DOMINION ENDODONTICS

specialist member

Hello my fellow dentists!

Hopefully for many of us things are beginning to return to normal as we recover from the COVID-19 pandemic. First off, I just want to recognize the sacrifices and effort made by the dental community in the fight against coronavirus. Many of us donated PPE to hospitals in need, some put themselves in harm's way to see emergency patients, and many sacrificed their own financial well-being to take care of their staff during these trying times. I would say that we all deserve a nice vacation after these events, but instead I am sure we all have the same sentiment: let's get back to work! For those of you who don't already know me, my name is Nick Leon-Guerrero and I am an associate at Dominion Endodontics. I think one thing the recent COVID- 19 pandemic has taught us is how much devastation an infectious disease can create, even with all our advancements in technology and medicine. That is why in this newsletter, I thought it would be a good idea to review the most recent guidelines for prescription of antibiotics within the scope of dental pain and infection, as they have changed significantly.

"Can't you just prescribe me an antibiotic?"— How often do we hear this phrase from our patients? Yes, antibiotics have been one of the most significant advancements in modern medicine, but as we know they are not the panacea our patients perceive them to be. Systemic antibiotics, in addition to their obvious benefits, carry real risk. We must remember that as healthcare professionals we have a responsibility to be prudent when prescribing these drugs. The main concern with the over-prescription of antibiotics is the development of resistance, both in our patients and globally. In the wake of the coronavirus pandemic, I think we can all appreciate the global health concerns here. A more immediate problem created by antibiotic overuse in our patients is pseudomembranous colitis, an infection caused by overgrowth of *Clostridium difficile* bacteria in the intestines. The symptoms range from severe diarrhea to life-threatening inflammation of the colon and often powerful antibiotic treatment or even surgery are needed to resolve this condition. *C. difficile* is a debilitating disease and is reason enough for our patients to forgo antibiotics unless they are truly necessary. According to the CDC, 1 in 3 antibiotic prescriptions in the United States are unnecessary. If we look at dentists specifically, the statistics are even more alarming. In studied cited by the ADA, from 2017 to 2019, 30% through 85% of dental antibiotic prescriptions are "suboptimal or not indicated." To address this, The ADA and AAE have each published guidelines for prescribing antibiotics, both of which highlight the need for dental treatment as the primary method of managing pain and infection, reserving antibiotics for only a handful of critical situations.

When we should prescribe antibiotics (Table 1)— For patients who are immunocompetent, only when there is a progressive infection like cellulitis or signs of systemic involvement should antibiotics be prescribed immediately. For all other cases with pain and/or localized swelling, referral or treatment with pulpal debridement or incision and drainage should be administered without antibiotics. If the patient cannot be seen that day, then it may be appropriate to prescribe antibiotics until they can be seen for treatment. Likewise, if the patient's condition continues to worsen after treatment, antibiotics may be prescribed to address a persistent infection. Immunocompromised patients should be prescribed antibiotics for any infection, including those without swelling.

When we should not prescribe antibiotics (Table 2)— Antibiotics are an absolutely ineffective treatment for irreversible pulpitis, pulp exposure, or any time the tooth is vital. If the patient complains of pain to cold in the offending tooth, give them analgesics, not antibiotics. Teeth that are noted to have an asymptomatic apical radiolucency on a radiograph also do not require antibiotics. Sinus tracts are the body's way of releasing infection; they rarely accompany pain in the tooth and antibiotics are not necessary here either. The use of

antibiotics for patients with localized swelling or with symptomatic apical periodontitis (pain to percussion and biting) due to necrotic pulps is somewhat of a grey area. Antibiotics are no longer recommended if same-day treatment can be done.

Which antibiotic should be prescribed and how (Table 3)— Amoxicillin rather than penicillin is now the primary antibiotic for those who are not allergic. If you prescribe Augmentin (amoxicillin+ clavulanic acid), be aware that although it is more effective, there is a higher risk of adverse side effects than plain amoxicillin. Metronidazole (Flagyl) is not recommended to be prescribed alone, but can be prescribe concurrently with an amoxicillin prescription for persistent infections. If the patient is allergic to penicillin, but it is not a true allergy (anaphylaxis, angioedema, or hives), then cephalexin is indicated. The most important change to the guidelines is noting that azithromycin (Z-Pak) has replaced clindamycin as the first antibiotic of choice for those who are allergic to penicillin. The reason for this is that clindamycin now has a black box warning citing the risk of *C. difficile* infection, as previously mentioned. If you must prescribe an antibiotic, consider placing your patient on an over-the-counter probiotic during the treatment as well, taken daily at a time different than the antibiotic. Lastly, for all patients on antibiotics, it is recommended that the patient discontinue the antibiotics as soon as there has been definitive treatment and their condition has improved. The old adage, “finish the whole bottle,” no longer applies and some patients can be off of antibiotics in as little as 3 days.

For those of us concerned about the medico-legal complications of not prescribing antibiotics, consider the alternative and think about the possible legal implications of prescribing unwarranted antibiotics. In 2005, an Illinois dentist unnecessarily prescribed clindamycin to his patient who was having some discomfort with a new crown. The man subsequently developed a *C. difficile* infection which resulted in multiple surgeries, permanent incontinence, and a **1.25 million dollar settlement against the dentist**. If a patient sues you for correctly not prescribing the antibiotic, your actions are defensible. If you prescribed it against the guidelines and that results in mortality or morbidity, your actions are indefensible!

The purpose of these revised guidelines is to stress the need for either treatment or referral rather than medication. When patients ask for a prescription, educate them as to why an antibiotic may or may not be appropriate for their condition. People are receptive when you tell them that you practice in an evidence-based way, and may even be appreciative that they were not given the prescription. I hope you have found this newsletter helpful and with this information be better able to serve our shared patients. I have included several tables below provided by the AAE that summarize the guidelines for antibiotics I just discussed. I am aware I did not review antibiotic prophylaxis in this issue, but that may be a good topic for another time. If you would like more information on antibiotic protocols, or would like to have a conversation about any other topic in endodontics, feel free to reach me by phone at Dominion Endodontics or email me at NickLGDDS@gmail.com.

Stay happy and healthy everyone!

Nick Leon-Guerrero DDS
Dominion Endodontics

specialist member

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Table 1. Indications for Adjunctive Antibiotics

Acute Apical Abscess in Immunocompromised Patients
• Localized fluctuant swellings
• Patient with systemic disease causing impaired immunologic function
Acute Apical Abscess in Immunocompetent Patients *(When same visit treatment is not an option)*
• Localized fluctuant swellings
Acute Apical Abscess with Systemic Involvement
• Elevated body temperature >100˚F
• Malaise
• Unexplained trismus
• Lymphadenopathy
Progressive Infections
• Rapid onset of swelling <24hrs
• Cellulitis or a spreading infection
• Osteomyelitis
Persistent Infection
• Chronic exudation, which is not resolved by regular intracanal procedures and medications

Table 2. Conditions NOT Requiring Adjunctive Antibiotics

Pain Without Signs and Symptoms of Infection
• Symptomatic irreversible pulpitis
• Symptomatic apical periodontitis (Pain to percussion and biting)
Teeth with Necrotic Pulps and a Radiolucency
Teeth with a Sinus Tract/Parulis (Chronic Apical Abscess)
Acute Apical Abscess in Immunocompetent Patients *(When same visit treatment is an option)*
• Localized fluctuant swellings

Table 3. Recommended antibiotics and dosages in endodontics

DRUG OF CHOICE	INITIAL DOSE *****Conditional recommendation*	ADULT MAINTENANCE DOSE
Amoxicillin w/ clavulanic acid	1000 mg 1000 mg	500 mg q8 h 3-7 days 500/125 mg q8h 7 days
Penicillin VK	1000 mg	500 mg q4-6 h 3-7 days
Azithromycin **Penicillin allergy w/ hx of hives, angioedema, or anaphylaxis*	500 mg	250 mg q24h (5 days including loading dose)
Cephalosporins (Cephalexin) **Penicillin allergy w/o hx of hives, angioedema, or anaphylaxis*	1000 mg	500 mg q6h 3-7 days
Clindamycin **Penicillin allergy w/ hx of hives, angioedema, or anaphylaxis*	600 mg	300 mg q6 h 3-7 days
Metronidazole ***Complement antibiotic*	1000 mg	500 mg q8h 5-7 days
Erythromycin ****Historical Antibiotic*	500 mg	250 mg q4-6h 7-10 days
Ciprofloxacin	500 mg	250-500 mg q6h x 7-10 days

**comparative safety and effectiveness of common antibiotics with Penicillin* ***Provides great gram-negative anaerobic activity* ****essentially not effective against anaerobic* *****Facility specific recommendations*

Dominion Endodontics has 3 convenient locations

Arlington- (703) 940-3070
4350 Fairfax Dr., Ste 160, Arlington, VA 22203

Alexandria- (703) 836-0006
1650 King St., Ste 300, Alexandria VA 22314

Falls Church- (703) 534-0330
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http://www.dominionendodontics.com

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