



At the Center of it All!

2024 ANNUAL SESSION

michigan dental ASSOCIATION
YOUR CONNECTION TO ORAL HEALTH

Antibiotic Stewardship in Action



Marie Fluent, DDS



Elaine Bailey, PharmD

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IMPROVING DENTAL HEALTH

2024 VOLUNTEER REGISTRATION IS NOW OPEN!

MISSION OF MERCY

Are you ready to help create more healthy smiles?

Since 2013, more than 4,600 Mission of Mercy volunteers provided FREE dental care in communities across the state - with nearly 5,000 patients receiving \$4 million in FREE treatment.

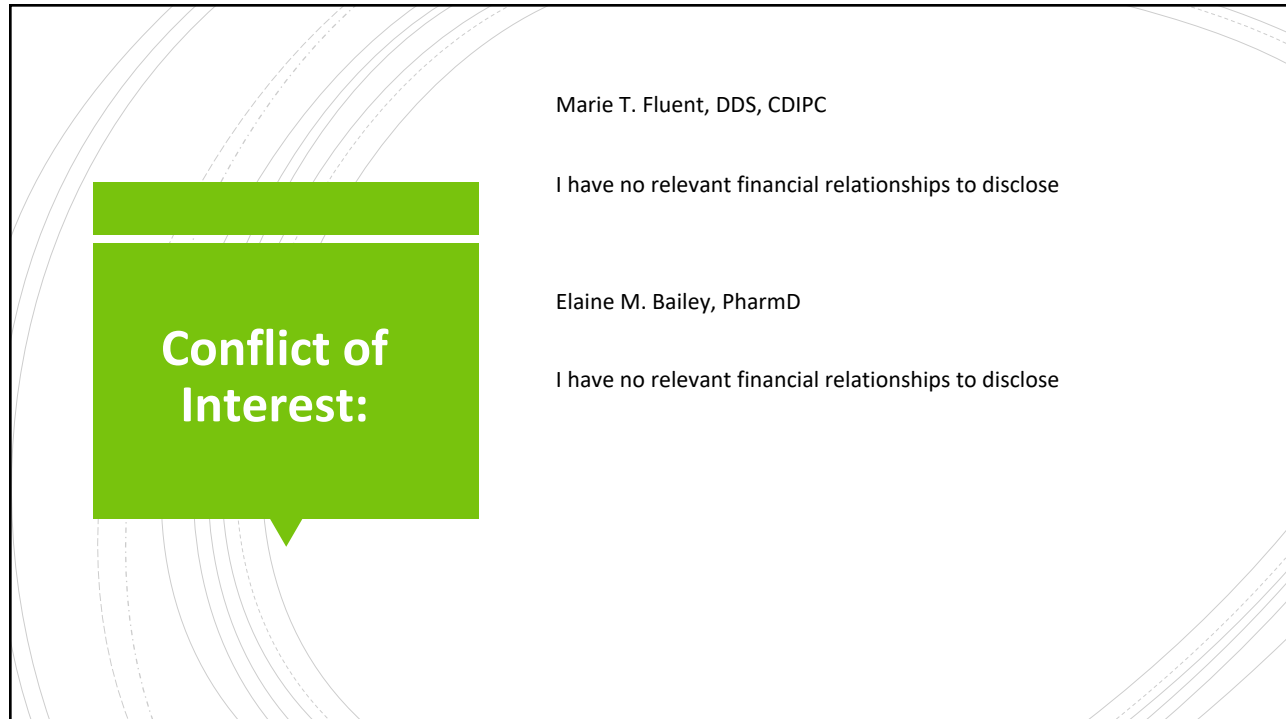




JUNE 13 - 16, 2024
DORT FINANCIAL CENTER
• FLINT, MI

June 13: Set-up
June 14 & 15: Free Dental Clinic
June 16: Tear-down

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Conflict of Interest:

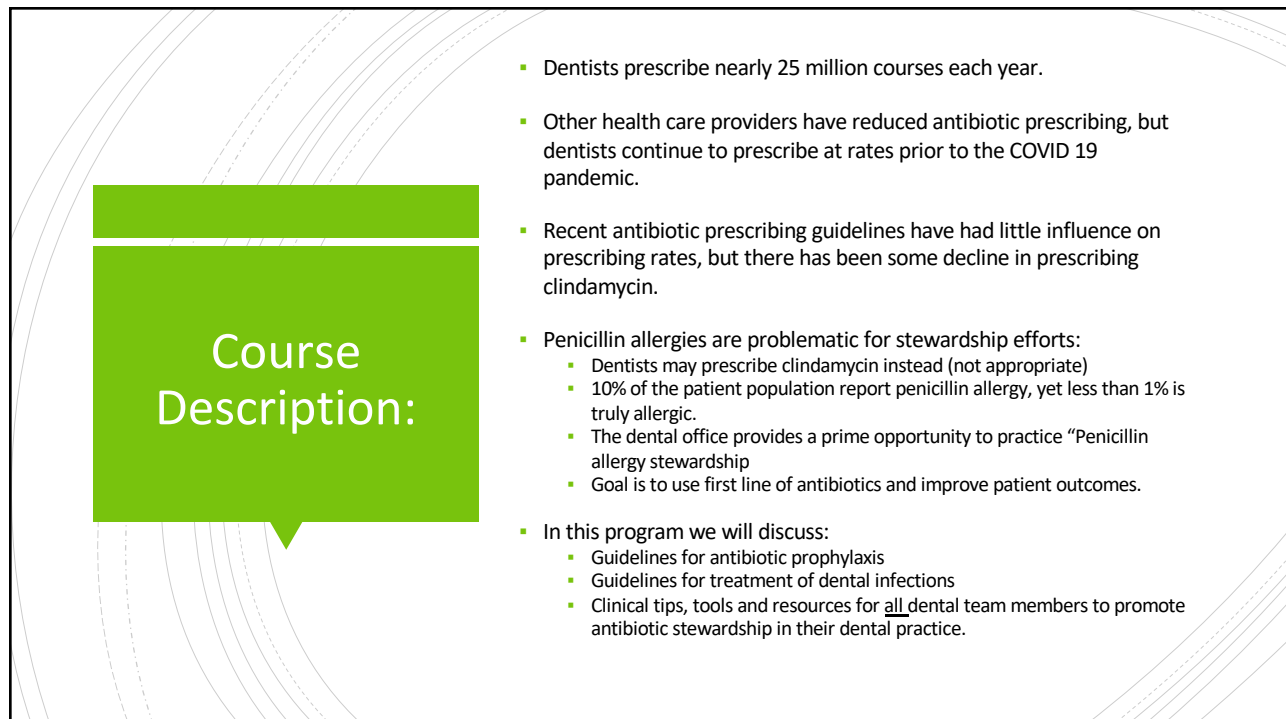
Marie T. Fluent, DDS, CDIPC

I have no relevant financial relationships to disclose

Elaine M. Bailey, PharmD

I have no relevant financial relationships to disclose

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Course Description:

- Dentists prescribe nearly 25 million courses each year.
- Other health care providers have reduced antibiotic prescribing, but dentists continue to prescribe at rates prior to the COVID 19 pandemic.
- Recent antibiotic prescribing guidelines have had little influence on prescribing rates, but there has been some decline in prescribing clindamycin.
- Penicillin allergies are problematic for stewardship efforts:
 - Dentists may prescribe clindamycin instead (not appropriate)
 - 10% of the patient population report penicillin allergy, yet less than 1% is truly allergic.
 - The dental office provides a prime opportunity to practice "Penicillin allergy stewardship
 - Goal is to use first line of antibiotics and improve patient outcomes.
- In this program we will discuss:
 - Guidelines for antibiotic prophylaxis
 - Guidelines for treatment of dental infections
 - Clinical tips, tools and resources for all dental team members to promote antibiotic stewardship in their dental practice.

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Learning Objectives:

1. Review guidelines and best practices for antibiotic use in the dental office.
2. Identify tools and resources to support the development and implementation of a successful antimicrobial stewardship program in oral healthcare.
3. Identify how to implement chairside tools to support patients reporting penicillin allergies in your dental practice.
4. Discuss when to refer patients for penicillin allergy assessment, and practice communication with an interprofessional healthcare team.

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“Truths” about Antibiotics:

- Resistance is a public health concern around the world
- Resistant bacteria may infect humans and animals
- Resistant infections are harder to treat
- The main cause of antibiotic resistance is antibiotic use
- One dose of an antibiotic can result in bacteria becoming resistant
- Resistance genes can be transferred to different bacterial species
- Infection prevention is paramount in preventing spread of resistant organisms



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Dental Prescribing for Antibiotics:



10%
Antibiotic prescriptions are written by dentists (25.7 million in 2016)



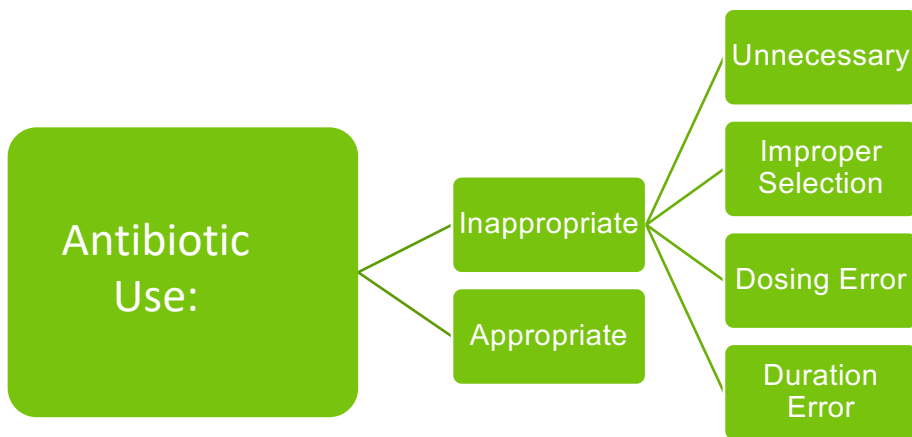
30-85%
Dental antibiotic prescriptions are suboptimal or not indicated



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Multi-disciplinary guideline for treatment of dental infections

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Appropriateness of Antibiotic Use:



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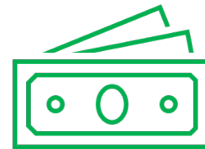
Undesirable Effects Associated with Antibiotic Therapy



Antibiotic-resistant infections
(e.g., MRSA)



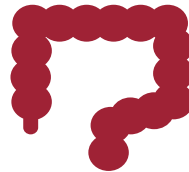
Hospitalization



Costs



Opportunistic infections
(e.g., *Clostridioides difficile*)



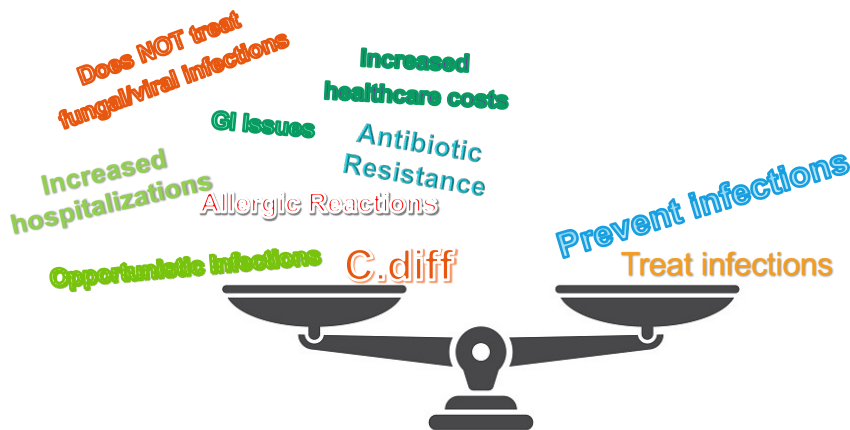
Adverse Reactions



Mortality

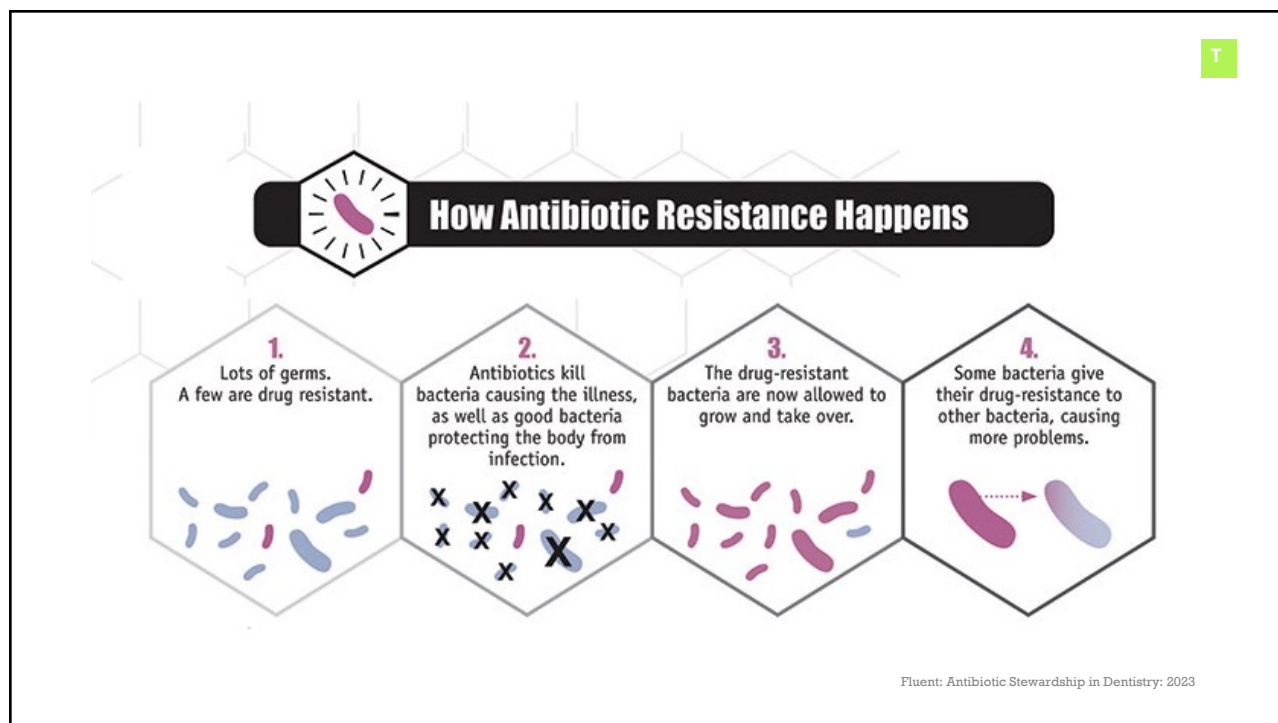
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Weighing the Risks and Benefits of Antibiotics

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“The Thoughtless person playing with penicillin treatment is **morally responsible** for the death of the man who succumbs to infections with the penicillin-resistant organism.”

Alexander Flemming 1947



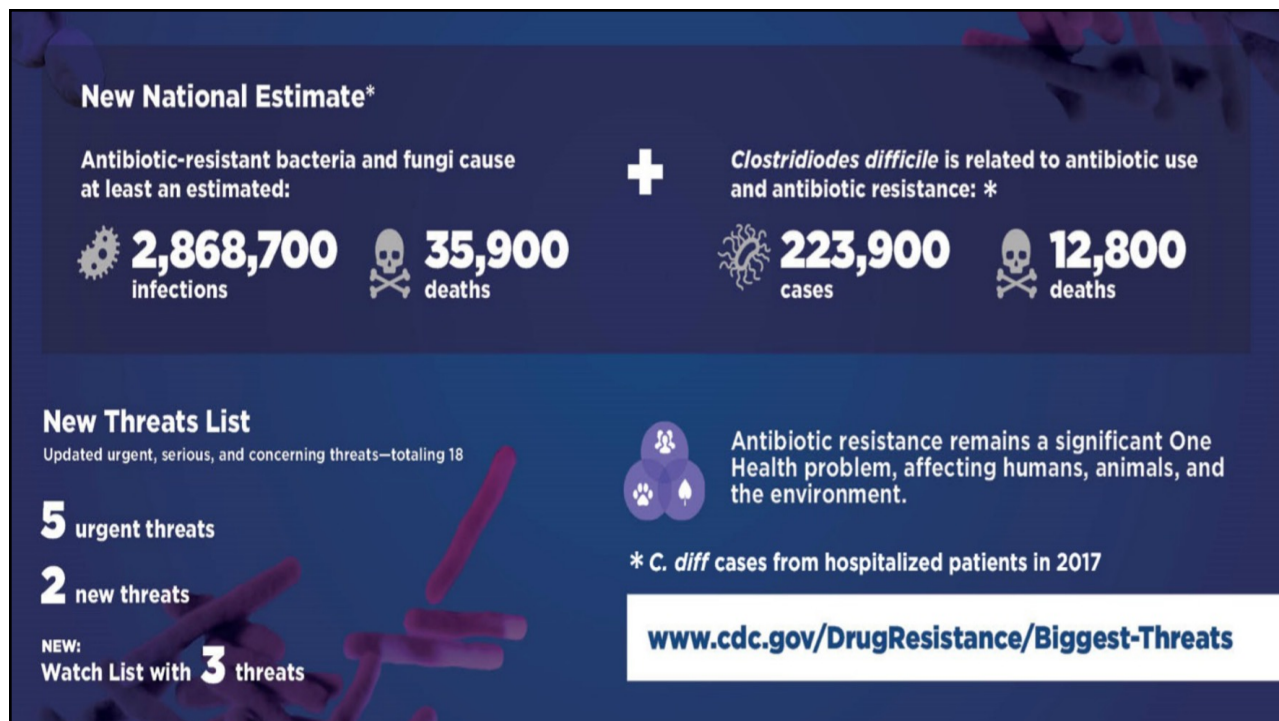
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“A post-antibiotic era means, in effect, an end to modern medicine as we know it. Things as common as strep throat or a child’s scratched knee could once again kill.”

Dr. Margaret Chan, WHO



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COVID-19 CREATED A PERFECT STORM

The U.S. lost progress combating antimicrobial resistance in 2020

↑15% Antimicrobial-resistant infections and deaths increased in hospitals in 2020.

~80% Patients hospitalized with COVID-19 who received an antibiotic March-October 2020.

Delayed or unavailable data, leading to resistant infections spreading undetected and untreated.

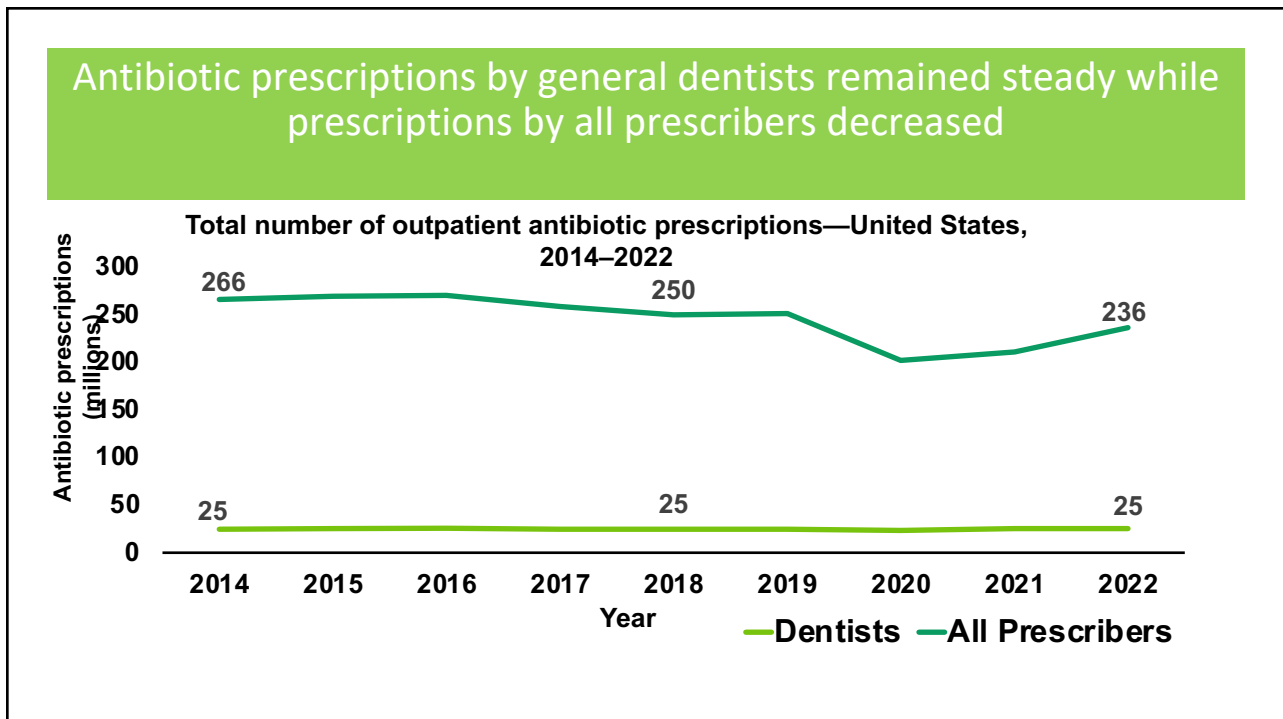
INVEST IN PREVENTION.

Setbacks to fighting antimicrobial resistance can and must be temporary.

Learn more: <https://www.cdc.gov/drugresistance/covid19.html>

■ <https://www.cdc.gov/media/releases/2022/s0712-Antimicrobial-Resistance.html#:~:text=The%20report%20from%20the%20Centers.infections%20and%20deaths%20both%20increasing>

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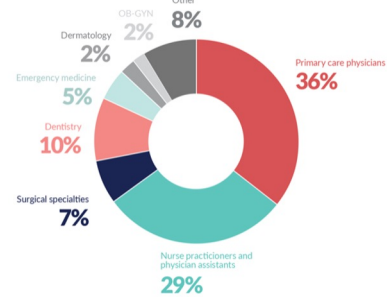


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Antibiotic Prescribing Among Dentists:

- Roughly 10% of all outpatient antibiotics are prescribed by dentists.
 - Prescribed 25 million courses of antibiotics in 2018.
 - 201 antibiotic prescriptions per dentist
 - Significant regional variability.
 - High percentage of prescriptions are for prophylaxis.

Outpatient Oral Antibiotic Prescribing by Provider Specialty, 2018
Percentage of antibiotic prescriptions



Note: Due to rounding, percentages do not add up precisely to 100%
© 2020 The Pew Charitable Trusts

Roberts RM, et al. J Am Dent Assoc. 2017 March ; 148(3): 172–178
<https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2020/10/outpatient-antibiotic-prescribing-varied-across-the-united-states-in-2018>

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Wait! Why are dentist prescribing urinary anti-infective agents??



CHARACTERISTIC	PRESCRIPTION		
	Number in Millions	Percentage	Per 1,000 People
Antibiotic Category			
Penicillins	17.07	69.6	53.9
Lincosamides	3.57	14.6	11.3
Macrolides	1.33	5.4	4.2
Cephalosporins	1.24	5.1	3.9
β-lactams, increased activity	0.56	2.3	1.8
Tetracycline	0.47	1.9	1.5
Quinolones	0.21	0.8	0.6
Sulfa-containing antibiotics	0.05	0.2	0.2
Urinary anti-infective agents	0.02	0.1	0.1
Other	0.00	0.0	0.0
Total	24.52	100.0	77.5

- *The three highest prescribed types of antibiotics make up about 90% of all dental prescriptions
- *Some agents prescribed are not indicated in dentistry

Roberts, R., Bartoces, M., Thompson, S. and Hicks, L. (2017). Antibiotic prescribing by general dentists in the United States, 2013. *The Journal of the American Dental Association*, 148(3), pp.172-178.e1.

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Reasons for Over-prescribing:

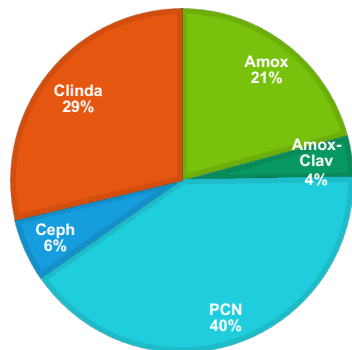
- Patient expectations
- Pressure by providers
- Lack of familiarity/adherence with guidelines
- Diagnostic uncertainty
- Provider shortage
- Poor patient follow-up
- Free antibiotic programs
- Fear of litigation or missing something



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Antibiotic Prescribing for Dental Conditions in the Emergency Department

Each year, there are more than 2.2 million ED visits for dental-related conditions, accounting for 1.6% of all ED visits. 65% result in antibiotic prescription.



Roberts RM et al. Antibiotic Prescriptions Associated with Dental-Related Emergency Department Visits. *Ann Emerg Medicine* 2019 Jul;74(1):45-49.

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ADA Commitment to Global AMR Challenge:

ACE Panel Report Antibiotic Use in Endodontic Infections

Survey Results

- 98% of endodontic procedures for which antibiotics are prescribed are for acute infections
- 95% of acute infections with endodontic acute dental abscesses are treated with antibiotics
- 83% of acute infections with endodontic acute dental abscesses are treated with antibiotics
- 36% of acute infections with endodontic acute dental abscesses are treated with antibiotics
- 23% of acute infections with endodontic acute dental abscesses are treated with antibiotics
- 15% of acute infections with endodontic acute dental abscesses are treated with antibiotics

Current Antibiotic Prescribing Patterns Compared to 7-Year Ago

4% Unchanged	1% Increased
4% Decreased	80% Better

- Creating and disseminating guidance to help clinicians appropriately prescribe antibiotics for dental pain and swelling
- Publishing a survey of current antibiotic prescribing practices among dentists to demonstrate need for such guidance

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CDC and OSAP: Working Together to Improve Dental Antibiotic Prescribing

Prescribers	Dental Team
Policymakers	Patients

- CDC funding OSAP
- Develop new communication materials and website content on appropriate antibiotic use
 - Disseminate antibiotic stewardship resources, tools, and clinical practice guidelines

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Agencies that Impact
Antibiotic Prescribing in
Dentistry:

**American
Heart
Association®**


ADA®
American Dental Association

AAOS

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DEFINITION

**“DCDT”:
Definitive
Conservative
Dental Treatment**




- Accepted standard for treating pulpal and periapical conditions
 - Pulpectomy
 - Pulpotomy
 - Non-surgical root canal
 - Incision and drainage of abscess

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DEFINITION

**“Invasive
Dental
Procedure”**



- “All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa”.

American Dental Association

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Invasive Procedures

- SRP
- Initial placement of ortho bands
- Extractions *
- Restorations with band or cord placement
- I&D
- Implant placement *
- Pulpal therapies
- Perio surgeries *

*with or w/o bone graft

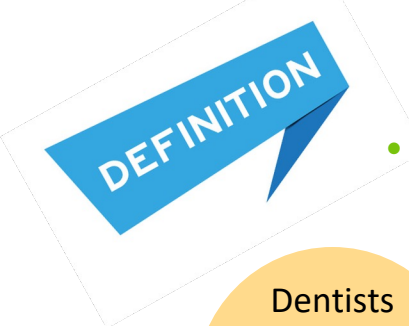
Non-Invasive Procedures

- Exam
- Radiographs
- Application of preventive materials
- Simple restorations
- Orthodontic band placement/adjustment



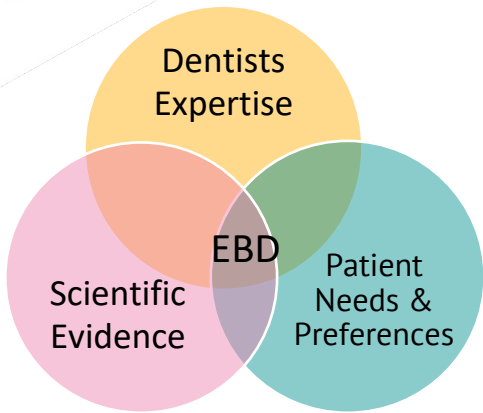
<https://www.bmj.com/content/358/bmj.j3776/related#datasupp>


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Evidence-Based Dentistry (EBD):

- Integration of best available evidence with clinical expertise and patient's needs and preferences







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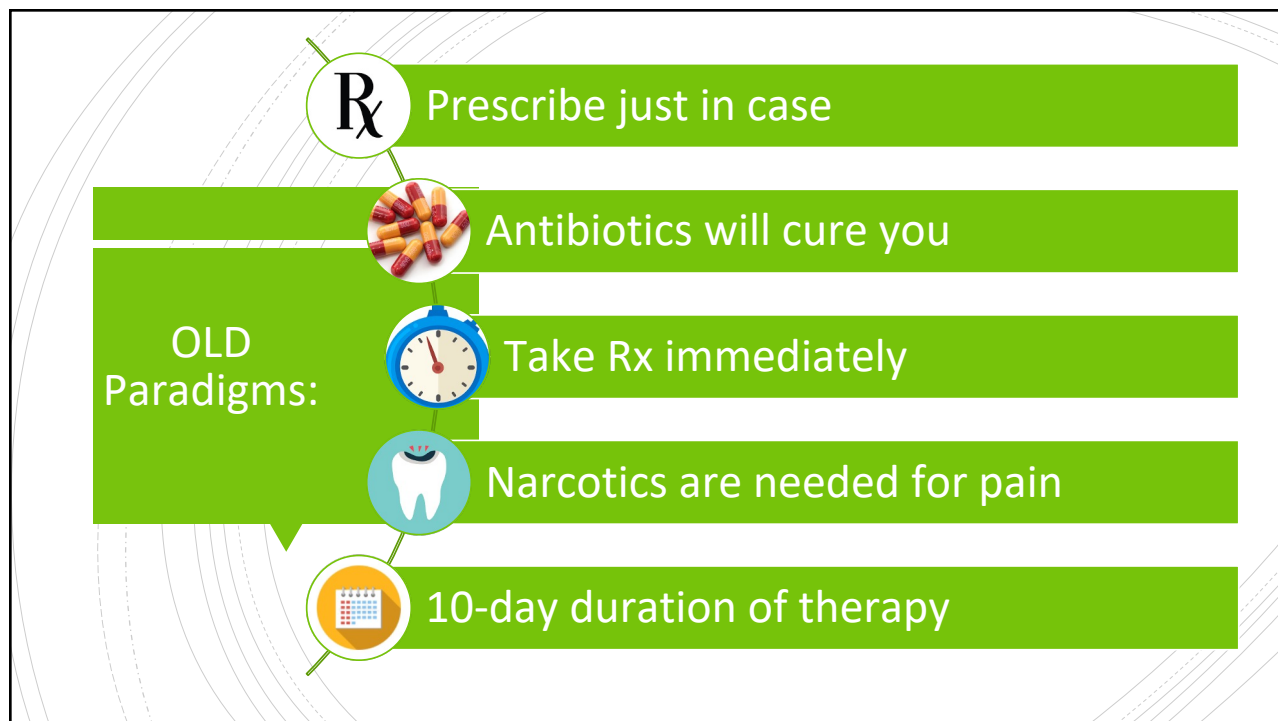


- Lockhart PB et al. JADA;2019;150:906-921

ADA Guidelines Address:

- Urgent management of target conditions:
 - Symptomatic irreversible pulpitis with /without symptomatic apical periodontitis
 - Pulp necrosis and symptomatic apical periodontitis
 - Pulp necrosis and localized acute apical abscess
- Immunocompetent adult patients (18 years +), with the target conditions, without additional comorbidities.
- Patients with or without access to immediate, definitive, conservative (tooth preserving) dental treatment (DCDT)

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Rx Prescribe only when necessary

Definitive care will cure you

NEW Paradigms: Reflected in Guidelines

Take Rx when symptoms worsen (in certain situations)

Control pain with OTC medications

Discontinue Abx 24-48 hours after resolution of symptoms

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Introducing Two Chairside Guides

Note:

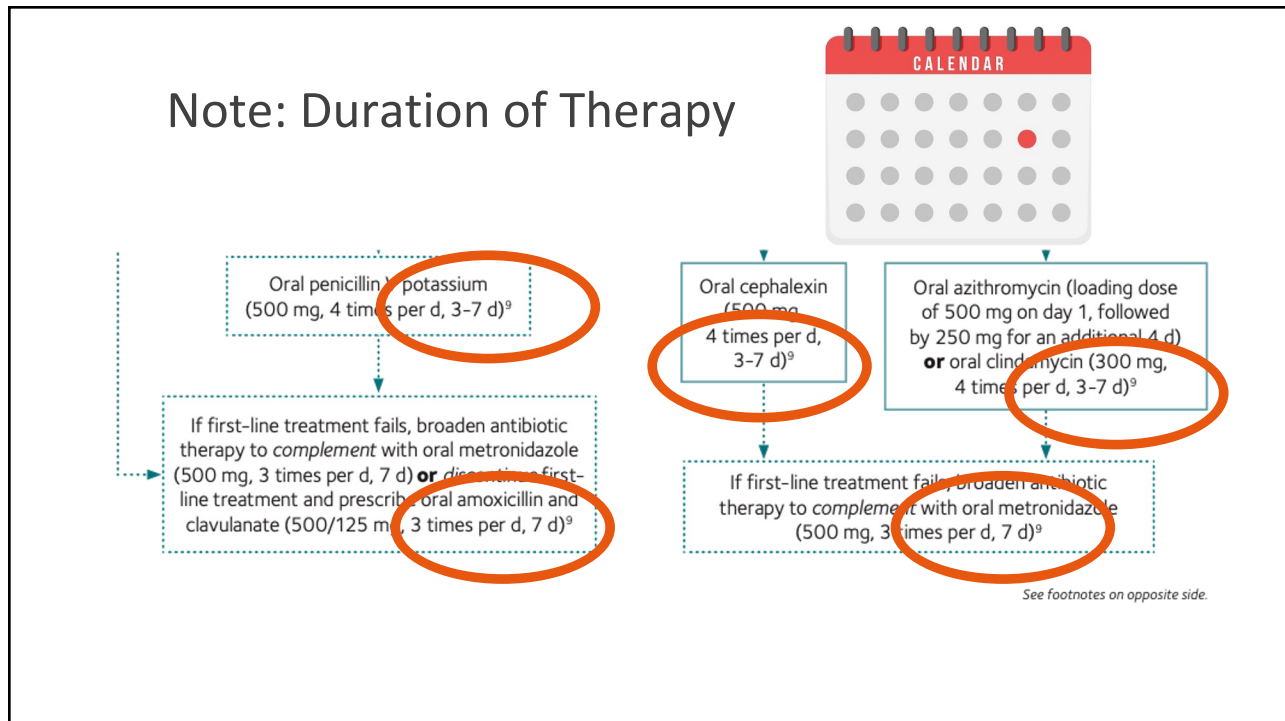
Evidence-Based Clinical Practice Guidelines on Antibiotic Use for the Urgent Management of Painful- and Periapical-Related Dental Pain and Intraoral Swelling: A Report from the American Dental Association

DCDT is immediately available

Evidence-Based Clinical Practice Guidelines on Antibiotic Use for the Urgent Management of Painful- and Periapical-Related Dental Pain and Intraoral Swelling: A Report from the American Dental Association

DCDT is NOT immediately available

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Summary of Guidelines: Patients with Dental Pain and Swelling

ADA Treatment Recommendations¹

Pulpal/Periapical Condition	DCDT Immediately Available		DCDT Not Immediately Available	
	Prescribe Antibiotics	Perform DCDT	Prescribe Antibiotics	Refer to DCDT
Symptomatic irreversible pulpitis with or without symptomatic apical periodontitis	X	✓	X	✓ Interim monitoring
Pulp necrosis and symptomatic apical periodontitis	X	✓	X*	✓ Interim monitoring
Pulp necrosis and localized acute apical abscess without systemic involvement	X	✓	✓	✓ Urgent referral
Pulp necrosis and localized acute apical abscess with systemic involvement	✓	✓	✓	✓ Urgent referral

*If DCDT is not feasible, provide a delayed antibiotic prescription to be filled after a predetermined period if symptoms worsen or do not improve

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Summary of Guidelines: ADA Antibiotic Recommendations



✓ ADA Antibiotic Recommendations[†]

Amoxicillin
(500mg, 3 times per day, 3-7 days)

OR

Penicillin V potassium
(500mg, 4 times per day, 3-7 days)

Follow up after 3 days to assess for resolution of systemic signs and symptoms. Discontinue antibiotics 24 hours after complete resolution of systemic signs and symptoms.

[†] For patients with penicillin allergy, please refer to ADA guidelines for treatment recommendation¹.

*This document provides general guidance and does **not** apply to all clinical scenarios. Always assess the individual patient and use your clinical judgment. Refer to ADA guidelines for specific treatment recommendations, definitions, and resources¹.*

1. Lockhart PB, et al. JADA. 2019 Nov;150(11):906-21.



CS29314-A

<https://www.cdc.gov/antibiotic-use/pdfs/ADA-treatment-guidelines-508.pdf>

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Summary of Guidelines: ADA Antibiotic Recommendations

Note Fine Print



✓ ADA Antibiotic Recommendations[†]

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1. Lockhart PB, et al. JADA. 2019 Nov;150(11):906-21.



CS29314-A

<https://www.cdc.gov/antibiotic-use/pdfs/ADA-treatment-guidelines-508.pdf>

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Fine Print

➔

From the 2019 ADA guidelines Regarding Penicillin Allergies:

Situation	Antibiotic Regimen	Comments
Without a history of anaphylaxis, angioedema, or hives with penicillin, ampicillin or amoxicillin	Cephalexin (500 milligrams, QID x 3 - 7d)	In settings where definitive treatment is delayed, failure of first line therapy or in the case of a systemic infection, add metronidazole (500 milligrams, three times a day, 7d).
With a history of anaphylaxis, angioedema, or hives with penicillin, ampicillin or amoxicillin	Azithromycin (loading dose of 500 milligrams on day 1, followed by 250 milligrams once daily on days 2-4) OR Clindamycin (300 milligrams, QID x 3-7d)	Due to concerns about antibiotic resistance, patients who receive azithromycin should be instructed to closely monitor their symptoms and call a dentist or primary care provider if their infection worsens while on therapy Due to concerns about the high risk of C. difficile infection, patients should be instructed to call their primary care provider if they develop fever, abdominal cramping, or ≥3 loose bowel movements per day

Fluent: Antibiotic Stewardship in Dentistry: 2023

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Recommendations for Pediatric Dentistry

GENERAL:

- Prevention of disease emphasized
- Prescribe only when needed, and as adjunct to DCDT
- Selection based upon:
 - Properties of agent
 - Previous antibiotic use
 - Patient considerations
- Minimal duration is 5 days beyond substantial improvement
 - Typical 5-7 days course of treatment
 - Improved healing of wound
 - Reduction of erythema/swelling
 - Reduction of signs/symptoms
 - Early discontinuation is supported
- Culture indicated in non-responsive cases
- Allergy testing recommended to confirm PCN allergy status

American Academy of Pediatric Dentistry: Use of Antibiotic Therapy for Pediatric Dental Patients. The Reference Manual of Pediatric Dentistry. Chicago, ILL: American Academy of Pediatric Dentistry; 2022: 495-9

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Recommendations for Pediatric Dentistry: Oral Wounds

Type of Wound	Appearance of Wound	Recommendations
Facial lacerations/puncture wounds		May require topical antibiotic agents
Clean	Does not appear contaminated by extrinsic bacteria or debris	Antibiotics generally not indicated
Potentially Contaminated	Contaminants: Extrinsic bacteria, debris (Dirt, soil, gravel, foreign body) Open fracture Joint injury	If appears to be contaminated, manage by systemic antibiotics Administer ASAP
Contaminated/dirty		

American Academy of Pediatric Dentistry: Use of Antibiotic Therapy for Pediatric Dental Patients. The Reference Manual of Pediatric Dentistry. Chicago, ILL: American Academy of Pediatric Dentistry; 2022: 495-9

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Switching Gears: Antibiotic Prophylaxis for Prevention of:

Infective Endocarditis
 Prosthetic Joint Infection
 Infection after implant placement



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Antibiotic Prophylaxis for Prevention of Infective Endocarditis:

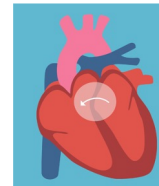
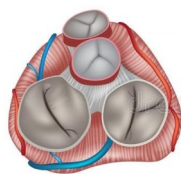
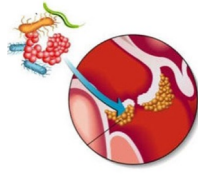
Current guidelines support premedication for a relatively small subset of patients to prevent Infective Endocarditis



<https://www.ada.org/en/member-center/oral-health-topics/antibiotic-prophylaxis>
 Lockhart PB et al. JADA 2020;151(10)770-81
 Wilson WR et al. Circulation 2021;143:e963-e978

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Cardiac Conditions At Highest Risk of Endocarditis:

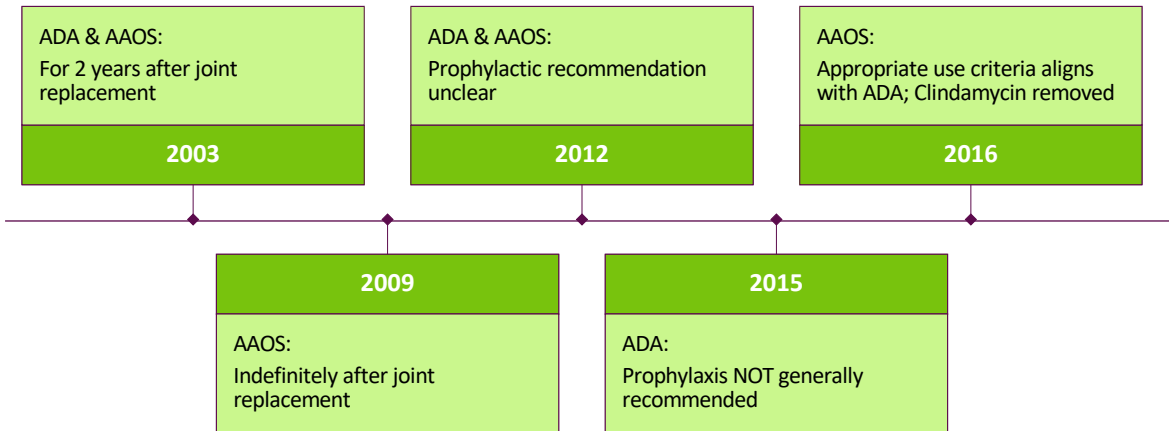


<p>Prosthetic Cardiac Valve or Prosthetic Material Used for Valve Repair</p>	<p>Previous Infective Endocarditis</p>	<p>Cardiac Transplants Recipients That Develop Valvulopathy</p>	<p>Congenital Heart Disease (CHD)</p> <ul style="list-style-type: none"> a. Unrepaired cyanotic CHD, including palliative shunts and conduits b. Repaired CHD defect with prosthetic material during first 6 months after procedure c. Repaired CHD with residual defects
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<https://www.ada.org/en/member-center/oral-health-topics/antibiotic-prophylaxis>
 Lockhart PB et al. JADA 2020;151(10)770-81 Wilson WR et al. Circulation 2021;143:e963-e978

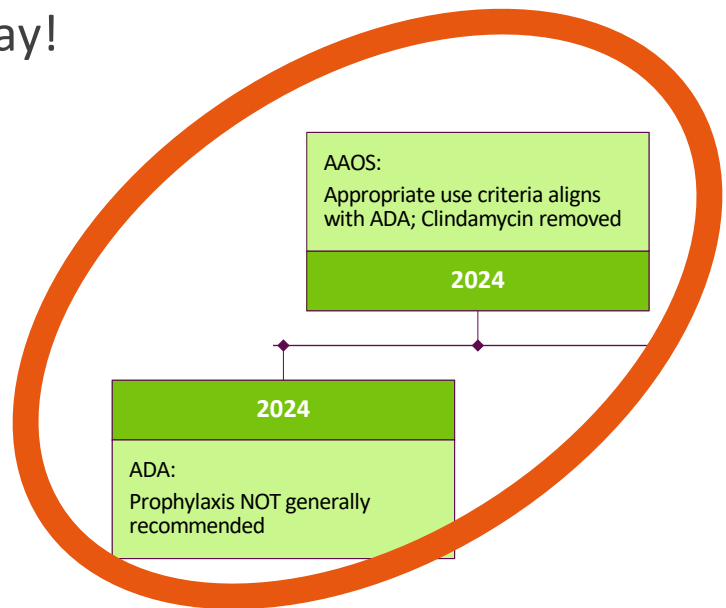
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Evolution of Dental Antibiotic Prophylaxis in Patients With Prosthetic Joints:

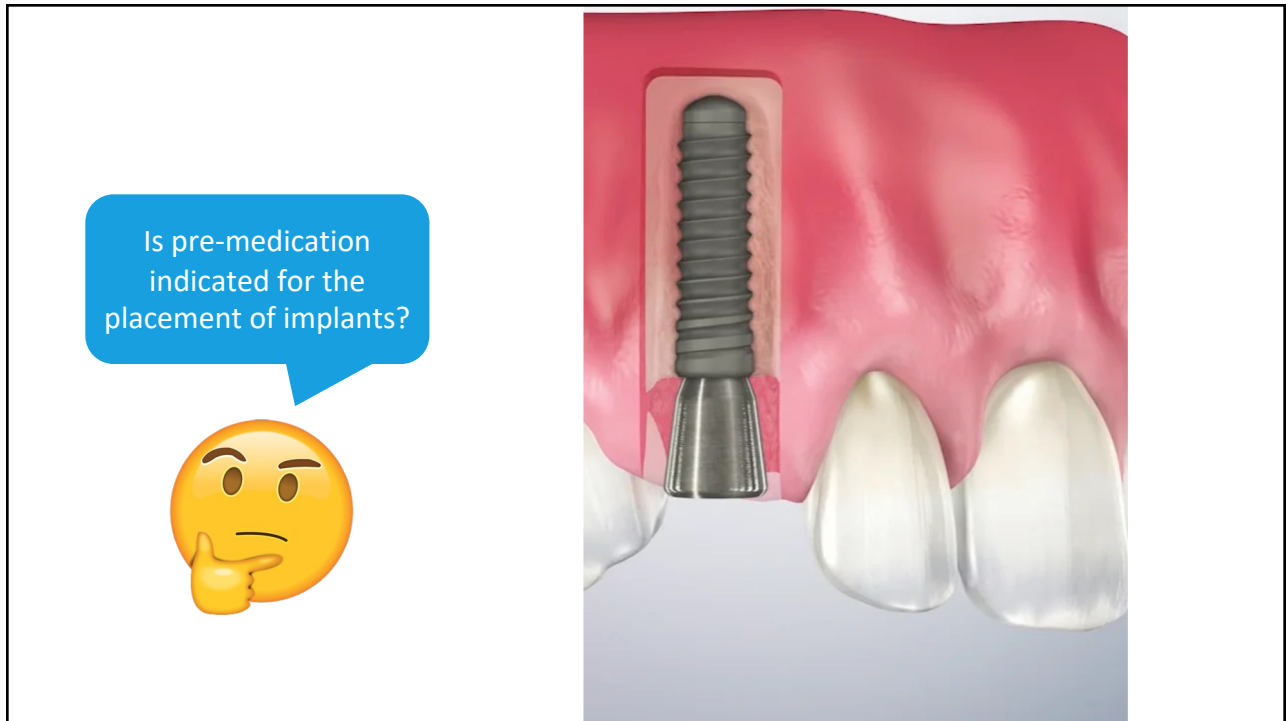


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Where We Stand Today!



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Antibiotic Prophylaxis for Tooth Extractions and Dental Implants: A Narrative Review		
	Use Antibiotic Prophylaxis	Antibiotic Prophylaxis NOT Recommended
Simple Extraction		X
Complex Extraction including 3 rd molars		X
Simple implant		X
Complex Implants with bone augmentation	X	
* Pre-procedure antibiotics ONLY; Amoxicillin 2 gm		

Khouja, Tumader & Kennedy, Erinne & Suda, Katie. (2023). Antibiotic Prophylaxis for Tooth Extractions and Dental Implants, A Narrative Review. Current Infectious Disease Reports. 25. 1-13. 10.1007/s11908-023-00802-y.

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Postextraction infection and antibiotic prescribing among veterans receiving dental extractions

Kaylee E. Caniff PharmD¹, Lisa R. Young PharmD, BCIDP¹, Shawna Truong PharmD¹, Gretchen Gibson DDS, MPH², M. Marianne Jurasic DMD, MPH^{2,3,4}, Linda Poggensee MS⁵, Margaret A. Fitzpatrick MD, MS^{5,6}, Charlesnika T. Evans MPH, PhD^{5,7} and Katie J. Suda PharmD, MS, FCCP^{8,9}

¹Jesse Brown VA Medical Center, Chicago, Illinois, ²VHA Office of Dentistry, Department of Veterans' Affairs, Washington, DC, ³Center for Healthcare Organization and Implementation Research, Edith Nourse Rogers Memorial Veterans' Hospital, Boston, Massachusetts, ⁴Boston University, School of Dental Medicine, Boston, Massachusetts, ⁵Center of Innovation for Complex Chronic Healthcare, Edward Hines, Jr VA Hospital, Hines, Illinois, ⁶Loyola University Chicago Stritch School of Medicine, Maywood, Illinois, ⁷Center for Health Services and Outcomes Research, Northwestern University Feinberg School of Medicine, Chicago, Illinois, ⁸Center of Health Equity Research and Promotion, VA Pittsburgh Healthcare System, Pittsburgh, Pennsylvania and ⁹Division of General Internal Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania

Retrospective analysis of 404 veterans who received or did not receive an antibiotic were compared for the occurrence of “**post-extraction infection**”.

There was **no difference** in the frequency of post extraction oral infection identified among patients who did (4.5%) and did not receive (3.2%) antibiotics
(4.5% vs 3.2%; P = .59)

Infection Control & Hospital Epidemiology (2021), 1–6.

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Antibiotics Regimens for Antibiotic Prophylaxis:

Notes:

- Single Dose 30-60 minutes before procedure
- Clindamycin no longer recommended
- IM: Intramuscular
- IV: Intravenous
- Cephalosporins should not be used with history of anaphylaxis, angioedema, or urticarial with penicillin or ampicillin

Wilson WR et al. Circulation 2021;143:e963-e978

Situation	Agent	Adults	Children
Oral	Amoxicillin	2 g	50 mg/kg
Unable to take oral medication	Ampicillin OR	2 g IM or IV	50 mg/kg IM or IV
	Cefazolin or ceftriaxone	1 g IM or IV	50 mg/kg IM or IV
Allergic to penicillin or ampicillin—oral	Cephalexin [†] OR	2 g	50 mg/kg
	Azithromycin or clarithromycin OR	500 mg	15 mg/kg
	Doxycycline	100 mg	<45 kg, 2.2 mg/kg >45 kg, 100 mg
Allergic to penicillin or ampicillin and unable to take oral medication	Cefazolin or ceftriaxone [†]	1 g IM or IV	50 mg/kg IM or IV

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Special Circumstances:



What if my patient forgets to take their pre-medication?

“Antibiotics may be administered up to 2 hours after the procedure”

2007 AHA Guidelines

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Special Circumstances:

What if my patient is already taking an antibiotic, AND requires pre-med?



“A drug should be selected from a different class; for example, a patient already taking oral penicillin for other purposes may likely have in their oral cavity viridans group streptococci that are relatively resistant to beta-lactams”

2007 AHA Guidelines

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Outpatient Antimicrobial Stewardship


- *Antimicrobial stewardship* is the effort to:
 - Measure antibiotic prescribing;
 - Improve antibiotic prescribing by clinicians and **use by patients** so that antibiotics are only prescribed and used when needed;
 - Minimize misdiagnoses or delayed diagnoses leading to underuse of antibiotics; and
 - Ensure that the **right drug, dose, and duration** are selected when an antibiotic is needed.




Sanchez, G.V., Fleming-Dutra, K.E., Roberts, R.M., Hicks, L.A. Core Elements of Outpatient Antibiotic Stewardship. MMWR Recomm Rep 2016;65(No. RR-6):1-12.

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CDC Core Elements




Commitment
Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety.



Action for policy and practice
Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working, and modify as needed.




Tracking and reporting
Monitor antibiotic prescribing practices and offer regular feedback to clinicians, or have clinicians assess their own antibiotic prescribing practices themselves.




Education and expertise
Provide educational resources to clinicians and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing.


Entities that are intended audiences for this report are outpatient health care professionals and leaders of their respective clinics, departments, facilities, and health care systems.




Primary care clinics and clinicians
These clinics and clinicians prescribe approximately half of all outpatient antibiotics in the United States.* This includes clinicians specializing in family practice, pediatrics, and internal medicine, all of whom treat a wide variety of patients and conditions that might benefit from antibiotic treatment.




Outpatient specialty and subspecialty clinics and clinicians
These clinics and clinicians focus on treatment and management of patients with specialized medical conditions that sometimes benefit from antibiotic therapy. These specialties include gastroenterology, dermatology, urology, obstetrics, otolaryngology, and others.




Emergency departments (EDs) and emergency medicine clinicians
EDs and emergency medicine clinicians are positioned between acute care hospitals and the community and encounter unique challenges, including lack of continuity of care and higher concentration of high-acuity patients, as well as unique opportunities for stewardship interventions, such as greater clinician access to diagnostic resources and the expertise of pharmacists and consultants.




Retail health clinics and clinicians
These clinics and clinicians provide treatment for routine conditions in retail stores or pharmacies and represent a growing category of health care delivery in the United States.




Urgent care clinics and clinicians
These clinics and clinicians specialize in treating patients who might need immediate attention or need to be seen after hours but might not need to be seen in EDs.



Dental clinics and dentists
Dental clinics and dentists use antibiotics as prophylaxis before some dental procedures and for treatment of dental infections.



Nurse practitioners and physician assistants
These clinicians work in every medical specialty and subspecialty involved in antibiotic prescribing and should be included in antibiotic stewardship efforts.



Health care systems
Health care systems plan, deliver, and promote health care services and often involve a network of primary and specialty outpatient clinics, urgent care centers, EDs, acute care hospitals, and other facilities that provide health care services. Health care systems can use existing antibiotic stewardship programs or develop new ones to promote appropriate antibiotic prescribing practices in their outpatient facilities as well as across the system.

Sanchez, G.V., Fleming-Dutra, K.E., Roberts, R.M., Hicks, L.A. Core Elements of Outpatient Antibiotic Stewardship. MMWR Recomm Rep 2016;65(No. RR-6):1–12.

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Step 1: Make a Commitment

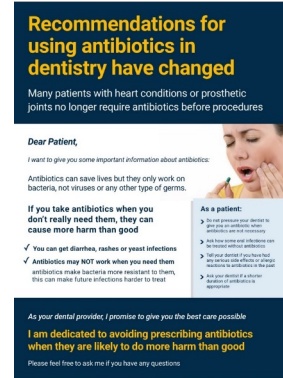
- Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety

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Step 1: Make a Commitment

- During an office-wide lunch-and-learn:
 - View and discuss “Antibiotic Stewardship in the Dental Office”
 - Identify a team member to be your “stewardship champion.”
- Print custom posters for your office, one for each operatory and waiting area and hang up as a team
- Update office website, send out a newsletter to patients, or use social media
- Include stewardship expectations and evaluation measures in job descriptions.

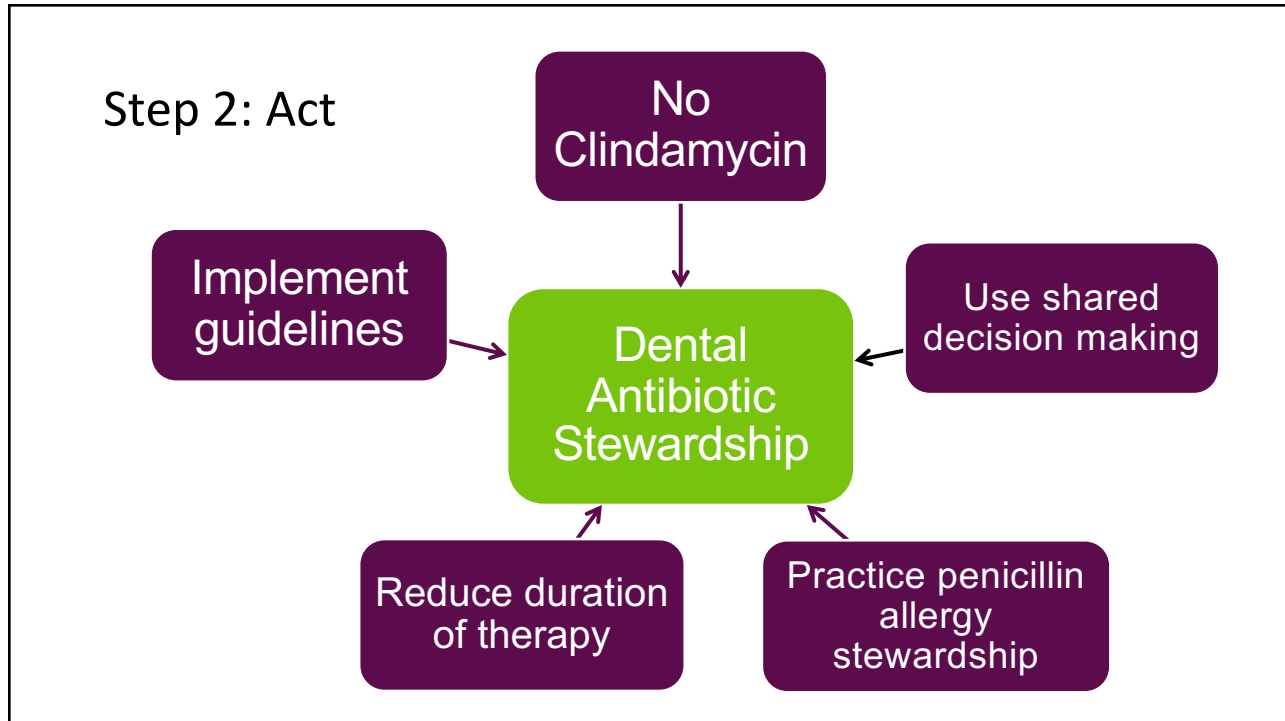


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Step 2: Action for Policy & Practice

- Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working and modify as needed

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Update on Prophylaxis in PJI

- Dental procedures pose *no greater risk* for systemic bacteremia than activities of daily living, such as brushing your teeth or eating.
- The use of antibiotic prophylaxis is generally *not recommended*.
- The use of antibiotic prophylaxis poses *unnecessary risk* of adverse drug reactions and/or antibiotic resistance.
- Recommendations for antibiotic prophylaxis should be considered individually in each patient, depending on their medical history.

What do Dental Teams need to know about Antibiotic Prophylaxis Prior to Invasive Dental Procedures in Patients with Total Joint Replacement (TJR)?

- Dental procedures pose no greater risk for systemic bacteremia than activities of daily living, such as brushing your teeth or eating.
- The use of antibiotic prophylaxis is not recommended. The use of antibiotic prophylaxis poses unnecessary risk of adverse drug reactions and/or antibiotic resistance.
- Recommendations for antibiotic prophylaxis should be considered individually in each patient, depending on their medical history.
- Following is a summary of the literature supporting this public health recommendation:

Year	Key Points
2023	An analysis of 2,344 patients who were admitted with late periprosthetic joint infections (PJI) noted no relationship with prior dental procedures. Authors' conclusion: No the absence of benefit, the continued use of antibiotic prophylaxis poses an unnecessary risk to patients from adverse drug reactions and to society from the potential of antibiotic resistance to promote development of antibiotic resistance. Dental antibiotic prophylaxis use to prevent late PJI should therefore cease. ⁽¹⁾
2022	Antibiotic prophylaxis is not utilized in the UK. An analysis of dental records for more than 5000 British patients admitted for treatment of late PJI showed no significant association between invasive dental procedures and subsequent late PJI. (2)
2016	In 2016, the American Academy of Orthopaedic Surgeons developed Appropriate Use Criteria for the Management of Patients with Orthopaedic Implants Undergoing Dental Procedures stating that "the chance of oral bacteremia being related to joint infections is extremely low, with no evidence for an association." A tool was developed to help clinicians make patient-specific decisions for prophylaxis. (3) In 2016, the American Association of Orthopaedic Surgeons removed clindamycin as an option for dental prophylaxis due to the high risk of C. difficile diarrhea.
2014	In 2014, the ADA's Council on Scientific Affairs assembled an expert panel to conduct a systematic review that recommended: "...for patients with prosthetic joint implants, prophylactic antibiotics are not recommended prior to dental procedures." ⁽⁴⁾

References

1. Thornhill MH, Gibson TB, Paek C, Rosario BL, Bloemers S, Lockhart PB, Springer B, Baddour LM. Quantifying the risk of prosthetic joint infections after invasive dental procedures and the effect of antibiotic prophylaxis. J Am Dent Assoc. 2023 Jan;154(1):43-52.e12. doi: 10.1016/j.adaj.2022.10.001. Epub 2022 Dec 2. PMID: 36470600.
2. Thornhill MH, Cronn A, Fox S, Stone T, Campbell N, Bradburn M, Fibolan V, Lockhart PB, Springer B, Baddour LM, Nicholl J. Analysis of Prosthetic Joint Infections Following Invasive Dental Procedures in England. JAMA Netw Open. 2022 Jan 4;5(1):e2142987. doi: 10.1001/jamanetworkopen.2021.42987. PMID: 35044470; PMCID: PMC82771300.
3. American Academy of Orthopaedic Surgeons Appropriate Use Criteria for the Management of Patients Undergoing Dental Procedures. aao.org/dentaluc. Published September 23, 2016.
4. Sollecito T, Abe E, Lockhart P, et al. The use of prophylactic antibiotics prior to dental procedures in patients with prosthetic joints: Evidence-based clinical practice guidelines for dental practitioners — a report of the American Dental Association Council on Scientific Affairs. JADA. 2015;146(1):11-16.

<https://www.mi-marr.org/dental-resources/index.php>

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Editable Letter Template

Given the evolution of prophylaxis guidelines by the American Dental Association (ADA) and American Academy of Orthopaedic Surgeons (AAOS), the AAOS Appropriate Use Criteria (AAOS AUC), and recent scientific evidence suggesting no benefit of antibiotic prophylaxis 2,3., we have discussed with the patient their antibiotic prophylaxis regimen. The evidence suggests that the risk of antibiotic prophylaxis outweighs the benefits for this patient.

Dental Office Name
Dentist Name
Address

Dear Colleague:

We are writing in regards to your patient, [insert name/DOB] who receives dental care in our office. Based on their medical history, this patient received their most recent total hip replacement in [insert "MAY" "1991"]. Given the evolution of prophylaxis guidelines by the American Dental Association (ADA) and American Academy of Orthopaedic Surgeons (AAOS), the AAOS Appropriate Use Criteria (AAOS AUC), and recent scientific evidence suggesting no benefit of antibiotic prophylaxis 2,3., we have discussed with the patient their antibiotic prophylaxis regimen. The evidence suggests that the risk of antibiotic prophylaxis outweighs the benefits for this patient.

As outlined in the AAOS AUC Criteria, there may be rare circumstances that antibiotic prophylaxis prior to an invasive dental procedure may be considered in a patient who is more than one year post-surgery choice implant. Should you feel that in the case with [insert patient name], we kindly request that you communicate the specific circumstances to our office, as well as to the patient. This will allow us to better coordinate care and provide consistent patient education.

If you have any questions or concerns regarding the patient's dental health, please feel free to contact us.

Sincerely,
[insert Dentist Signature]
[insert Dentist Name]

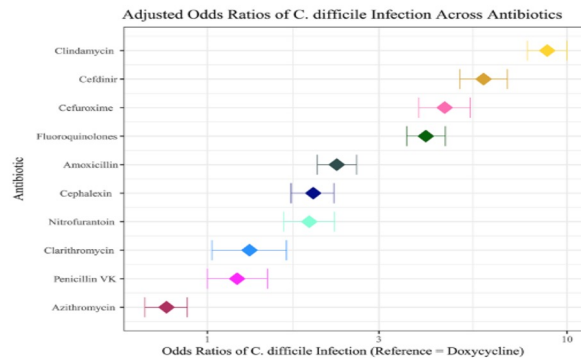
1. <https://aaoos.org/aaos-auc/>
2. JADA 2023;154(1):43-52
3. JAMA Network Open. 2022;5(1):e214298

<https://www.mi-marr.org/dental-resources/index.php>

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Why have AAOS and AHA removed clindamycin from their guidelines?

One dose of clindamycin has an equivalent risk of C. diff diarrhea compared with a prolonged course of other antibiotics!



Doxycycline was selected as the reference because it does not alter susceptibility to *C. difficile* in animals and has not been associated with risk for CDI in prior retrospective studies

Zhang J. et al AAC December 2022 Volume 66 Issue 12

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Many Case Reports of CDI in Dental Patients Receiving Clindamycin (and other antibiotics)

C. DIFF STORIES
Kay

LOCATION: ARIZONA


AGE: 56

GENDER: F

LENGTH: 6 DAYS

SOURCE: OTHER

I am a public health dentist and practiced clinical dentistry for nearly 30 years. On January 11, 2022, I underwent periodontal surgery (tooth extraction and socket graft). The periodontist prescribed clindamycin for 6 days. There was no infection present, it was a "prophylactic" protocol to prevent possible infections. I returned to the periodontist for a 1 month post-op evaluation on February 19 and 2 days later developed acute GI symptoms. I was misdiagnosed by urgent care, twice, as having IBS. A few days later, I saw a gastroenterologist. The GE believed it was C. diff, and unfortunately for me his diagnosis was correct.




<https://peggyfoundation.org/c-diff-stories/all-stories/>

Peggy died 8 days after her first dose of clindamycin!

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Addressing C. diff in the Dental Office

- Prescribe per ADA, AAOS & AHA guidelines
- Practice "penicillin allergy stewardship"
- **ALWAYS** inquire about C diff history when prescribing antibiotics as patients with prior history are at increased risk of recurrence
- Consider patients' comorbidities/risk factor, especially when prescribing clindamycin
- Prescribe the shortest duration of therapy appropriate for the indication
- Advise patients to discontinue antibiotics at first sign of diarrhea and refer to MD
 - DO NOT recommend Imodium (Loperamide)



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People who are labeled “Penicillin Allergic” are more likely to receive second-line antibiotics resulting in:

- Treatment failure
- Adverse drug events
 - *Clostridioides difficile* diarrhea
- Antibiotic resistance e.g., MRSA
- Mortality
- Surgical site infection

Surgical site infections after Oral and Maxillofacial Surgery

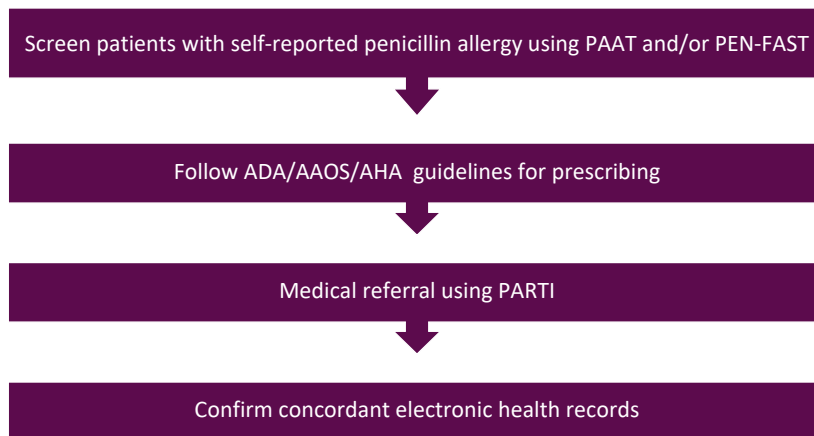
	SSI	No SSI	Total
Reported Penicillin Allergy	13 (4.1)	305 (95.9)	318 (100.0)
Non-Penicillin Allergic	27 (1.6)	1,713 (98.4)	1,740 (100.0)

Number (%) shown. Relative Risk of 2.63 (95% CI 1.37-5.05, P = .004).

Samarakoon U et al. Ann Allergy Asthma Immunol. 2022 Dec 20;S1081-1206(22)02006-3
 Zhang J. Antimicrob Agents Chemother 2022 66(12):
 Deshpande A, J Antimicrob Chemother. 2013 Sep;68(9):1951-61
 Roistacher DM, Heller JA, Ferraro NF, August M. J Oral Maxillofac Surg. 2022 Jan;80(1):93-100

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How to: Penicillin Allergy Stewardship in the Dental Office



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Penicillin Allergy Assessment Tool (PAAT) for the Dental Office

SHOULD YOUR PATIENT BE REFERRED FOR PENICILLIN-ALLERGY ASSESSMENT?

USE THIS TOOL TO IDENTIFY PATIENTS WHO MAY BENEFIT FROM HAVING THEIR PENICILLIN ALLERGY EVALUATED BY A HEALTHCARE PROFESSIONAL.

Who?
The "Penicillin Allergy Assessment Algorithm" is designed for use by the dental team.

What?
The "Penicillin Allergy Assessment Algorithm" is a decision-making tool to guide the dental team to identify patients who may benefit from having their penicillin allergy evaluated by a healthcare professional with the ultimate goal being to "de-label" the patient as penicillin allergic, if appropriate.

When not?
The framework is NOT intended to provide precise prescribing recommendations for individual clinical situations, but rather assist the clinician and the patient to collaborate and determine if there is evidence from the patient's allergy history to recommend an evaluation.

Why?

- Patients who state that they are allergic to penicillin often do not have a true allergy, or their allergy may have waned over time.
- Patients labelled as penicillin-allergic are more likely to receive antibiotics that are NOT recommended as first-line therapy that have been associated with:
 - Reduced efficacy
 - More adverse reactions, including C. diff diarrhea which has been frequently observed in dental patients
 - Increased risk for antibiotic resistance
 - Higher healthcare costs

J. Allergy Clin Immunol Pract. 2020 Oct;8(5):516-5116

OSAP **MARR**

Patient presents to your dental clinic with a condition that requires prophylactic or therapeutic antibiotics and reports a history of symptoms when taking a penicillin.

What signs & symptoms has the patient experienced when taking a penicillin?

SEVERE - Type II-IV Steven Johnson Syndrome Serum Sickness Toxic Epidermal Necrolysis Drug Rash Eosinophilia Systemic Hemolytic Anemia Drug Fever	SEVERE - IgE Mediated Anaphylaxis Angioedema Wheezing or shortness of breath Laryngeal edema Hypotension Hives/Urticaria	Mild to Moderate Non-immediate onset, non-urticarial mild rash	Non-Allergy/ Drug Side Effects Stomach Upset Nausea Diarrhea Abdominal Pain Headache Chills Fatigue
--	---	--	---

These are hypersensitivity reactions, not allergic reactions. Patients with Type II-IV reactions should NOT be prescribed ANY beta-lactam antibiotics eg. amoxicillin, amoxicillin/clavulanate (Augmentin), cephalexin (Keflex).

Recommend re-evaluation of penicillin allergy by healthcare professional.

Recommend re-evaluation of penicillin allergy by healthcare professional.

Is the allergy documented in the patient's Electronic Health Record?

No → Do not refer for allergy testing, document in dental record that patient does NOT have a penicillin allergy.

Yes or uncertain → Recommend re-evaluation of penicillin allergy by healthcare professional.

References for antibiotic choices and dosing: For management of oral pain and swelling: <https://pub.ncbi.nlm.nih.gov/pubmed/24861484>
For prophylaxis: <https://www.aacp.org/antibiotic-choices-for-dental-pain-and-swelling>

Resource Link: www.mi-marr.org/documents/PCN%20tool%2012_15_21.pdf

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Penicillin Allergy Assessment Tool (PAAT)

Patient presents to your dental clinic with a condition that requires prophylactic or therapeutic antibiotics and reports a history of symptoms when taking a penicillin.

What signs & symptoms has the patient experienced when taking a penicillin?

SEVERE - Type II-IV Steven Johnson Syndrome Serum Sickness Toxic Epidermal Necrolysis Drug Rash Eosinophilia Systemic Hemolytic Anemia Drug Fever	SEVERE - IgE Mediated Anaphylaxis Angioedema Wheezing or shortness of breath Laryngeal edema Hypotension Hives/Urticaria	Mild to Moderate Non-immediate onset, non-urticarial mild rash	Non-Allergy/ Drug Side Effects Stomach Upset Nausea Diarrhea Abdominal Pain Headache Chills Fatigue
--	---	--	---

These are hypersensitivity reactions, not allergic reactions. Patients with Type II-IV reactions should NOT be prescribed ANY beta-lactam antibiotics eg. amoxicillin, amoxicillin/clavulanate (Augmentin), cephalexin (Keflex).

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No → Do not refer for allergy testing, document in dental record that patient does NOT have a penicillin allergy.

Yes or uncertain → Recommend re-evaluation of penicillin allergy by healthcare professional.

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PEN-FAST Validation Tool to Identify Low-Risk Penicillin Allergies

- F** = Five or less years since the reaction occurred.
- A** = Anaphylaxis or angioedema.
- S** = Severe cutaneous reaction.
- T** = Treatment required secondary to reaction.
- F, A, S are worth two points
- T is worth one point.
- A score of less than 3 is associated with a low-risk patient, who can safely be re-challenged

MD CALC

Penicillin Allergy Decision Rule (PEN-FAST)

Identifies low-risk penicillin allergies.

INSTRUCTIONS
Apply this calculator to patients who have reported a penicillin allergy.

When to use ▼

Five years or less since reaction	No 0	Yes +2
Anaphylaxis or angioedema OR Severe cutaneous adverse reaction	No 0	Yes +2
Treatment required for reaction	No 0	Yes +1

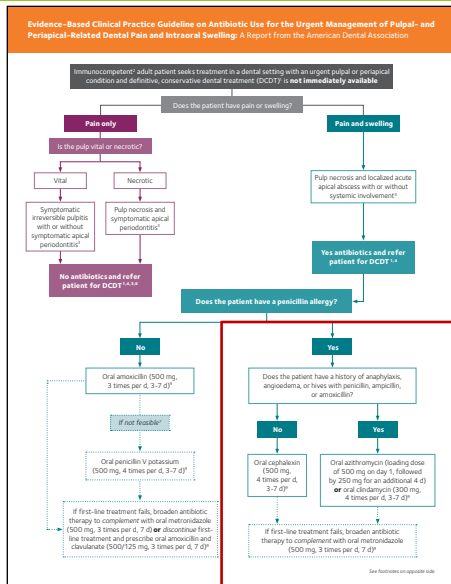
0 points
PEN-FAST Score

<1 %
Very low risk of positive penicillin allergy test

[Copy Results](#) [Next Steps](#)

Trubiano JA, Vogrin S, Chua KYL et al. Development and Validation of a Penicillin Allergy Clinical Decision Rule. JAMA Intern Med. JAMA Intern Med 2020;180(5):745-752

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If Patient has NOT Experienced IgE-Mediated Reaction:
Cephalexin (Keflex) is recommended since the risk of cross-reactivity between cephalosporins and penicillins occurs in 2% (previously reported as 8%)

If Patient HAS Experienced IgE-MEDIATED Reaction:
Azithromycin (Z-Pak) is preferred over clindamycin

Reminder: Augmentin = amoxicillin + clavulanate

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Alternatives in Patients with Anaphylaxis to Penicillin (per ADA 2019 guidelines)

Azithromycin

- Z-pak = Loading dose 500mg then 250 mg x 5 days
- Monitor for:
 - Antibiotic resistance
 - QTc prolongation & arrhythmias

Clindamycin

- 300 mg QID for 3-7 days
- *“Patients should be instructed to call their primary care provider if they develop fever, abdominal cramping, or 3 loose bowel movements per day”.*



FDA Drug Safety Communication: Azithromycin (Zithromax or Zmax) and the risk of potentially fatal heart rhythms

Safety Announcement

[3-12-2013] The U.S. Food and Drug Administration (FDA) is warning the public that azithromycin (Zithromax or Zmax) can cause abnormal changes in the electrical activity of the heart that may lead to a potentially fatal irregular heart rhythm. Patients at particular risk for developing this condition include those with known risk factors such as existing QT interval prolongation, low blood levels of potassium or magnesium, a slower than normal heart rate, or use of certain drugs used to treat abnormal heart rhythms, or arrhythmias. This communication is a result of our review of a study by medical researchers as well as another study by a manufacturer of the drug that assessed the potential for azithromycin to cause abnormal changes in the electrical activity of the heart.

CLINDAMYCIN HYDROCHLORIDE

BOXED WARNING

To reduce the development of drug-resistant bacteria and maintain the effectiveness of clindamycin hydrochloride capsules and other antibacterial drugs, clindamycin hydrochloride capsules should be used only to treat or prevent infections that are proven or strongly suspected to be caused by bacteria.

Clindamycin hydrochloride associated diarrhea (CDAD) has been reported with use of nearly all antibacterial agents, including clindamycin hydrochloride and may range in severity from mild diarrhea to fatal colitis. Treatment with antibacterial agents alters the normal flora of the colon, leading to overgrowth of *C. difficile*.

Because clindamycin hydrochloride therapy has been associated with severe colitis which may end fatally, it should be reserved for serious infections where less toxic antimicrobial agents are inappropriate, as described in the INDICATIONS AND USAGE section. It should not be used in patients with nonbacterial infections such as most upper respiratory tract infections.

C. difficile produces toxins A and B, which contribute to the development of CDAD. Hypertoxin producing strains of *C. difficile* cause increased morbidity and mortality, as these infections can be refractory to antimicrobial therapy and may require colectomy. CDAD must be considered in all patients who present with diarrhea following antibiotic use. Careful medical history is necessary since CDAD has been reported to occur over two months after the administration of antibacterial agents.

If CDAD is suspected or confirmed, ongoing antibiotic use not directed against *C. difficile* may need to be discontinued. Appropriate fluid and electrolyte management, protein supplementation, antibiotic treatment of *C. difficile*, and surgical evaluation should be instituted as clinically indicated.

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Penicillin Allergy Reassessment For Treatment Improvement Tool (PARTI)



The Journal of the American Dental Association

Available online 21 March 2024

In Press, Corrected Proof What's this?



Investigation

Penicillin allergy reassessment for treatment improvement: A dental office tool to support appropriate penicillin allergy labeling

Ashlan J. Kunz Coyne PharmD, MPH, Dana Holger PharmD, MPH, Erinne Kennedy DMD, MPH, MMSc, Mackenzie Connell MPH, Juliann Biniendo PhD, Christopher Giuliano PharmD, MPH, Elaine M. Bailey PharmD

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https://doi.org/10.1016/j.ada.2023.12.007

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Penicillin Allergy Reassessment for Treatment Improvement (PARTI) Tool

CLINICIAN

PART 1 (Completed by the dentist)
 You are a candidate for allergy reassessment because (check all that apply):
 Not a true allergy Allergic reactions < 5 years ago
 Error in chart Allergy does not prevent penicillin use
 Other - Please specify _____

Dentist Name: _____
 Dentist Contact Info: _____

PATIENT

PART 2 (Completed by the patient)
 Patient Name: _____
 You will discuss allergy reassessment with a healthcare provider and/or aologist.
 Healthcare Provider Name: _____
 Healthcare Provider Contact Info: _____
 Appointment time for allergy reassessment and/or testing: _____
 Allergy to: _____
 *It may take multiple visits for you to receive allergy testing.

HEALTHCARE PROVIDER

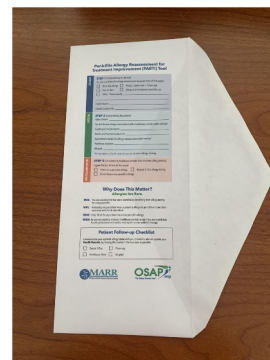
PART 3 (Completed by healthcare provider that completes allergy testing)
 I agree that you (check all that apply):
 Have a true penicillin allergy Require further allergy testing
 Do not have a true penicillin allergy

Why Does This Matter?
Allergies Are Rare.
WHO: You see a patient that has been identified as benefiting from allergy testing for using penicillin.
WHY: Antibiotics are prescribed when a patient is allergic to penicillin and/or others associated with health care effects.
WHEN: Only 1% of the population has a true penicillin allergy.
WHEN: As soon as possible, and your healthcare provider to use if you are a candidate for allergy reassessment and/or testing to improve antibiotic therapy.

Patient Follow-up Checklist
 Communicate your updated allergy status with your provider, who then updates your health records by sharing this card with them as soon as possible.
 Dental Office Pharmacy
 Healthcare Clinic Hospital

DISCLAIMER: This is a tool for penicillin allergy screening, communication, and documentation and is not designed for risk assessment or diagnosis.

MARR logo: Michigan Allergy Reassessment Registry
 OSAP logo: The Dental Allergy Specialist



May be printed on #10 envelope

Download @ www.mi-marr.org & print 2 cards per 8.5 x 11 sheet

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Step 3: Tracking and Reporting

- Monitor antibiotic prescribing practices and offer regular feedback to clinicians, or have clinicians assess their own antibiotic prescribing practices themselves

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Step 3: Track and Report

Review a sample of your own patient cases per quarter where you prescribe antibiotics to evaluate your prescribing patterns.

Antibiotic Stewardship Chart Audit Tool

Clinician Name:	Reviewed From Date to Date:	Date of Review:
Instructions: This Antibiotic Stewardship CA Tool can be used by clinicians, staff, or other individuals working on cases for each of the criteria below with the "Yes/No/NA" or "Not applicable." This tool can also be used to monitor compliance of clinicians' adherence to the requirements of the "Care and" section. When the review and any recommendations completed, the chart can be used to track the CA Review and then submit the Quality Improvement report to the Quality Improvement Department. (Review a sample of your own patient cases per quarter where you prescribe antibiotics.) (Review a sample of your own patient cases per quarter where you prescribe antibiotics.)		
Antibiotic Stewardship Chart Review Section I		
Individual	Criteria	Date of Treatment
Informed Consent & Shared History Was the patient informed of the antibiotic use? Was the patient's history reviewed and documented? Was the patient's history reviewed and documented? Was the patient's history reviewed and documented?		
Diagnosis Was the diagnosis documented? Was the diagnosis documented? Was the diagnosis documented? Was the diagnosis documented?		
Indication Was the indication documented? Was the indication documented? Was the indication documented?		
Antibiotic Use Was the antibiotic use documented? Was the antibiotic use documented? Was the antibiotic use documented?		

Page 1 of 2

Antibiotic Stewardship Chart Audit Tool

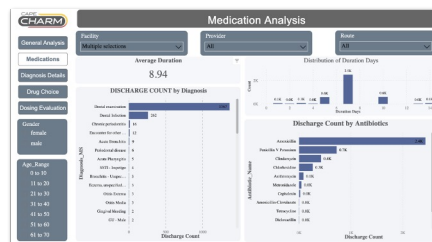
Treatment	Reviewed From Date to Date:	Date of Review:
Instructions: This Antibiotic Stewardship CA Tool can be used by clinicians, staff, or other individuals working on cases for each of the criteria below with the "Yes/No/NA" or "Not applicable." This tool can also be used to monitor compliance of clinicians' adherence to the requirements of the "Care and" section. When the review and any recommendations completed, the chart can be used to track the CA Review and then submit the Quality Improvement report to the Quality Improvement Department. (Review a sample of your own patient cases per quarter where you prescribe antibiotics.) (Review a sample of your own patient cases per quarter where you prescribe antibiotics.)		
Antibiotic Stewardship Chart Review Section II		
Treatment Was the antibiotic prescribed? Was the antibiotic prescribed? Was the antibiotic prescribed?		
Monitoring Review Was the antibiotic prescribed? Was the antibiotic prescribed? Was the antibiotic prescribed?		
Charts with a "Y" or "N": Notes: Recommendation if Any: Date Reviewed or Resolved:		
Quality Assurance Review Completion: _____ Date: _____		

Page 2 of 2

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Tracking Antimicrobial Use in Dental Practices: The Collaboration to Harmonize Antimicrobial Registry Measures (CHARM)

- Currently have data from 42 dental providers.
- Collaborating with OSAP & MARR to improve diagnosis/use coding
- Actively recruiting dental clinics ****FREE to participate****



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Collaboration to Harmonize Antimicrobial Registry Measures (CHARM)

Michael E. Klepser, PharmD, FCCP, FIDP
Professor
Ferris State University College of Pharmacy

Senior Director, Collaboration to Harmonize Antimicrobial Registry Measures (CHARM)
25 Michigan Ave, Suite 7000
Grand Rapids, MI 49503

Email: michaelklepser@ferris.edu
Webpage: <https://www.ferris.edu/charm.htm>



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Step 4: Education and Expertise

- Provide educational resources to clinicians and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing

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Step 4: Educate the ENTIRE Dental Team & Patients

Despite being used in management of patients with respiratory tract infections, many concepts are foreign to both patients and providers!

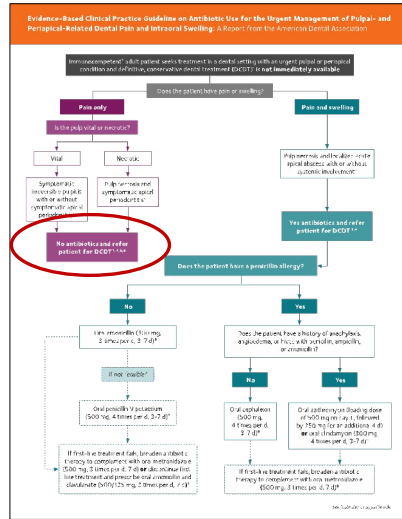
- Delayed prescribing
- Short duration
- Early discontinuation (& proper disposal of leftover antibiotics)

New(er) to the dental office:

- Know risk and history of C. diff
- Limited indication for prophylaxis

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Delayed Antibiotic Prescribing Patients with pain only where DCDT not immediately available



Evidence-Based Clinical Practice Guideline on Antibiotic Use for the Urgent Management of Pulpal- and Periapical-Related Dental Pain and Intraoral Swelling: A Report from the American Dental Association

Summary of clinical recommendations for urgent situations in dental settings where definitive, conservative dental treatment is not immediately available.

GRADE Certainty of the Evidence	For Patients	Strong Recommendations	Conditional Recommendations
High	We are very confident in the benefits or risks of the recommended course of action, and that the balance of benefits and risks favors the recommended course of action.	Most individuals in the situation would want the recommended course of action, but many would not.	The majority of individuals in the situation would want the recommended course of action, but many would not.
Moderate	We are confident in the benefits or risks of the recommended course of action, but there are some concerns about the accuracy of the evidence.	Most individuals should receive the recommended course of action.	Recognize that different choices will be appropriate for individual patients and that patients help each patient arrive at a management decision consistent with his or her values and preferences.
Low	We have limited confidence in the benefits or risks of the recommended course of action.	Most individuals should receive the recommended course of action.	Policy making will require substantial debate and presentation of various alternatives.
Very Low	We have very little confidence in the benefits or risks of the recommended course of action.	For Policy Makers: The recommendation can be adapted as policy in most situations.	

Expert Panel Recommendations and Good Practice Statement

Recommendation	Certainty of the Evidence	Strength of Recommendation
The expert panel recommends that dentists do not prescribe oral systemic antibiotics for immunocompetent adults who are experiencing irreversible pulpitis with or without symptomatic apical periodontitis. Clinicians should refer patients for definitive, conservative dental treatment while providing interim monitoring.	Low	Strong
The expert panel suggests dentists do not prescribe oral systemic antibiotics for immunocompetent adults with pulp necrosis and asymptomatic apical periodontitis. Clinicians should refer patients for definitive, conservative dental treatment while providing interim monitoring. If definitive, conservative dental treatment is not feasible, a short-course prescription for oral amoxicillin (500 mg, 3 times per d, 3-7 d) or ampicillin/sulbactam (500 mg/100 mg, 4 times per d, 3-7 d) should be provided.	Very Low	Conditional
The expert panel suggests dentists prescribe oral amoxicillin (500 mg, 3 times per d, 3-7 d) or ampicillin/sulbactam (500 mg/100 mg, 4 times per d, 3-7 d) for immunocompetent adults with pulp necrosis and localized acute apical abscess. Clinicians should also provide urgent referral to a dentist for definitive, conservative dental treatment should not be adopted.	Very Low	Conditional

Good practice statement: The expert panel suggests dentists prescribe oral amoxicillin (500 mg, 3 times per d, 3-7 d) or ampicillin/sulbactam (500 mg/100 mg, 4 times per d, 3-7 d) for immunocompetent adults with pulp necrosis and acute apical abscess. Clinicians should provide urgent referral to a dentist for definitive, conservative dental treatment should not be adopted. If there is a concern for severe allergic or anaphylactic reactions to these antibiotics, clinicians should refer patients for urgent evaluation.

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Delayed Antibiotic Prescribing Patients with pain only where DCDT is not immediately available

WAIT!
Don't have your antibiotic prescription filled yet!

Your dentist believes that your dental pain and swelling may get better without antibiotics.

Waiting to see if you really need an antibiotic can help you take antibiotics ONLY when needed.

Rx If you feel better and your pain is improving, you do NOT need to fill the antibiotic prescription.

If you do not feel better in _____ days, get your prescription filled.

If you fill your antibiotic prescription, you should STOP taking it 24 hours after your pain gets better. Contact your primary care provider if you have diarrhea with 3 or more loose stools/day.

Contact your dentist at _____ if:

- Your pain and swelling get worse
- Your pain and swelling do NOT improve in 2-3 days
- You have any questions about these instructions

You should not save any unused medicines. For directions on disposing unused medicines, visit: <https://www.michigan.gov/deq/rugridisposal>.

mda michigan dental association
MARR Michigan Association of Resident and General Practitioners

Managing Your Pain

Follow your dentist's recommendations to help your pain and swelling feel better without antibiotics. If your dentist was not able to perform dental treatment (such as a root canal or drainage of abscess), then it is very important that you have this treatment performed as soon as possible.

Waiting to see if you really need an antibiotic can help you take antibiotics ONLY when needed. When your dental pain is unlikely to be caused by a bacterial infection, antibiotics won't help you, and the side effects may hurt you. The best way to manage your condition is to have the dental procedure.

Follow your dentist's instructions for managing your pain:

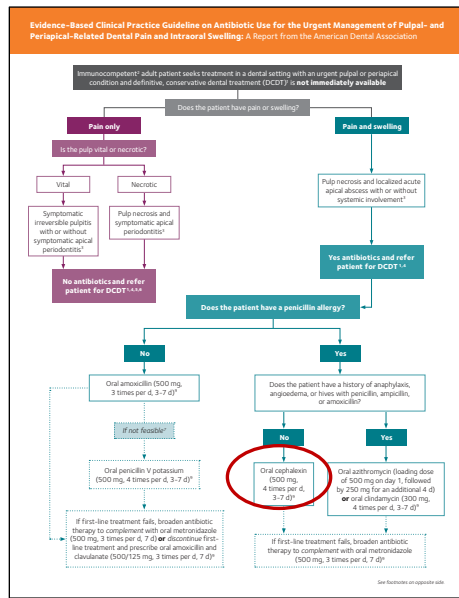
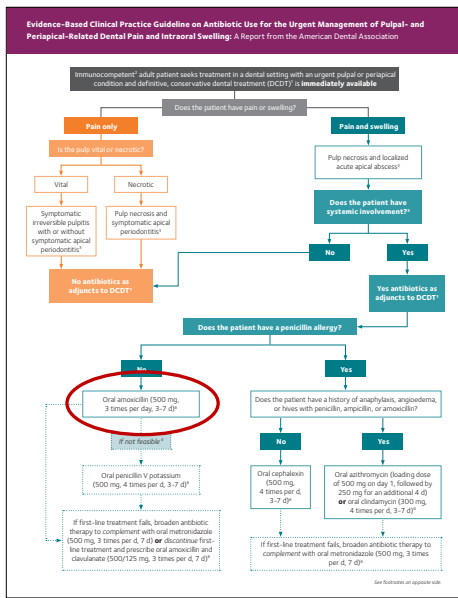
Pain Level	Pain Medicine
Mild to Moderate	Ibuprofen 400-600 mg every 6 hours for 24 hours then Ibuprofen 400 mg as needed for pain every 4 to 6 hours
Moderate to Severe	Ibuprofen 400-600 mg plus acetaminophen 500 mg every 6 to 24 hours then Ibuprofen 400 mg plus acetaminophen 500 mg as needed for pain every 6 hours

- Opioid medications (Tylenol #3, Vicodin, Norco, Percocet) are not generally recommended as they usually don't treat dental pain well. Opioids have more side effects, including the potential for addiction.
- For the first day, take your pain medicine every 6 hours, then take only as needed.
- Keep track of your pain over the next 2-3 days. Keeping track of your pain level.

Pads of 25 sheets available @ mi-marr.org

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Antibiotic Duration: Short-Course



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Antibiotic Duration: Early Discontinuation

Evidence-Based Clinical Practice Guideline on Antibiotic Use for the Urgent Management of Pulpal- and Periapical-Related Dental Pain and Intraoral Swelling: A Report from the American Dental Association

Summary of clinical recommendations for urgent situations in dental settings where definitive, conservative dental treatment¹ is immediately available.

GRADE Certainty of the Evidence	GRADE Interpretation of Strength of Recommendations
High Very low risk that the evidence is invalid, unreliable, or biased. The evidence is likely to be published and peer reviewed. The evidence is likely to be generalizable to the patient population. The evidence is likely to be applicable to the patient population.	Conditional Recommendations For Patients: Most individuals in this situation would want the recommended course of action, but many would not. For Clinicians: Most individuals should receive the intervention.
Moderate The evidence is likely to be published and peer reviewed. The evidence is likely to be generalizable to the patient population. The evidence is likely to be applicable to the patient population.	Conditional Recommendations Recognize the different choices will be appropriate for individual patients and that you must help each patient arrive at a management decision consistent with his or her values and preferences.
Low The evidence is likely to be published and peer reviewed. The evidence is likely to be generalizable to the patient population. The evidence is likely to be applicable to the patient population.	Conditional Recommendations Policy making will require substantial disease and treatment of evidence standards.
Very Low The evidence is likely to be published and peer reviewed. The evidence is likely to be generalizable to the patient population. The evidence is likely to be applicable to the patient population.	Conditional Recommendations The recommendation can be adapted to many practice situations.

Expert Panel Recommendations and Good Practice Statement

GRADE Certainty of the Evidence	Strength of Recommendation
Very Low	Conditional
Very Low	Strong
Very Low	Conditional

Good practice statement: The expert panel suggests dentists perform urgent, definitive, conservative dental treatment¹ in conjunction with prescribing oral amoxicillin (500 mg, 3 times per day, 3-7 d) or oral penicillin V potassium (500 mg, 4 times per day, 3-7 d)* for immunocompetent adults with pulp necrosis and localized acute apical abscess with systemic involvement. If the clinical condition worsens or if there is concern for deeper space infection or immediate threat to life, refer for urgent evaluation.²

ADA: Center for Evidence-Based Dentistry

Evidence-Based Clinical Practice Guideline on Antibiotic Use for the Urgent Management of Pulpal- and Periapical-Related Dental Pain and Intraoral Swelling: A Report from the American Dental Association

Summary of clinical recommendations for urgent situations in dental settings where definitive, conservative dental treatment¹ is not immediately available.

GRADE Certainty of the Evidence	GRADE Interpretation of Strength of Recommendations
High Very low risk that the evidence is invalid, unreliable, or biased. The evidence is likely to be published and peer reviewed. The evidence is likely to be generalizable to the patient population. The evidence is likely to be applicable to the patient population.	Conditional Recommendations For Patients: Most individuals in this situation would want the recommended course of action, but many would not. For Clinicians: Most individuals should receive the intervention.
Moderate The evidence is likely to be published and peer reviewed. The evidence is likely to be generalizable to the patient population. The evidence is likely to be applicable to the patient population.	Conditional Recommendations Recognize that different choices will be appropriate for individual patients and that you must help each patient arrive at a management decision consistent with his or her values and preferences.
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Expert Panel Recommendations and Good Practice Statement

GRADE Certainty of the Evidence	Strength of Recommendation
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Very Low	Conditional

Good practice statement: The expert panel suggests dentists prescribe oral amoxicillin (500 mg, 3 times per day, 3-7 d) or oral penicillin V potassium (500 mg, 4 times per day, 3-7 d)* for immunocompetent adults with pulp necrosis and acute apical abscess with systemic involvement. Clinicians should provide urgent referral² as definitive, conservative dental treatment¹ should not be delayed.

ADA: Center for Evidence-Based Dentistry

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Antibiotics flushed down the toilet end up in water supply



GOT OLD ANTIBIOTICS? Dispose of them safely here!

You can turn in your unused or expired antibiotics for safe disposal here

What can I do to use antibiotics safely?

- Only use antibiotics as directed by your prescriber
- Never save antibiotics for future use
- Never share antibiotics with another person



Why should I dispose of old antibiotics safely?

- Use of antibiotics when you don't need them can cause harm, such as:
 - Side effects
 - Antibiotic resistance
- Improper disposal can cause problems, such as:
 - Accidental ingestion
 - Water pollution

How do I dispose of my old antibiotics?

1. Collect your unused, expired, or unwanted antibiotic tablets, capsules, and liquids.
2. Cross out or remove personal information on the container.
3. Bring your unwanted antibiotics to our pharmacy for disposal.

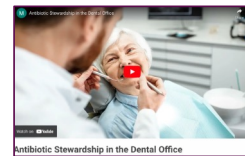
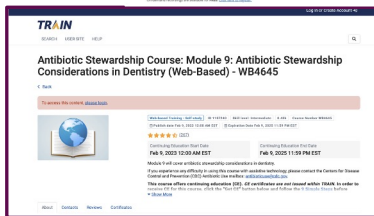
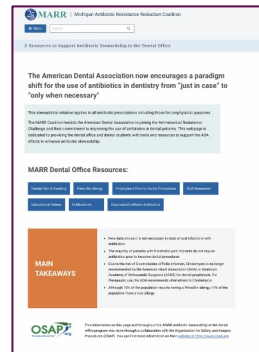
Additional questions about the safe use and disposal of antibiotics? Talk with your pharmacist!



Get more information about drug disposal at <https://takebackday.dea.gov/> or locate a disposal site near you with the [DEA Location Search tool](#).

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Step 4: Educate the ENTIRE Dental Team



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**CDC and OSAP:
Working Together
to Improve Dental
Antibiotic
Prescribing**

- CDC funding OSAP through a cooperative agreement
 - Update and develop new communication materials and website content on appropriate antibiotic use
 - Disseminate antibiotic stewardship resources, tools, and clinical practice guidelines




Prescribers	Dental Team
Policymakers	Patients

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2024 OSAP Antibiotic Stewardship Summit

- Registration for on-demand recordings is **FREE!**
- Up to 6.50 hours of content worth ADA CERP CE credits through February 28, 2027.
- Each recording comes with access to the PowerPoint and any other materials the speaker may have provided.
- Available any time from the comfort of your home, office, or on the go.



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Step 4: Educate Dental Patients



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Summary – Stewardship in **YOUR** Dental Office

- Start with something simple – the low hanging fruit
- Develop written office policy on antibiotic prescribing, incorporating key elements from ADA, AHA & AAOS guidelines
 - Move from “just-in-case” to “when absolutely necessary”
 - Establish shorter durations of therapy
 - Incorporate early discontinuation
- Educate the entire dental team & the patient
- Provide support for clinical decision making
 - Maintain list of consultants (eg. Infectious Disease MD, pharmacist, other colleagues) to confer with on difficult cases
 - Discuss difficult cases at Study Clubs
- Monitor impact

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Resources/References: Antibiotics for the Treatment of Dental Infections:

- [ADA: Antibiotics for Dental Pain and Swelling Guideline \(2019\)](#)
- [ADA CE Online Course: Guideline on Antibiotic Use for the Urgent Management of Dental Pain and Intraoral Swelling](#)
- [American Academy of Pediatric Dentistry \(AAPD\); Use of Antibiotic Therapy for Pediatric Dental Patients](#)
- [American Association of Endodontists \(AAE\) Position Statement: Guidance on the Use of Systemic Antibiotics in Endodontics](#)
- [CDC: Be Antibiotics Aware - Treating Patients with Dental Pain and Swelling](#)
- [JADA Antibiotic Use for Periodontal Disease Clinical Practice Guideline](#)

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Resources/References: Antibiotic Prophylaxis: (1)

- [American Dental Association \(ADA\) Chairside Guide: Management of patients with prosthetic joints undergoing dental procedures.](#)
- [American Association of Orthopedic Surgeons \(AAOS\) Appropriate Use Prophylaxis Tool](#)
- [JADA: American Dental Association guidance for utilizing appropriate use criteria in the management of the care of patients with orthopedic implants undergoing dental procedures.](#)
- [American Association of Orthopedic Surgeons \(AAOS\) Appropriate Use Criteria for Management of Patients with Orthopedic Implants Undergoing Dental Procedures.](#)
- [Antibiotic Prophylaxis: Cardiac conditions: JADA: Prevention of infective endocarditis: Guidelines from the American Heart Association.](#)

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Resources/References: Antibiotic Prophylaxis: (2)

- [National Institute of Dental and Craniofacial Research: Dental Provider's Oncology Pocket Guide—Prevention and management of oral complications \(Head and Neck Radiation Therapy, Chemotherapy, Hematopoietic Stem Cell Transplantation\).](#)
- [Antibiotics in dental implants: A review of Literature](#)
- [2022 Antibiotic Prophylaxis Against Infective Endocarditis Before Invasive Dental Procedures Article](#)
- [Khouja, T., Kennedy, E. & Suda, K.J. Antibiotic Prophylaxis for Tooth Extractions and Dental Implants, A Narrative Review. Curr Infect Dis Rep \(2023\).](#)
- [Letter to the Surgeons](#)
- [Literature Summary 2023 Antibiotic Prophylaxis Prior to Invasive Dental Procedures in Patients with Total Joint Replacement](#)

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