



DOMINION ENDODONTICS



Hello again my colleagues!

I hope this newsletter finds you well as we all continue to navigate this COVID-19 world. By popular request, this edition is a short follow-up to the previous one, where the guidelines for antibiotic prophylaxis will be reviewed. If you didn't receive my last update reviewing the current guidelines for prescription of antibiotics in regards to pain and infection, please reach out to me and I will gladly send you a copy. Again, my name is Nicholas Leon-Guerrero and I am an associate at Dominion Endodontics. I felt it important to send an update on this as well, as some of our patients who routinely premedicate may no longer need to.

The purpose of antibiotic prophylaxis prior to dental procedures is to prevent bacteremia (bacteria in the bloodstream) that may lead to an infection in a susceptible individual⁶. It is important to understand that while nearly all dental procedures have the potential to create bacteremia, oral bacteremia already routinely occurs during normal daily activities such as flossing, brushing, and/or eating⁵. Even high-risk individuals do not live in a bubble where they can avoid this transient bacteremia caused by everyday function. Therefore, the real risk of an infection created by a dental procedure is extremely low. Moreover, the risk of adverse reactions from antibiotics has been found to outweigh the benefits of premedication for most patients⁷. Given this, the ADA and other medical organizations have over time reduced the types of patients who may require antibiotic prophylaxis prior to a dental procedure. Those who may still need premedication generally fall into one of three categories: those with a history of prosthetic joint infections, those with specific cardiac conditions, and those who are severely immunocompromised¹.

In 2015, The AAOS (American Academy of Orthopedic Surgeons) and the ADA jointly developed a framework for appropriate prescription of antibiotic prophylaxis for orthopedic patients. An appropriate use criteria (Figure 1) was developed based on the assumption that the chance of oral bacteremia being related to joint infections is extremely low, with no evidence for an association⁴. Their findings concluded that in general for patients with prosthetic joint implants, prophylactic antibiotics are not recommended prior to dental procedures to prevent prosthetic joint infections, even for invasive procedures. Dental prophylaxis may however be indicated if the patient is severely immunocompromised, has uncontrolled diabetes (HbA1c >8), or has a history of prosthetic joint infection⁵. If unsure, consult with the patient's orthopedic surgeon for their recommendation.

The next category of patients who may require antibiotic prophylaxis includes those with specific cardiac conditions who may be susceptible to infective endocarditis. The most recent update to the protocol came in 2017 and was developed by the ADA, the AHA (American Heart Association), and the ACC (American College of Cardiology). They found that while antibiotic prophylaxis may be beneficial for a small subset of patients, the risks outweigh the benefits for some categories of patients who previously received antibiotic premedication (ex. mitral valve prolapse). The following types of patients were found to reasonably benefit from antibiotic prophylaxis prior to dental procedures²:

- Patients with a history of infective endocarditis.
- Patients with a history of cardiac transplant who have abnormal valve function.
- Those with prosthetic cardiac valves or who have prosthetic material used in a cardiac valve repair.
- Those with certain congenital heart defects including: unrepaired cyanotic congenital heart disease, a repaired congenital heart defect that was repaired within the last 6 months, or a repaired congenital heart disease with defects adjacent to or at the site of a prosthetic patch or device.



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Lastly, for some patients who are severely immunocompromised, antibiotic prophylaxis may be indicated as well. Patients in this category may have conditions such as HIV/AIDS or poorly controlled diabetes, be taking immunosuppressive drugs for chemotherapy or after an organ transplant, be a bone marrow transplant recipient, or have an inherited disease of immunodeficiency⁵. The need for antibiotic premedication here is best determined by consultation with the patient's physician. If necessary, it is most appropriate that the physician recommend the preferred antibiotic regimen and, when it is reasonable, write the prescription¹.

When administering prophylaxis, amoxicillin is still the antibiotic of choice for those who are not allergic. For those who are allergic, azithromycin or clindamycin can be administered. In my last newsletter, I discussed how the guidelines now recommend an azithromycin prescription over clindamycin due to risk of pseudomembranous colitis; the risk here is dose dependent, so it is still ok to prescribe clindamycin as a premedication if desired. A single dose is given 30-60 minutes prior to the procedure, but if your patient forgets to take it, the antibiotic prophylaxis can still be administered up to two hours after the procedure¹. If a patient is to return the next day for a second procedure, antibiotic prophylaxis must be administered again. It is important to note that if a patient is currently taking an antibiotic prescription and requires prophylaxis, it is recommended to additionally premedicate. Without altering the current antibiotic regimen, the patient should take the full prophylaxis dose of an antibiotic from a different class prior to the procedure³. For antibiotic prophylaxis dosage information, see the quick reference table created by the AAE at the end of this newsletter (Figure 2)³.

The takeaway from the guidelines is that fewer patients require antibiotic prophylaxis than we think. "Less is more" continues to be the trend in dentistry as it pertains to antibiotics. Many patients who were previously told to take medication may be relieved that they no longer have to make a trip to the pharmacy prior to their dental appointment. When in doubt, still consult the patient's physician and defer to their judgement. I hope you have found this newsletter helpful and with this information be better able to serve our shared patients. 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. Also, please keep an eye out for our upcoming Endodontic Showcase publication, where myself and the other endodontists at Dominion will present some of our favorite cases from the past year.

Wishing you, your staff, and your practice continued health!

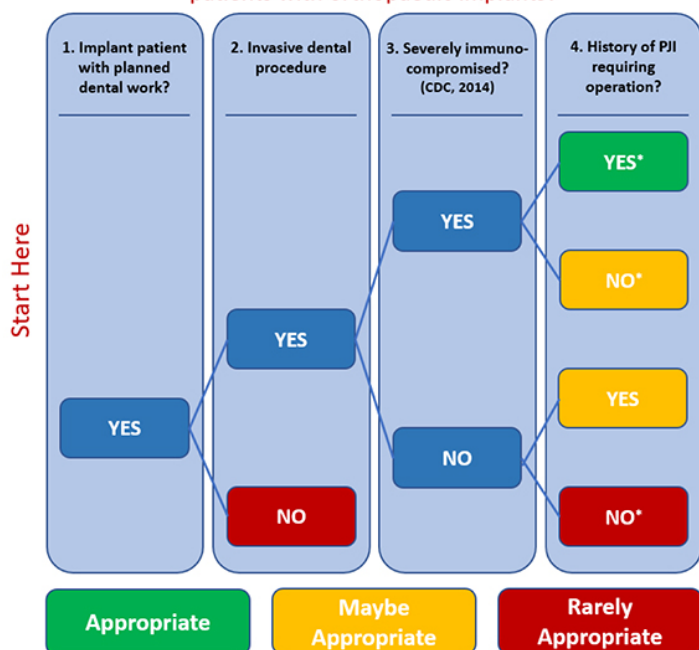
A handwritten signature in black ink, appearing to read 'Nick LG'.

Nick Leon-Guerrero DDS
Dominion Endodontics

Figure 1⁵

Appropriate Use Criteria - Decision Tree

When is it appropriate to prescribe prophylactic antibiotics for patients with orthopaedic implants?



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Figure 2³

AAE Antibiotic Prophylaxis Dosage Table

Regimen: Single Dose 30 to 60 min. Before Procedure			
Situation	Agent	Adults	Children
Oral	Amoxicillin	2 g	50 mg/kg
Unable to take oral medication	Ampicillin OR Cefazolin or ceftriaxone	2 g IM* or IV+ 1 g IM or IV	50 mg/kg IM or IV 50 mg/kg IM or IV
Allergic to penicillins or ampicillin—oral	Cephalexin $\phi\delta$ OR Clindamycin OR Azithromycin or clarithromycin	2 g 600 mg 500 mg	50 mg/kg 20 mg/kg 15 mg/kg
Allergic to penicillins or ampicillin and unable to take oral medication	Cefazolin or ceftriaxone δ OR Clindamycin	1 g IM or IV 600 mg IM or IV	50 mg/kg IM or IV 20 mg/kg IM or IV

*IM: Intramuscular
+IV: Intravenous
 ϕ Or other first- or second-generation oral cephalosporin in equivalent adult or pediatric dosage.
 δ Cephalosporins should not be used in an individual with a history of anaphylaxis, angioedema, or urticaria with penicillins or ampicillin.

References:

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- American Heart Association. Dental Procedures and Infective Endocarditis. Oct 19, 2020. <https://www.heart.org/en/health-topics/infective-endocarditis>
- Fuoad, A. et al. "Antibiotic Prophylaxis 2017 Update" *AAE Quick Reference Guide*, 2017. https://www.aae.org/specialty/wp-content/uploads/sites/2/2017/06/aae_antibiotic-prophylaxis-2017update.pdf
- Mullen, K et al. "First Appropriate Use Criteria Decision Tree Highlights Appropriate Prescription of Dental Prophylaxis in Orthopedic Patients: AAOS Now. March 01, <https://www.aaos.org/aaosnow/2020/mar/qualityresearch/quality-research02/>
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