands, all are effective

Rx **Fluoride varnish** (22,600 ppm F)

COMMERCIAL PRODUCTS FOR DENTAL OFFICE:

Vanish (3M)
Duraphat (Colgate)
VarnishAmerica (1-800-523-0191)
(www.medicalproductslaboratories.com)
Many other brands, all are effective

FLUORIDE: NONPRESCRIPTION TOPICAL

Rx Any **ADA-Approved toothpaste** (1,000 to 1,500 ppm)

Rx **OTC Fluoride rinses** (230 ppm F)

COMMERCIAL PRODUCTS:

ACT Fluoride Rinse (Johnson & Johnson)
Fluorigard (Colgate)
Some of the Listerine rinses

Rx **Stannous Fluoride 0.4%** (brush on gel) (1,500 ppm)

Disp 4 oz

Sig Brush on teeth once per day

COMMERCIAL PRODUCTS:

Gel-Kam Gel (Colgate)
PerioMed (3M)
Stop Gel (Oral-B)

ADA ACCEPTED ANTIPLAQUE AND ANTIGINGIVITIS AGENTS

Rx **Chlorhexidine Gluconate oral rinse 0.12%**

Disp 3 x 16 oz (473 mL)

Sig Floss and brush teeth, completely rinse toothpaste from mouth and swish 15 mL (one capful) undiluted oral rinse around in mouth for 30 seconds, then expectorate. Caution patient not to swallow the medicine and instruct not to eat for 2 to 3 hours after treatment (cap on bottle measures 15 mL).

CAUTION: Chlorhexidine may:

- stain teeth yellow to brown
- alter taste (temporary)
- increase the deposition of calculus
- and requires a prescription

NOTE: Peridex, PerioGard, Paroex, and other brands

Also, consider for patients with high decay rate (see page 65).

Rx **Listerine (OTC)**

Disp To be determined by practitioner

Sig Rinse 1 tablespoonful in mouth for 30 seconds, 2 times per day

Rx **Crest ProHealth toothpaste or Colgate Total toothpaste (OTC)**

Disp To be determined by practitioner

Sig Brush teeth with toothpaste 2 to 3 times per day after flossing

HALITOSIS/ORAL MALODOR

Halitosis is a common complaint and is most often associated with bacteria in the oral cavity. There can be other extraoral sources/reasons for the complaint, including medical/systemic problems and even a neurosis or psychosis, halitophobia. As with all successful treatments, halitosis management begins with a correct diagnosis.

Bacteria in the oral cavity is the most common cause (75%) of halitosis, presenting as a coated tongue, periodontal disease, or infection. There are also a variety of systemic causes including diabetes; kidney failure; tonsil abnormalities (eg, tonsilloliths); sinus, upper respiratory, or lung infection; gastric reflux; and cancer, that should be ruled out, especially in persistent and challenging cases. If no obvious odor is detected, but the patient remains very concerned, then halitophobia should be considered and a referral to a clinical psychologist would be appropriate.

Management/Treatment is focused on eliminating the cause, which in most cases is oral bacteria.

1. Decrease oral bacteria

   Brushing of teeth and tongue (back of the tongue, at least to the circumvalate papilla and beyond). If still a problem, a professional cleaning, including scale and root planing, if needed.

   The use of antimicrobial mouthwash and/or toothpaste (suggested active ingredients: chlorhexidine, triclosan, zinc chloride, cetylpyridinium chloride). Mouth rinses without an active antimicrobial ingredient only transiently mask the smell, which can provide some emotional reassurance.

   Interproximal cleaning, like flossing and using toothpicks, can help remove plaque, which can harbor oral bacteria.

2. Eliminate oral odor sources

   Minimize odiferous foods (mostly sulfur-containing foods such as garlic and onions).

   Some people have a unique odor-causing response to milk products or diet sodas.

3. Stay hydrated, dry mouth, for any reason, is conducive to the growth of odor-causing bacteria.

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Madhushankari GS, Yamunadevi A, Selvamani M, Mohan Kumar KP, Basandi PS. Halitosis - an overview: part I - classification, etiology, and pathophysiology of halitosis. *J Pharm Bioallied Sci.* 2015;7(Suppl 2):S339-343.

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Porter SR, Scully C. Oral malodor (halitosis). *BMJ.* 2006;333(7569):632-635. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/

PROBIOTICS, PREBIOTICS AND ORAL HEALTH

One of the newest areas of "Dental Pharmacology" is managing/altering the oral flora to improve/maintain oral health. Probiotics are the "good" organisms that are known to live in a healthy mouth. Prebiotics are the "food"/special compounds/saccharides (sugars)/polysaccharides that good organisms need to survive and grow.

How the good organisms work to establish and maintain oral health is an active area of research with many hypotheses. Theories include that the good organisms either out-compete or actively destroy the bad organisms.

Lactobacillus and bifidobacteria (found in most yogurt) are the most well known probiotics. There is limited evidence that these organisms may have a positive impact on caries control, by competing against cariogenic streptococci. There are no specifically formulated dental products with these organisms.

At this point, there is much research to be done. Science has not yet identified all the bad and good organisms in the oral cavity and how each organism impacts oral health.

Based on that, the use of probiotics and prebiotics should be considered as adjuncts to proven therapies and their use should be considered only after, or in conjunction with, established treatments for oral problems like caries and periodontal disease.

PROBIOTICS, PREBIOTICS AND ORAL HEALTH

Probiotics

Probiotics are defined by the Food and Agriculture Organization of the World Health Organization as live microorganisms that, when administered in adequate amounts, confer a health benefit on the host by improving its intestinal microbial balance.

ProBiora 3 (EvoraPro): contains *S. oralis, S. uberis, S. rattus*; https://evorapro.com

PRO-Dental by Hyperbiotics: contains *S. salivaris* M18 and K12; https://www.hyperbiotics.com/collections/dental-ent

Spry Dental Probiotics by XLEAR: contains *S. salivaris* with xylitol and several prebiotics; http://www.xlear.com/store/spry-dental-defense.html

TheraBreath Oral Care Probiotics by TheraBreath: contains *S. salivaris* M18 and K12

Prebiotics

Prebiotics have been defined as nondigestible food ingredients that beneficially affect the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon.

Isothrive

Prebiotin

REFERENCES

Allaker RP, Ian Douglas CW. Non-conventional therapies for oral infections. *Virulence*. 2015;6(3):196-207. Available at http://www.tandfonline.com/doi/full/10.4161/21505594.2014.983783?src=recsys

MANAGEMENT OF NECROTIZING ULCERATING PERIODONTITIS
(HIV-Associated Periodontal Disease)

INITIAL TREATMENT (IN-OFFICE)

- Betadine Rinse (page 54)

  NOTE: Ensure patient has no iodine allergies

- Gentle debridement / dental cleaning

AT-HOME

- Chlorhexidine rinse (page 68)
- Metronidazole (Flagyl) 7 to 10 days (page 37)

FOLLOW-UP THERAPY

- Proper dental cleaning including scaling and root planing (repeat as needed)
- Continue Chlorhexidine rinse as needed

NOTE: Most patients respond well to therapy and only normal oral hygiene and cleaning are needed.

MUSCLE RELAXANTS

Muscle relaxants can be of some small value, sometimes for "TMJ" problems (myofascial pain dysfunction problems). Muscle relaxants are of no value if pain is exclusively localized in the joint. Besides the fact that muscle relaxants seldom help, they have one major drawback, they relax ALL the muscles, not just the jaw muscles. Patients often feel unusually weak and tired, adding to their general level of distress – warn the patient about such concerns. The drugs suggested below are only for short-term use (maximum: 3 weeks). No response in that time means they are not effective and should be discontinued. If the patient responds, a refill can be considered, but both drugs below have more side effects, dependence, and drug interactions the longer they are used.

Rx **Clonazepam 0.5 mg**

Disp 40 tablets

Sig Take 1 tablet before sleep (if response is minimal and there have been no unwanted side effects after 3 days, then an additional 1 tablet can be added in the morning)

NOTE: Not to be used in elderly; severe risk of falling.

Rx **Cyclobenzaprine 5 mg** (formerly Flexeril)

Disp 40 tablets

Sig Initial: 5 mg 3 times/day; may increase to 7.5 to 10 mg 3 times/day if needed

NOTE: Not to be used in elderly; severe risk of falling.

It is important to review the package insert especially for information about contraindications, side effects, and precautions.

The mechanism of bone loss in periodontal disease is not fully understood, but if the patient has good to reasonable professional and home care, and is still losing bone, doxycycline may be of value. The low dose used is not considered antimicrobial, but inhibits collagenase/metalloproteinases, enzymes associated with inflammation, that contribute to bone loss.

It is appropriate to discuss this medical approach to managing periodontal disease with your periodontist, to get their perspective on patient selection and efficacy.*

Rx	**Doxycycline 20 mg**
Disp	180 tablets
Sig	Take 1 tablet 2 times per day

NOTE: Do not use during pregnancy.

Some patients will cut a 100 mg tablet of doxycycline in quarters (but you need a dexterous patient).

Periostat is a branded formulation of doxycycline, 20 mg, available in Canada.

*The duration of treatment is 1 to 3 years.

SALIVARY HYPOSECRETION / XEROSTOMIA

Dry mouth is most commonly a side effect of medications, but can be caused by radiation (cancer treatment) or immunologic (Sjögren's Syndrome) destruction of the salivary glands. Advanced age can also lead to decreased resting levels of saliva production, though stimulated flows are usually normal.

TREATMENT: If salivary glands are still functional, they can be stimulated with pilocarpine or cevimeline.

Rx **Salagen 5 mg**

Disp 90 tablets

Sig Take 1 to 2 tablets 3 to 4 times per day (maximum dose: 10 mg 3 times per day)

INGREDIENT: Pilocarpine hydrochloride

CAUTION: Read prescribing information. Many contraindications (ie, glaucoma, hepatic impairment) and precautions (eye, heart, lung, and other diseases)

NOTE: Pilocarpine is available as a generic; minimum 90-day therapy required for optimum effects, so adjust amount dispensed accordingly.

Rx **Evoxac 30 mg**

Disp 90 tablets

Sig Take 1 tablet 3 times per day

INGREDIENT: Cevimeline

CAUTION: Read prescribing information. Many contraindications (ie, glaucoma, asthma) and precautions (eye, heart, lung, and other diseases).

PALLIATIVE TREATMENT OF DRY MOUTH:

Artificial Lubricant:

Biotene Oral Balance Gel (GSK)

Oralbalance Dry Mouth liquid moisturizer
(https://dental-professional.com/Products/Biotene.html)

Salivart

Artificial Salivas:

Saliva substitute (Roxane)
Mouth Kote (Pasnell)
Moi-Stir (Kingswood)
Most people just use plain water in a small squirt bottle

Nonirritating Toothpaste:

Biotene Toothpaste (GSK)

Mouth Lozenges:

Salese with Xylitol (http://nuvorainc.com/shop-2/salese)

NOTE: The Sjögren's foundation (www.sjogrens.org) is the best source for you and your patient on dry mouth management – no matter why they have dry mouth. They publish the *Moisture Seekers Newsletter.*

See "Managing Dental Caries as a Disease" for those patients with severe xerostomia (page 63).

Water:

Some people just keep a spray bottle of water with them. It is inexpensive and provides about the same amount of benefit and relief.

SALIVARY HYPERSECRETION (SIALORRHEA)

The drug below can be used to block excessive salivary flow during restorative procedures. Propantheline can have a variety of unpleasant side effects like blurred vision, stomach upset, decreased sweating, and others. Patients should be warned so they are aware and are not surprised or distressed.

Rx **Propantheline 15 mg**

Disp # (Tablet quantity determined by number of appointments needed)

Sig Take 1 tablet 30 minutes before dental appointment

CAUTION: Read prescribing information. Many contra-indications such as glaucoma. Can cause dry eyes, so remove contact lenses.

NOTE: In some patients, 2 tablets may be needed.

SINUS INFECTION TREATMENT

Dentist may elect to treat sinuses, but only to rule out dental problems. If the patient has no dental complaints, refer to physician.

Rx **Amoxicillin 500 mg**

Disp 21 tablets

Sig Take 1 tablet 3 times per day

– OR –

Rx **Augmentin 500 mg**

Disp 30 tablets

Sig Take 1 tablet 3 times per day

INGREDIENTS: Amoxicillin and Clavulanate Potassium

TREATMENT: The selected antibiotic (above) should be used with the compounds below, which block the swelling effect of histamine (Claritin) and shrink the sinuses (Neo-Synephrine).

Rx **Claritin 10 mg (OTC)***

Disp 14 tablets

Sig Take 1 tablet per day

INGREDIENT: Loratadine

Rx **Neo-Synephrine (OTC)***

Disp 15 mL

Sig 2 to 3 sprays in each nostril

INGREDIENT: Oxymetazoline

OTHER BRANDS: Afrin, Mucinex

*OTC = over-the-counter

DRY SOCKET (ACUTE / ALVEOLAR OSTEITIS)

This is a necrosis of bone following a dental extraction. It is usually caused by the loss of the blood clot within the extraction site, so the area has to heal by secondary intention. It is not an infection and usually not associated with an infection. Treatment is designed to soothe the pain while the area heals.

TREATMENT:

1. Gently irrigate socket with saline.

2. Gently fill socket site with iodoform gauze coated with a gel of a local anesthetic and eugenol (Sultan and other brands; Alvogyl by Septodont is available in Canada, but does not have FDA approval).

3. Remove gauze after 2 days (Alvogyl dissolves on its own, and does not need to be removed).

4. Repeat application if pain persists.

NOTE: Prescribe pain medication as needed (pages 24-31).

If obvious pus/infection, then it is not a dry socket, it is an infection and you must manage as an infection and prescribe antibiotics (pages 36-38).

If problem persists, especially if pain is not severe, and patient takes bone-antiresorptive drugs, such as bisphosphonates, consider possibility of antiresorptive agent-induced osteonecrosis (pages 96-98).

PEDIATRIC ORAL DOSAGES

Pediatric dosages are given as mg of drug per kg (1 kg = 2.2 lbs) of child per 24 hours. **The child dose should never exceed the adult dose**, even if the calculation suggests it does.

The table on the following pages lists the maximum oral dose in mg/kg (1 kg = 2.2 lbs) for a child in a 24-hour period. It also indicates the frequency of dosing. Please note the maximum 24-hour dose must be divided by the suggested number of doses per 24 hours, to get the amount for each dose.

If there are any concerns or questions as to appropriateness of dosage, drug interactions, or indications for the drug, consult the child's physician, a pharmacist, or the drug's package insert information.

NOTE: **In California, and possibly other states (check your state law),** to give oral sedation to a child <13 years of age requires a special oral sedation permit from the State Board of Dental Examiners. Oral sedation means anything given by mouth that will sedate or relax the child. This would include sedative/hypnotics (barbiturates, benzodiazepines), antihistamines, narcotics, and chloral hydrate.

PEDIATRIC ORAL DOSAGES

DRUG	INDICATION	DOSAGE
Acetaminophen	Analgesia	10 to 15 mg/kg/dose every 4 to 6 hours as needed; do not exceed 5 doses (2.6 g) in 24 hours
Acetaminophen 120 mg + Codeine 12 mg/5 mL	Analgesia	3 to 6 years: 5 mL 3 to 4 times daily; 7 to 12 years: 10 mL 3 to 4 times daily; >12 years: 15 mL every 4 hours as needed
Acyclovir	Treatment of initial episodes of herpes simplex infection	30 mg/kg/day in 3 divided doses for up to 12 months; maximum: 1,000 mg/24 hours
Amoxicillin	Bacterial infection	Infants >3 months and Children <40 kg: 20 to 100 mg/kg/day in divided doses every 8 hours
Azithromycin	Bacterial infection, penicillin allergy	12 mg/kg/day (maximum dose: 500 mg/day) once daily for ≤5 days
Cephalexin	Bacterial infection	25 to 100 mg/kg/day divided every 6 to 8 hours; maximum dose: 4 g/24 hours
Clindamycin	Bacterial infection, penicillin allergy	8 to 20 mg/kg/day divided in 3 to 4 equally divided doses; maximum daily dose 1,800 mg/day
Clotrimazole	Oropharyngeal candidiasis	>3 years: 10 mg troche dissolved slowly 5 times/day

(continued)

(continued)

DRUG	INDICATION	DOSAGE
Fluconazole	Oropharyngeal candidiasis	Initial: 6 mg/kg/dose (maximum: 200 mg), followed by 3 mg/kg/dose once daily; maximum daily dose: 100 mg (non-HIV patients)
Erythromycin	Bacterial infection	30 to 50 mg/kg/day divided every 6 to 12 hours; do not exceed 2 g/24 hours
Ibuprofen	Analgesia	<50 kg: 4 to 10 mg/kg/dose every 6 to 8 hours; maximum single dose: 400 mg; maximum daily dose: 40 mg/kg/24 hours
Metronidazole	Bacterial infection	30 to 50 mg/kg/day in divided doses every 8 hours; maximum dose: 2.25 g/24 hours
Naproxen	Analgesia	>2 to ≤12 years: 5 to 7 mg/kg/dose every 8 to 12 hours >12 years: 200 mg every 8 to 12 hours
Diazepam (Valium)*	Anxiolysis	0.2 to 0.3 mg/kg (maximum dose: 10 mg) 45 to 60 minutes prior to procedure
Hydroxyzine (Vistaril)*	Anxiolysis	<6 years: 50 mg/day in 4 divided doses; ≥6 years: 50 to 100 mg/day in 4 divided doses

*See **Note** on page 81.

NOTE: For pediatric doses for the prophylaxis of infectious (bacterial) endocarditis, see pages 88-90.

8) MANAGING MEDICALLY COMPLEX PATIENTS

Prophylactic Antibiotic Coverage

Prevention of Orthopaedic Implant Infection

Antiresorptive Agent-Induced Osteonecrosis of the Jaw

Pregnant and Breastfeeding Patients

PROPHYLACTIC ANTIBIOTIC COVERAGE

A. Prevention of Bacterial Endocarditis

B. Prevention of Prosthetic Joint Infections

C. Other Medical Conditions

The following cardiac and artificial joint guidelines are the only official ADA sanctioned guidelines for prophylactic antibiotic use in dentistry. No others exist as of the printing of this booklet.

A literature review (Little JW, Falace DA, Miller CS, and Rhodus NL, "Antibiotic Prophylaxis in Dentistry: An Update," *Gen Dent*, 2008; 56(1):20-28) suggests that the below listed medical situations may warrant prophylactic antibiotic coverage for dental procedures, but there are no official guidelines to do so.

1. Dental treatment of:

   Immunosuppressed patients
   (neutropenia <1,000 and or CD4 <200)

   Poorly controlled type 1 diabetic patients

   Poorly controlled organ transplant patients

   Patients with splenectomy within last 6 months

2. Incisions/manipulation of a dental abscess in patients with a nonvalvular cardiac device.

If you do elect to prophylax in the above situations, the drugs of choice are those suggested for heart and joint prophylaxis. If infection persists/ensues, consultation with, or referral to, an oral-maxillofacial surgeon, endodontist, periodontist, or physician, relative to management, is appropriate.

PROPHYLACTIC ANTIBIOTIC COVERAGE FOR THE PREVENTION OF BACTERIAL ENDOCARDITIS

Current American Heart Association Guidelines
Published May 8, 2007, *Circulation*, Vol 115.

Cardiac Conditions for Which Prophylaxis for Dental Procedures is Recommended[1,2]

Prosthetic Cardiac Valve

Previous Infective Endocarditis

Congenital Heart Disease (CHD)

- Unrepaired cyanotic CHD, including palliative shunts and conduits
- Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure (endothelialization occurs within 6 months of procedure)
- Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibits endothelialization)

Cardiac transplant recipients who develop cardiac valvulopathy

---

If patient's physician requests prophylaxis for dental procedure, but patient does not meet ADA/AHA criteria for needing it, then physician should prescribe prophylaxis, patient takes it under their direction, and they come to you safe for dental procedures.

[1]Except for the cardiac conditions listed above, antibiotic prophylaxis is no longer recommended for any other cardiac condition or problem.

[2]If patient has one of the above cardiac conditions, they need prophylaxis for all dental procedures that bleed or could bleed.

PROPHYLACTIC ANTIBIOTIC COVERAGE FOR THE PREVENTION OF BACTERIAL ENDOCARDITIS

STANDARD REGIMEN

Rx **Amoxicillin 500 mg**

Disp 4 tablets

Sig Take 4 tablets (2 g) 30 to 60 minutes before procedure

NOTE:

1) Children 50 mg/kg 30 to 60 minutes before procedure (do not exceed adult dose)
2) No second dose is required for adults or children

STANDARD REGIMEN FOR PATIENTS ALLERGIC TO AMOXICILLIN OR PENICILLIN

Rx **Clindamycin 150 mg**

Disp 4 tablets

Sig Take 4 tablets (600 mg) 30 to 60 minutes before procedure

– OR –

Rx **Cephalexin 500 mg***

Disp 4 tablets

Sig Take 4 tablets (2 g) 30 to 60 minutes before procedure

– OR –

Rx **Azithromycin 500 mg**

Disp 1 tablet

Sig Take 1 tablet (500 mg) 30 to 60 minutes before procedure

– OR –

PROPHYLACTIC ANTIBIOTIC COVERAGE FOR THE PREVENTION OF BACTERIAL ENDOCARDITIS

STANDARD REGIMEN FOR PATIENTS ALLERGIC TO AMOXICILLIN OR PENICILLIN (continued)

Rx **Clarithromycin 250 mg**

Disp 2 tablets

Sig Take 2 tablets (500 mg) 30 to 60 minutes before procedure

NOTE: Children's dosage (do not exceed adult dose)

Clindamycin 20 mg/kg
Cephalexin 50 mg/kg
Azithromycin 15 mg/kg
Clarithromycin 15 mg/kg

FOR PATIENTS UNABLE TO TAKE ORAL MEDICATION

Rx **Ampicillin**

2 g IV or IM within 30 to 60 minutes before procedure

CHILDREN: 50 mg/kg IV or IM within 30 to 60 minutes before procedure
– OR –

Rx **Cefazolin* – *OR* – Ceftriaxone***

1 g IV or IM within 30 to 60 minutes before procedure

CHILDREN: 50 mg/kg (maximum: 1 g) IV or IM within 30 to 60 minutes before procedure

*Cephalosporins should not be used in individuals with immediate-type hypersensitivity reaction (urticaria, angioedema, or anaphylaxis) to penicillin

PROPHYLACTIC ANTIBIOTIC COVERAGE FOR THE PREVENTION OF BACTERIAL ENDOCARDITIS

FOR PATIENTS UNABLE TO TAKE ORAL MEDICATION AND ALLERGIC TO AMPICILLIN, AMOXICILLIN, AND/OR PENICILLIN

Rx **Clindamcyin**

600 mg IV within 30 to 60 minutes before procedure

CHILDREN: 20 mg/kg IV within 30 to 60 minutes before procedure

Rx **Cefazolin* – *OR* – Ceftriaxone***

1 g IV or IM within 30 to 60 minutes before procedure

CHILDREN: 50 mg/kg (maximum 1 g) IV or IM within 30 to 60 minutes before operation

*Cephalosporins should not be used in individuals with immediate-type hypersensitivity reaction (urticaria, angioedema, or anaphylaxis) to penicillin.

Patients should receive prophylactic antibiotic therapy if they meet the criteria for a specified procedure/condition listed below ***and*** they have a high-risk cardiovascular condition (listed on page 87).[1]

PROPHYLAXIS RECOMMENDED

All invasive manipulations of the gingival or periapical region or perforation of oral mucosa (includes biopsies, suture removal, placement of orthodontic bands)

PROPHYLAXIS NOT RECOMMENDED

Anesthetic injections through noninfected tissue, radiographs, placement/adjustment/removal of prosthodontics/orthodontic appliances or brackets, shedding of deciduous teeth, trauma-induced bleeding from lips, gums, or oral mucosa

[1]Source: AHA Guidelines

PREVENTION OF ORTHOPAEDIC IMPLANT INFECTION IN PATIENTS UNDERGOING DENTAL PROCEDURE

The American Dental Association and the Council on Scientific Affairs, in January of 2015, provided Clinical Recommendations relative to the Management of Patients with Prosthetic Joints Undergoing Dental Procedures (Sollecito 2015).

The primary recommendation:

In general, for patients with prosthetic joint implants, prophylactic antibiotics are **not recommended** prior to dental procedures to prevent prosthetic joint infections.

The 2015 ADA clinical practice guideline is valid and should continue to inform clinical decisions for dental patients in ambulatory settings. The guideline states clearly that the "evidence fails to demonstrate an association between dental procedures and Prosthetic Joint Infections (PJI) or any effectiveness for any antibiotic prophylaxis. Given this information in conjunction with the potential harm from antibiotic use, using antibiotics before dental procedures is not recommended to prevent PJI.

In February 2017, a joint committee of ADA members and American Association of Orthopedic Surgeons (AAOS) members published **Guidance for utilizing Appropriate Use Criteria (AUS) in the management of the care of patients with orthopedic implants undergoing dental procedures** (JADA 2017; http://jada.ada.org/article/S0002-8177(16)30965-5/fulltext).

Appropriate Use Criteria (AUC) is a decision support tool to look at specific unique patient and dental procedure criteria and risks to determine the appropriateness of prophylactic antibiotic use. These AUC are for specific dental patients who have an increased risk of PJI, unrelated to the fact that they are undergoing a dental procedure. (There are other AUC for other clinical orthopedic situations.)

This **online only** decision support tool (bookmark it on your office computer) can be consulted at anytime. The Web location for the AUC for a dental patient with a prosthetic joint is: **https://aaos.webauthor.com/go/auc/terms.cfm?auc_id=224995&actionxm=Terms** (accept the "terms" and you will be linked to a page to enter the needed patient and procedure specific information for their

dental appointment. The AUC algorithm will calculate if antibiotic prophylaxis is appropriate and advise on antibiotic choice if needed.

The authors note that AUC are not a standard of care and do not substitute for clinical judgment.

The patient and procedure specific criteria and risks requested by the algorithm are:

- Planned dental procedure's risk of bacteremia
- Immunocompromised status of the patient
- Level of glycemic control (related to diabetic patients)
- History of a periprosthetic or deep prosthetic joint infection (PJI) of the hip or knee that required an operation
- Time since the hip or knee joint replacement procedure was done

Prior to the creation of the AUC decision tree, dentists were advised to consult with the patient's orthopedic surgeon when making prophylactic antibiotic decisions. **Now it is appropriate for the dentist to make the final judgment to use antibiotic prophylaxis for patients potentially at higher risk of experiencing PJI (independent of dental treatment) using the AUC as a guide, without consulting the orthopedic surgeon.**

PREVENTION OF ORTHOPAEDIC IMPLANT INFECTION IN PATIENTS UNDERGOING DENTAL PROCEDURE

It should be restated, the clinical/evidence-based reasoning behind the current 2015 recommendations and the new 2017 AUC:

1. There is evidence that dental infections are not associated with prosthetic joint infections.

2. There is evidence that antibiotics provided before oral care do not prevent prosthetic joint implant infections.

3. There are potential harms of antibiotics including risks of anaphylaxis, antibiotic resistance, and infections like *Clostridium difficile*.

4. The benefits of antibiotic prophylaxis may not exceed the harm for most patients.

5. The individual patient's circumstances and preferences should be considered when deciding whether to prescribe prophylactic antibiotics prior to dental procedures.

It should also be noted that, if the orthopedic surgeon recommends antibiotic prophylaxis or the patient prefers it, despite the dentist's recommendation against premedication, the prescription should be provided by their orthopedic surgeon or their physician, and they should take it under that clinician's direction.

PREVENTION OF ORTHOPAEDIC IMPLANT INFECTION IN PATIENTS UNDERGOING DENTAL PROCEDURE

Prophylactic Antibiotic Regimens (if the algorithm suggests that their use is appropriate):

Patient can take oral medication

If no allergy to penicillin:

Amoxicillin 2 g, 30 to 60 minutes before the dental procedure

If allergic to penicillin*:

Cephalexin** 2 g, 30 to 60 minutes before the dental procedure

OR

Azithromycin 500 mg, 30 to 60 minutes before the dental procedure

Patient cannot take oral medication

If no allergy to penicillin:

Ampicillin 2 g, IM or IV, 30 to 60 minutes before the dental procedure

OR

Ceftriaxone 1 g, IM or IV, 30 to 60 minutes before the dental procedure

If allergic to penicillin*:

Ceftriaxone** 1 g, IM or IV, 30 to 60 minutes before the dental procedure

OR

Azithromycin 500 mg, IM or IV, 30 to 60 minutes before the dental procedure

*__Note__: Clindamycin is no longer the recommended alternative drug of choice for prophylaxis to prevent PJI, if the patient is allergic to penicillin.

**Cross reactivity of cephalosporin antibiotics in patients with penicillin allergy is 5% for first generation drugs and 1% for third generation drugs. These drugs should be used unless there is a history of anaphylaxis with penicillin administration. If there is a concern, patients should be referred for allergy testing prior to administering antibiotic prophylaxis.

It bears repeating, the ADA 2015 recommendations make it very clear that there is no scientific evidence documenting the value of prophylaxing any dental patient for the intention of preventing a prosthetic joint infection. The AUC is designed for people who have a high risk of PJI, **independent** of a dental procedure. The expert committee feels, in some dental situations, it is appropriate to prophylax such patients when they are having a dental procedure.

REFERENCES:

American Dental Association guidance for utilizing appropriate use criteria in the management of the care of patients with orthopedic implants undergoing dental procedures. *J Am Dent Assoc.* 2017;148(2):57-59. Available at http://jada.ada.org/article/S0002-8177(16)30965-5/fulltext

Sollecito TP, Abt E, Lockhart PB, et al. The use of prophylactic antibiotics prior to dental procedures in patients with prosthetic joints: Evidence-based clinical practice guideline for dental practitioners-a report of the American Dental Association Council on Scientific Affairs. *J Am Dent Assoc.* 2015;146(1):11-16.

ANTIRESORPTIVE AGENT-INDUCED (BISPHOSPHONATE) OSTEONECROSIS OF THE JAW (ARONJ)

At this point in our knowledge of this disease, May 2015, there is not a lot of evidence-based information upon which to make clinical treatment decisions. All prevention/treatment information is based on expert opinion, which, by the way, though it is the best that can be gathered, is one of the lowest forms of scientific evidence.

Below is "best guess" information, otherwise known as expert opinion, on prevention and management of ARONJ/BON. Much comes from the article, "Managing the Care of Patients Receiving Antiresorptive Therapy for Prevention and Treatment of Osteoporosis: Executive Summary of Recommendations from the American Dental Association Council on Scientific Affairs," Hellstein JW, Adler RA, Edwards B, Jacobsen PL, Kalmar JR, Koka S, Migliorati CA, et al, *J Am Dent Assoc*, 2011, 142(11):1243-1251. The full report can be accessed at http://www.ada.org/~/media/ADA/Member%20Center/FIles/topics_ARONJ_report.ashx.

KEEP READING THE SCIENTIFIC LITERATURE. RECOMMENDATIONS WILL MOST CERTAINLY CHANGE/BE REFINED AS EVIDENCE ACCUMULATES!

PREVENTION OF ARONJ/BON:

1. Patients should be in good oral health. Less oral problems seems to lead to less oral problems. See them before they start meds, clean up any problems, see them for the rest of their lives.

2. Drug holiday / Drug free period. There is no strong evidence that a drug holiday is of benefit, but discontinuing the bisphosphonate for 3 to 6 months, if possible, is not inappropriate. Only the patient's physician can discontinue the drug.

3. Prophylactic antibiotics for surgical procedures. There is no documented benefit, at this point. But, based on organisms commonly found in ARONJ/BON, Penicillin V 500 mg 4 times per day, or, if allergic, then doxycycline 100 mg once daily or metronidazole 250 mg 3 times per day can be considered. Continue use until oral mucosa has sealed the wound, usually about 5 days.

4. Chlorhexidine mouth rinse, 2 times per day until area is fully healed (4 to 6 weeks). Again, there is no evidence it helps, but "it is simple, inexpensive, and has no serious contraindications," is the way the experts phrase it.

5. Primary closure should hasten the creation of an oral mucosa seal. That would be good. But extension of the surgical site to accomplish primary closure expands the wound and may increase the risk of ARONJ/BON. That would be bad. So, primary closure, if simple and doesn't expand the wound.

6. Sharp bony margins should be conservatively rounded over to avoid mucosal trauma.

ANTIRESORPTIVE AGENT-INDUCED (BISPHOSPHONATE) OSTEONECROSIS OF THE JAW (ARONJ)

MANAGEMENT OF ARONJ/BON:

1. Based on the common infecting organisms, the antibiotics of choice are Penicillin V 500 mg 4 times per day, or, if allergic, doxycycline 100 mg once daily or, if no response to the above, metronidazole 250 mg 3 times per day, until area has healed, which may be months. Amoxicillin and clindamycin would not be as effective, based on most common infecting organisms found in ARONJ/BON. A culture and sensitivity of the lesion should be considered.

2. Chlorhexidine rinse 2 times per day until area has healed.

3. Debridement is not advised (though sharp bony margins may need rounding to avoid persistent mucosal trauma). Letting the necrotized bone/tissue exfoliate on its own seems to be the least invasive and safest approach.

4. TIME AND PATIENCE. Healing can take 4 to 6 months.

5. If you are not familiar with managing osteonecrosis, the patient should be referred to someone who is, such as an oral surgeon or a physician familiar with bone infections.

REFERENCES

Khan AA, Morrison A, Hanley DA, et al. Diagnosis and management of osteonecrosis of the jaw: a systematic review and international consensus. *J Bone Miner Res.* 2015;30(1):3-23.

Ruggiero SL, Dodson TB, Fantasia J, et al. American Association of Oral and Maxillofacial Surgeons position paper on medication-related osteonecrosis of the jaw--2014 update. *J Oral Maxillofac Surg.* 2014;72(10):1938-1956.

Wynn RL, Meiller TF, Crossley HL, eds. *Drug Information Handbook for Dentistry.* 23rd ed. Hudson, OH: Wolters Kluwer Clinical Drug Information, Inc; 2017.

DENTAL DRUGS OF CHOICE FOR PREGNANT AND BREASTFEEDING PATIENTS

Risks from drugs to the fetus of a pregnant patient are two-fold; first are teratogenic effects, which lead to birth defects. These risks are greatest during the first trimester when the child is being formed. The other risk is fetotoxicity which can occur any time during the pregnancy.

Risks from drugs relative to breastfeeding are mostly concerns of toxicity.

Below are key medication considerations from an excellent review article which provides greater detail: Donaldson M, Goodchild JH. Pregnancy, breastfeeding and drugs used in dentistry. *JADA*. 2012;143(8):858-871.

Pregnancy and Breastfeeding "safe drugs"

Analgesics

- Acetaminophen
- Oxycodone (avoid close to delivery and while nursing)

Antibiotics

- Amoxicillin
- Azithromycin
- Cephalexin
- Chlorhexidine Gluconate (rinse and expectorate)
- Clindamycin
- Erythromycin
- Penicillin

DENTAL DRUGS OF CHOICE FOR PREGNANT AND BREASTFEEDING PATIENTS

Local Anesthetic*

- Lidocaine (with or without epinephrine)
- Lidocaine (topical)
- Prilocaine

*Epinephirine dosages found in dental anesthetic cartridges are safe, assuming it is not injected IV (larger amounts of epinephrine, used in some medical situations, are unsafe.)

Pregnancy "unsafe drugs"

For me it is easier to remember the unsafe drugs and just avoid them, when treating pregnant patients. **Note:** FDA guidelines have changed as of June 2015 and pregnancy risk factors are being removed but the risk of use still remains (http://www.fda.gov/Drugs/DevelopmentApprovalProcess/DevelopmentResources/Labeling/ucm093307.htm)

Analgesics

- Aspirin
- Glucocorticoids (prednisone)
- Ibuprofen (all other NSAIDs)

Antibiotics

- Doxycycline (tooth staining)
- Tetracycline (tooth staining)

DENTAL DRUGS OF CHOICE FOR PREGNANT AND BREASTFEEDING PATIENTS

Local Anesthetic

Articaine and mepivacaine must be used with caution. Bupivacaine and articaine are not considered compatible with breastfeeding.

Sedatives

- Benzodiazepines (ie, Valium, Xanax, Halcion, etc)

Breastfeeding "unsafe drugs"

Avoid: Aspirin, Metronidazole, Doxycycline, Tetracycline, Benzodiazepines and Diphenhydramine

Most drugs used in dentistry are safe when used with caution, relative to risk to the child, if the patient is breastfeeding. A good source of information is http://www.breastfeedingbasics.com/articles/drugs-and-breastfeeding.

9) TOBACCO CESSATION

Nicotine Replacement Therapy

Wellbutrin SR (Bupropion)

Chantix (Varenicline)

TOBACCO CESSATION

As a healthcare provider, you care. Tobacco use causes multiple health problems. You can help. You can intervene; take 3 minutes and ask the 5 "A's". If you get patient resistance, stop the discussion – do not push the patient past their comfort zone on this topic, it is counterproductive. Ask them about tobacco use the next time they come in, they may be more receptive.

1. Ask about your patient's tobacco use
2. Advise to quit
3. Assess for readiness to quit
4. Assist if ready to quit (drugs, substitutes below)
5. Arrange for follow-up care (the patient should arrange for counseling - it helps a lot)

Nicotine Replacement Therapy (NRT) (eg, Nicorette gum, Nicoderm patches, inhalers, or lozenges) is available OTC and can be safely used to reduce cravings and withdrawal symptoms. It should be done in conjunction with counseling or some type of support, even self-counseling with available literature, to get the optimum outcome. NRT, alone, is less effective than the prescription drugs, but also has less adverse side effects.

Tobacco cessation is a complex psychological and physiological process. Though dentists and hygienists have a duty to the patient's overall health, once they have done the 5 A's listed above, they may elect to refer the patient to a physician for pharmacologic intervention.

Tobacco Cessation Websites:

http://www.cdc.gov/tobacco/data_statistics/fact_sheets/cessation/quitting/index.htm?
(comprehensive and informative resource from the Centers for Disease Control)

Rx **Zyban (Wellbutrin SR) 150 mg**

Disp 60 tablets

Sig Starting 1 week from quit date, take 1 tablet per day for 3 days, then take 2 tablets per day (at least 8 hours apart) for 7 to 12 weeks (maximum dose: 300 mg/day)

INGREDIENT: Bupropion

CAUTION: Read prescribing information. Many contraindications and warnings/precautions. Have patient review side effects on package insert (you should read them also). Instruct patient that if side effects occur, to stop medication and contact you.

– OR –

Rx **Chantix 1 mg**

Disp 60 tablets

Sig Starting 1 week before quit date, take 1/2 tablet per day for 3 days, then 1/2 tablet 2 times per day (at least 8 hours apart) for 4 days, then take 1 tablet 2 times per day (at least 8 hours apart) for 11 weeks

INGREDIENT: Varenicline

CAUTION: Read prescribing information. Many contraindications and warnings/precautions. Have patient review side effects on package insert (you should read them also). Instruct patient that if side effects occur, to stop medication and contact you.

I am delighted that you have found my little dental drug booklet useful (at least, I hope it was useful). And thank you for your help over the years. The booklet has grown based on your practical, practice-oriented suggestions.

If you have any edits, suggestions, or topics you would like added, please let me know at my email address, by snail-mail, or by phone. I will try to incorporate the information into next year's edition.

If you have a dental pharmacology/drug question or oral medicine/medically-complex patient management question, please email me. This is a full-service book and electronic application, complete with a live author. I am happy to research the question and respond.

Thank you.

Peter J.

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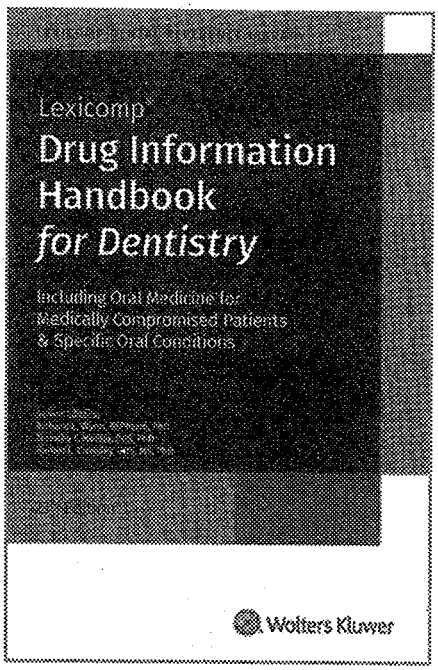

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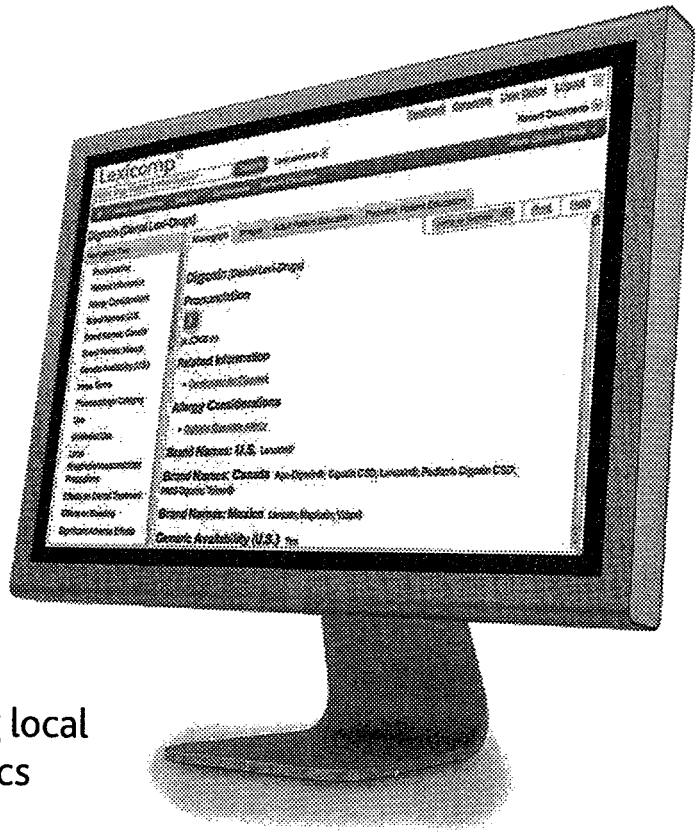

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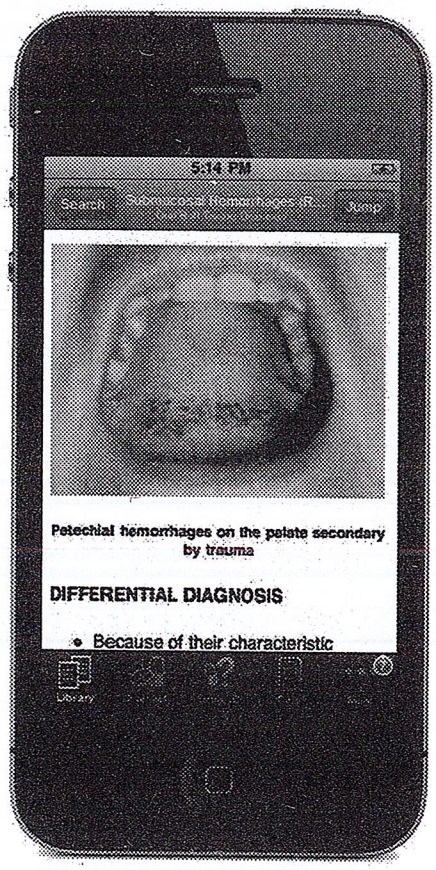

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