



Evidence-based clinical practice guidelines for the management of acute dental pain

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ABSTRACT

Objective: In the United States, on average, every 15 s, someone visits a hospital emergency department (ED) for a dental condition. This commentary summarizes the recommendations from a 2024 clinical practice guideline for the pharmacological management of acute dental pain associated with tooth extractions and toothache applicable to ED settings, hospitals, and urgent care clinics where definitive dental treatment is not immediately available.

Methods: A guideline panel convened by the American Dental Association, the ADA Science & Research Institute, the University of Pittsburgh School of Dental Medicine, and Penn Dental Medicine examined the effect of opioid and non-opioid analgesics; local anesthetics, including blocks; corticosteroids; and topical anesthetics on acute dental pain. The GRADE approach was used to assess the certainty of the evidence; the GRADE Evidence-to-Decision Framework was used to formulate 18 recommendations and six good practice statements.

Results: A beneficial net balance favors the use of non-opioid medications compared with opioid medications. When not contraindicated, nonsteroidal anti-inflammatory drugs (NSAIDs) alone or in combination with acetaminophen likely provide superior pain relief with a more favorable safety profile compared with opioids.

Conclusion: NSAIDs with or without acetaminophen are first-line therapy for managing acute dental pain following tooth extraction(s) and temporarily managing toothache. Opioids should be reserved for clinical situations when first-line therapy is insufficient or contraindications to NSAIDs exist.

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1. Introduction

On average, every 15 s, someone visits a hospital emergency department (ED) for a dental condition in the United States [1]. Approximately 70 % of those hospital ED visits for dental conditions occur outside of regular business hours [1]. ED professionals are placed in a position to mitigate dental pain and provide the patient with a pain management regimen until definitive dental care (e.g., root canal treatment, tooth extraction, management by a dentist of an infectious complication after tooth extraction) can be obtained. In a national study of 1 week of

consecutive patients presenting to the ED with a condition for which an opioid was prescribed, dental complaints were the sixth most common reason for prescribing an opioid [2].

There are several reasons to consider an alternative to opioids for the management of acute dental pain. Acute dental pain is often an inflammatory-driven condition. Nonsteroidal anti-inflammatory drugs (NSAIDs) can directly target the source of the pain, whereas opioids cannot [3]. Relying on opioids to manage acute dental pain may have unintended negative consequences [4,5]. Opioid prescriptions are associated with an increased risk for major depressive and anxiety disorders [6]. The U.S. Food and Drug Administration (FDA) includes a number of boxed warnings on the labels of opioid analgesics, including both immediate-release and extended-release/long-acting formulations. These warnings include concerns about risks of opioid addiction, abuse, and misuse, life-threatening respiratory depression, accidental ingestion, profound sedation, coma, and death when combined with

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benzodiazepines or other central nervous system depressants, and neonatal opioid withdrawal syndrome [7].

Following the 2020 National Academies report documenting the need for standardization of opioid prescribing practices [8], the FDA supported the development of a Clinical Practice Guideline (CPG) and associated dissemination and implementation plans for the management of acute dental pain. The scope of the guideline, developed by a multidisciplinary panel, included settings in which definitive dental treatment is available and those settings where dental services are not immediately available, such as EDs. This commentary summarizes the recommendations applicable to ED settings, hospitals, and urgent care clinics where definitive dental treatment is not immediately available.

2. Methods

The American Dental Association (ADA) Council on Scientific Affairs, the ADA Science & Research Institute (ADASRI), the University of Pittsburgh School of Dental Medicine, and University of Pennsylvania School of Dental Medicine developed this guideline. The team followed the methodological standards defined by the National Academies of Sciences, Engineering, and Medicine and the Grading of Recommendations Assessment, Development and Evaluation (GRADE) working group [8,9]. The National Academy of Sciences, Engineering, and Medicine is an organization in the United States that was chartered by Congress to provide independent, objective advice on scientific and technical issues to inform policy with evidence [10]. The GRADE working group has developed a common, sensible and transparent approach to grading quality (or certainty) of evidence and strength of recommendations [11].

2.1. Guideline scope and clinical questions

The scope of this guideline focuses on adolescents (ages 12 to less than 17 years), adults (ages 17 to less than 65 years), and older adults (ages 65+) experiencing acute dental pain after simple and surgical (i.e., extraction of a tooth with the need of a flap, osteotomy) tooth extraction(s) including impacted mandibular third molar extractions or acute pain in patients with severe toothache [symptomatic pulpitis (i.e., reversible or symptomatic irreversible pulpitis with or without symptomatic apical periodontitis) or pulp necrosis with symptomatic apical periodontitis or acute apical abscess]. This commentary summarizes the recommendations applicable to emergency and primary care physicians, nurse practitioners, physician assistants, and pharmacists who deal with acute dental pain in settings where no definitive dental treatment is available. Examples of definitive dental treatment include pulpectomy, root canal treatment, incision and drainage of abscess, and tooth extraction.

The panel evaluated the following pharmacological interventions to manage acute dental pain: 1) opioid and non-opioid analgesic medications and combinations, 2) corticosteroids administered at any dose or frequency orally, submucosally, or intra-muscularly, 3) long-acting (e.g., bupivacaine) versus short-acting (e.g., lidocaine, mepivacaine) local anesthetics, and 4) topical anesthetics (e.g., benzocaine at any dose and regimen). No other pharmacological or non-pharmacological approaches to managing acute dental pain, such as heat or ice, were included in the scope of this guideline and thus will not be addressed in this paper.

Critical patient-centered outcomes such as pain relief at six hours, pain relief out to six hours measured over multiple time points (TOTPAR), summed pain intensity difference (SPID) out to six hours, and the proportion of patients receiving rescue analgesia at six hours were considered for each set of interventions. Non-serious gastrointestinal and central nervous system adverse effects at the longest reported follow-up time point were also considered.

2.2. Systematic reviews and literature searches informing the guideline

Systematic reviews and meta-analyses to address the clinical questions were conducted, and the complete reports of the reviews' methodology and findings can be found elsewhere [9,12–15].

2.3. Values and preferences (summary of primary study)

The team conducted a primary study to gather information about the values and preferences of patients who experienced acute dental pain and the relative importance they assign to the associated outcomes of opioid and non-opioid analgesic medications. This input informed the creation of a values-and-preference statement that was validated by the patients and presented to the panel. A complete report of this study can be found elsewhere [16].

2.4. Development of recommendations

The panel used the GRADE Evidence-to-Decision Framework to guide the process of developing recommendations [17]. After assessment of the best available evidence, the guideline panel formulated three types of recommendations: 1) recommendation statements directly informed by the systematic reviews and meta-analyses of the clinical questions, which include the overall certainty of the evidence and strength of recommendation, 2) good practice statements supported by extensive indirect evidence, and 3) panel's remarks supported by evidence not systematically collected, extensive clinical and research experience, and official documents and advice from organizations with vested interests. Details regarding the revision process can be found elsewhere [9].

3. Results and recommendations

The recommendations and good practice statements developed by the panel are designed to assist clinicians in their practice but do not replace clinical judgment, nor can they span the breadth of possible clinical situations where a patient presents with acute dental pain. It is critical that patients seeking acute dental pain relief in settings where definitive dental treatment is not available be advised to seek definitive dental care to treat the source of the pain. The recommendations listed below serve as a bridge between the first consultation for acute dental pain in a medical setting (e.g., ED) and a second consultation for definitive dental treatment. They are not a substitute for or a reason to delay the immediate provision of dental treatment.

3.1. Recommendations for the pharmacological management of post-operative pain after surgical and simple tooth extraction(s) in adolescents, adults, and older adults

Evidence from 87 RCTs suggests that NSAIDs alone (i.e., ibuprofen or naproxen sodium) or in combination with acetaminophen are more effective in reducing post-operative pain than opioid medications (Table 1 and Fig. 1).

3.1.1. Breakthrough pain

Medical professionals such as emergency physicians and advanced practice providers are more likely to encounter patients who are experiencing breakthrough pain (pain that persists after implementing a first pain management strategy) on the 2nd or 3rd day post-surgical (day 1: day of the surgery) for simple extraction(s). In this scenario, emergency physicians and advanced practice providers should determine what pain management strategy was initially provided to the patient before indicating a new prescription, especially if an opioid is considered to manage breakthrough pain. In addition, emergency physicians and advanced practice providers should advise the patient to return to the dental clinic/office where the tooth was extracted to

Table 1

Key recommendations and good practice statements for the pharmacologic management of acute dental pain: postoperative pain after simple and surgical tooth extraction(s) in adolescents, adults, and older adults.

Recommendations
1. For the management of acute postoperative dental pain in adolescents, adults, and older adults* undergoing surgical tooth extraction(s), the panel recommends the postprocedural use of nonopioid analgesics† as first-line therapy instead of opioid analgesics (conditional, low certainty).
1.1. For surgical tooth extraction(s), the panel suggests initiating the postoperative pain management using a nonsteroidal anti-inflammatory drug (NSAID) alone (eg, 400 mg of ibuprofen or 440 mg of naproxen sodium) or in combination with acetaminophen (eg, 500 mg) (conditional, low certainty).
1.2. In the rare instances when postprocedural (ie, surgical tooth extraction) pain control using NSAIDs alone is inadequate, the panel suggests the addition to the previous first-line therapy prescription (ie, NSAID) of 325 mg of acetaminophen plus a combination of 325 mg of acetaminophen with an opioid‡§ (eg, 5–7.5 mg of hydrocodone or 5 mg of oxycodone) at the lowest effective dose, fewest tablets, and the shortest duration, which should rarely exceed 3 days (conditional, low certainty).
1.3. In the rare instances when postprocedural (ie, surgical tooth extraction) pain control using NSAIDs in combination with acetaminophen (eg, 500 mg) is inadequate, the panel suggests replacing the initial first-line therapy prescription with an NSAID (eg, 400 mg of ibuprofen or 440 mg of naproxen sodium) and 325 mg of acetaminophen plus a combination of 325 mg of acetaminophen with an opioid‡§ (eg, 5–7.5 mg of hydrocodone or 5 mg of oxycodone). The opioid prescription should consider the lowest effective dose, fewest tablets, and the shortest duration, which should rarely exceed 3 days (conditional, low certainty).
1.4. When NSAIDs are contraindicated,¶ the panel suggests the postprocedural use of acetaminophen alone at full therapeutic dose (eg, 1000 mg) or 325 mg of acetaminophen plus a combination of 325 mg of acetaminophen with an opioid‡§ (eg, 5–7.5 mg of hydrocodone or 5 mg of oxycodone) at the lowest effective dose, fewest tablets, and the shortest duration, which should rarely exceed 3 days (conditional, low certainty).
1.5. For the management of acute postoperative dental pain in adolescents, adults, and older adults undergoing surgical tooth extraction(s), the panel suggests against adding oral, submucosal, or intramuscular corticosteroids** to standard analgesic therapy (conditional, very low certainty).
2. For the management of acute postoperative dental pain in adolescents, adults, and older adults* undergoing simple tooth extraction(s), the panel recommends the postprocedural use of nonopioid analgesics† only and recommends against the use of opioid analgesics (conditional, low certainty).
2.1. For a simple tooth extraction, the panel suggests initiating the pain management using an NSAID alone (eg, 400 mg of ibuprofen or 440 mg of naproxen sodium) or in combination with acetaminophen (eg, 500 mg) (conditional, low certainty).
2.2. When NSAIDs are contraindicated,¶ the panel suggests the postprocedural use of acetaminophen alone at full therapeutic dose (eg, 1000 mg) (conditional, low certainty).
Good Practice Statements
The panel advises clinicians to counsel patients that they should expect some pain and the analgesics should make their pain manageable. The panel also recommends discussing with the patient their past experience, preferences, and values regarding managing acute dental pain before prescribing.
The panel recommends clinicians thoroughly review the patient's medical and social history (including illicit and recreational drug use), medications, and supplements to avoid overdose and adverse drug-drug interactions.
To minimize adverse effects, analgesic prescriptions should follow the principle of minimum effective dosage to achieve pain relief and avoid the routine use of delayed (ie, just-in-case prescription for breakthrough pain) opioid prescriptions.
If an NSAID alone or in combination with acetaminophen fails to provide adequate pain relief, and if opioids are prescribed, counsel patients regarding appropriate storage and disposal.
The panel recommends clinicians review the state's prescription drug monitoring program when available to determine the co-prescribing of other controlled substances (eg, opioids and benzodiazepines). If the patient with acute dental pain is already receiving opioids to manage chronic pain (ie, long-term use of opioids), clinicians should prioritize the use of nonopioid analgesics (ie, first-line analgesic therapy).
Special care should be taken when prescribing opioids to a patient with a substance use disorder, including communication with the patient's other health care providers.

Note.

*The panel defined the following age ranges: adolescents (aged 12– < 17 years), adults (aged 17– < 65 years), and older adults (65 years).

† To minimize adverse effects, analgesic prescriptions should follow the principle of minimum effective dosage to achieve pain relief. The maximum daily dose is 2400 mg of ibuprofen, 1100 mg of naproxen sodium, and 4000 mg of acetaminophen.

‡ This option should not be offered to patients taking gabapentinoids and central nervous system active medications (eg, benzodiazepines, antidepressants, anticonvulsants, and narcotics) or patients already taking opioids for other medical reasons.

§ When opioids are prescribed, clinicians should obtain informed consent from the patient (or the parent or guardian in the case of minors) with detailed information about potential opioid undesirable effects (eg, physiological dependence, risk of substance misuse, respiratory depression, and adverse effects on driving or operating machinery). This is particularly critical in adolescents and young adults (aged 13–30 years), who are at increased risk of subsequent misuse and substance use disorder even after a single prescription.

{Alert patients about the risks of cumulative acetaminophen dose and that acetaminophen plus opioid combination contains both drugs in 1 pill. The total dose of acetaminophen should not exceed 4000 mg per day.

“A drug should be contraindicated only in those clinical situations for which the risk from use clearly outweighs any possible therapeutic benefit. Only known hazards, and not theoretical possibilities, can be the basis for a contraindication.”²²

** The role that corticosteroids may play in managing inflammatory complications (eg, trismus, facial swelling, or infection) is not in the scope of this guideline. Intravenous administration of corticosteroids is also beyond the scope of this guideline.

†† Blocking or infiltrating using a local anesthetic right before the patient is discharged is 1 additional complementary intervention to provide extended pain relief. This does not replace the need for pain management using analgesics.

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determine the cause of the persistent pain (eg., alveolar osteitis, sharp alveolar ridge post-tooth extraction).

If a patient has persistent dental pain and is currently using the guideline-concordant combination of NSAIDs and acetaminophen, the panel suggests adjusting the prescription to add an opioid to the NSAID and acetaminophen combination, at the lowest effective dose, fewest tablets, and the shortest duration, which should rarely exceed three days. Opioids should not be prescribed to people taking gabapentinoids, central nervous system active medications (eg., benzodiazepines, antidepressants, anticonvulsants, or to patients already taking opioids for other medical reasons. Seven RCTs suggest that local anesthesia by block or infiltration may be administered to provide immediate temporary relief [9].

3.2. Recommendations for the temporary pharmacological management of toothache (symptomatic pulpitis (ie., reversible or symptomatic irreversible pulpitis with or without symptomatic apical periodontitis) or pulp necrosis with symptomatic apical periodontitis or acute apical abscess) in adolescents, adults, and older adults

The guideline panel recommends avoiding the use of opioid analgesics and instead using first-line therapy of NSAIDs alone or NSAIDs in combination with acetaminophen [9]. The panel also recommends supplementary analgesic strategies, including a local anesthetic administered by block or infiltration injection to achieve extended temporary toothache relief prior to definitive dental treatment and the use of benzocaine applied directly to the

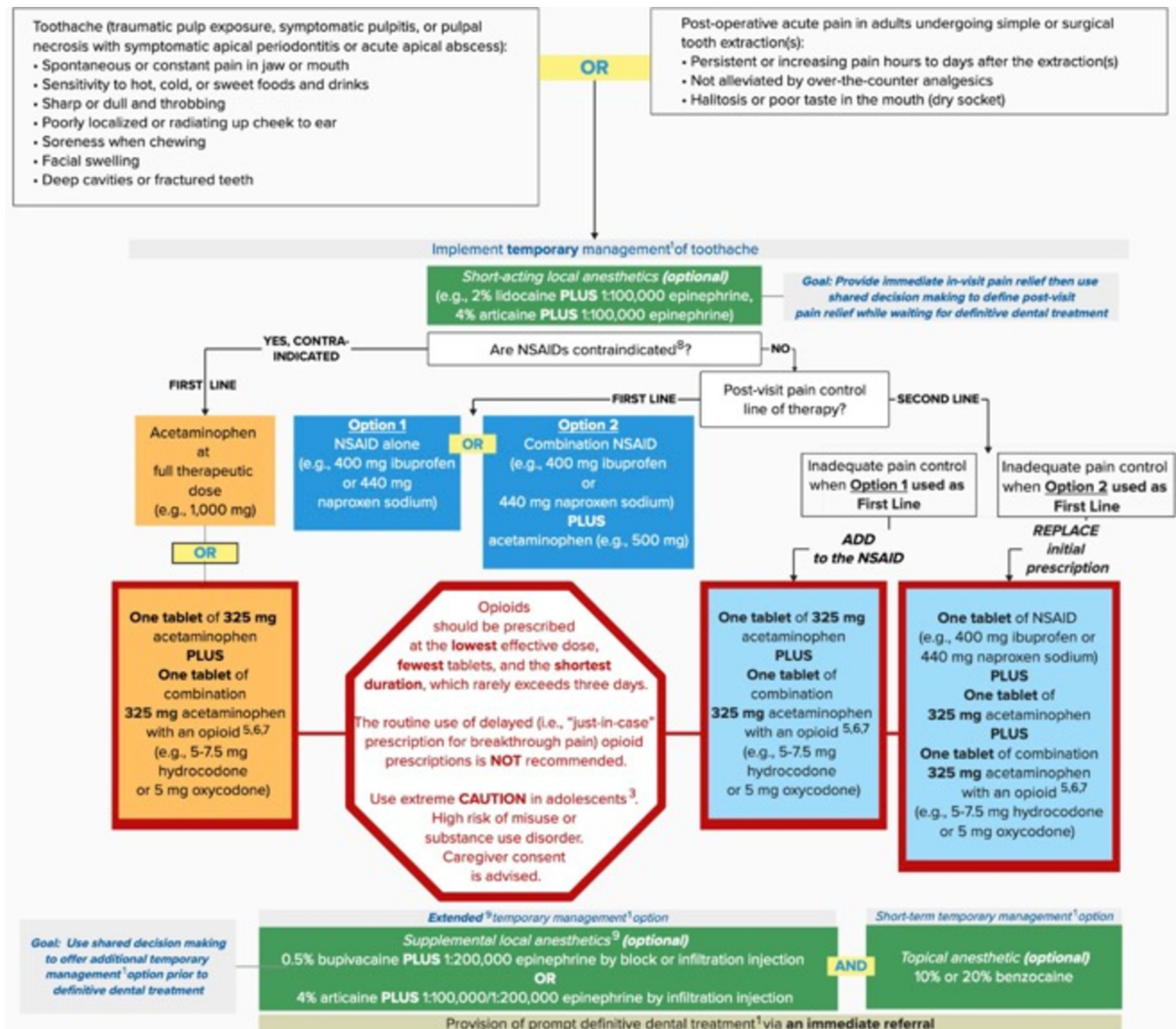


Fig. 1. Chairside guide for the management of acute dental pain in adolescents, adults, and older adults in the emergency department.

affected tooth and the surrounding soft tissue (gum) (Table 2 and Fig. 1) [9].

In instances when opioids are indicated due to persistent pain after initiating first-line therapy, the panel suggests two possible courses of action. If the first-line therapy was an NSAID alone (e.g., ibuprofen or naproxen), add to the NSAID one tablet of 325 mg acetaminophen and one tablet of a combination of 325 mg acetaminophen with an opioid (e.g., 7–7.5 mg hydrocodone or 5 mg oxycodone). If the first-line therapy was a combination of an NSAID in combination with acetaminophen, replace the initial prescription with one tablet of an NSAID plus one tablet of 325 mg acetaminophen and one tablet of a combination of 325 mg acetaminophen with an opioid. In both instances, ensure that the lowest effective dose, the fewest tablets, and the shortest duration are used, which should rarely exceed three days.

3.3. Additional considerations

The ADA has developed a separate guideline addressing the use of antibiotics for dental infections [18]. According to these guidelines, if a

patient presents with localized or generalized swelling, draining abscess, or any systemic symptoms of infection (e.g., fever, malaise) and is unable to access definitive care within the next 48 h, they should be prescribed an antibiotic (Fig. 2).

4. Discussion

4.1. Summary of recommendations

Following the guideline panel recommendations, first-line therapy for acute dental pain associated with tooth extraction(s) or toothache in adolescents, adults, and older adults includes the prescription of NSAIDs alone or in combination with acetaminophen. In addition, the initial management of these conditions can include the administration of long-acting local anesthetic by block or infiltration injection and the supplemental use of topical anesthetics.

Moderate to severe pain following dental procedures is transient, with moderate to severe pain occurring after 24 to 48 h being uncommon following most outpatient dental procedures. Due to the

Table 2

Recommendations and good practice statements for the temporary pharmacologic management of acute dental pain: toothache (symptomatic pulpitis [i.e., reversible or symptomatic irreversible pulpitis with or without symptomatic apical periodontitis] or pulp necrosis with symptomatic apical periodontitis or acute apical abscess) in adolescents, adults, and older adults

Recommendations
1. For the temporary management* of toothache† before definitive dental treatment in adolescents, adults, and older adults,‡ the panel suggests the use of a short-acting local anesthetic (e.g., 2 % lidocaine plus 1:100,000 epinephrine or 4 % articaine plus 1:100,000 epinephrine) for immediate pain relief (conditional, very low certainty).
2. For the temporary management* of toothache† before definitive dental treatment in adolescents, adults, and older adults,‡ the panel recommends the post visit use of nonopioid analgesics§ as first-line therapy instead of opioid analgesics (conditional, low certainty).
2.1. For the temporary management* of toothache,† the panel suggests initiating post visit pain management using a nonsteroidal anti-inflammatory drug (NSAID) alone (e.g., 400 mg of ibuprofen or 440 mg of naproxen sodium) or in combination with acetaminophen (e.g., 500 mg) (conditional, low certainty).
2.2. In the rare instances when post visit pain control using NSAIDs alone proved inadequate, the panel suggests the addition to the previous first-line therapy (i.e., NSAID) prescription of 325 mg of acetaminophen plus a combination of 325 mg of acetaminophen with an opioid{, #, ** (e.g., 5–7.5 mg of hydrocodone or 5 mg of oxycodone) at the lowest effective dose, fewest tablets, and the shortest duration, which should rarely exceed 3 days (conditional, low certainty).
2.3. In the rare instances when post visit pain control using NSAIDs in combination with acetaminophen (e.g., 500 mg) proved inadequate, the panel suggests replacing the initial first-line therapy prescription with an NSAID (e.g., 400 mg of ibuprofen or 440 mg of naproxen sodium) and 325 mg of acetaminophen plus a combination of 325 mg of acetaminophen with an opioid{, #, ** (e.g., 5–7.5 mg of hydrocodone or 5 mg of oxycodone). The opioid prescription should consider the lowest effective dose, fewest tablets, and the shortest duration, which should rarely exceed 3 days (conditional, low certainty).
2.4. When NSAIDs are contraindicated,†† the panel suggests the post visit use of acetaminophen alone at full therapeutic dose (e.g., 1000 mg) or 325 mg of acetaminophen plus a combination of 325 mg of acetaminophen with an opioid{, #, ** (e.g., 5–7.5 mg of hydrocodone or 5 mg of oxycodone) at the lowest effective dose, fewest tablets, and the shortest duration, which should rarely exceed 3 days (conditional, low certainty).
3. For the extended‡‡ temporary management* of toothache† before definitive dental treatment in adolescents, adults, and older adults,‡ the panel suggests the supplemental use of 0.5 % bupivacaine plus 1:200,000 epinephrine by block or infiltration injection or 4 % articaine plus 1:100,000/1:200,000 epinephrine by infiltration injection (conditional, very low certainty).
4. For the short-term temporary management* of toothache† before definitive dental treatment in adolescents, adults, and older adults,‡ the panel suggests the use of 10 % or 20 % topical benzocaine compared with not using topical benzocaine (conditional, low certainty).
Good Practice Statements
The panel advises clinicians to counsel patients that they should expect some pain and the analgesics should make their pain manageable. The panel also recommends discussing with the patient their past experiences, preferences, and values regarding managing acute dental pain before prescribing.
The panel reminds users of these recommendations that they only apply to settings in which definitive dental treatment is not immediately available. These pharmacologic strategies will temporarily alleviate dental pain until a referral for definitive dental treatment is in place.
The panel recommends clinicians thoroughly review the patient's medical and social history (including illicit and recreational drug use), medications, and supplements to avoid overdose and adverse drug-drug interactions.
To minimize adverse effects, analgesic prescriptions should follow the principle of minimum effective dosage to achieve pain relief and avoid the routine use of delayed (i.e., just-in-case prescription for breakthrough pain) opioid prescriptions.
If an NSAID alone or in combination with acetaminophen fails to provide adequate pain relief, and if opioids are prescribed, counsel patients regarding appropriate storage and disposal.
The panel recommends clinicians review the state's prescription drug monitoring program when available to determine the co-prescribing of other controlled substances (e.g., opioids or benzodiazepines). If the patient with acute dental pain is already receiving opioids to manage chronic pain (i.e., long-term use of opioids), clinicians should prioritize the use of nonopioid analgesics (i.e., first-line analgesic therapy).
Special care should be taken when prescribing opioids to a patient with a substance use disorder, including communication with patient's other health care providers.

Note.

* These recommendations are applicable only to settings in which definitive dental treatment is not available. Definitive dental treatment includes pulpectomy, nonsurgical root canal treatment, incision for drainage of abscess, and tooth extraction. Patients should be instructed to call if their pain fails to lessen over time or to call if the referral to receive definitive dental treatment within 2 through 3 days is not possible.

† Toothache means symptomatic pulpitis (i.e., reversible or symptomatic irreversible pulpitis with or without symptomatic apical periodontitis) or pulp necrosis with symptomatic apical periodontitis or acute apical abscess.

‡ The panel defined the following age ranges: adolescents (aged 12– < 17 years), adults (aged 17– < 65 years), and older adults (65 years).

§ To minimize adverse effects, analgesic prescriptions should follow the principle of minimum effective dosage to achieve pain relief. The maximum daily dose is 2400 mg of ibuprofen, 1100 mg of naproxen sodium, and 4000 mg of acetaminophen. This option should not be offered to patients taking gabapentinoids and central nervous system active medications (e.g., benzodiazepines, antidepressants, and anticonvulsants) or patients already taking opioids for other medical reasons.

When opioids are prescribed, clinicians should obtain informed consent from the patient (or the parent or guardian in the case of minors) with detailed information about potential opioid undesirable effects (e.g., physiological dependence, risk of substance misuse, respiratory depression, and adverse effects on driving or operating machinery). This is particularly critical in adolescents and young adults (aged 13–30 years), who are at increased risk of subsequent misuse and substance use disorder even after a single prescription.

** Alert patients about risks of cumulative acetaminophen dose and that acetaminophen plus opioid combination contains both drugs in 1 pill. The total dose of acetaminophen should not exceed 4000 mg per day.

†† “A drug should be contraindicated only in those clinical situations for which the risk from use clearly outweighs any possible therapeutic benefit. Only known hazards, and not theoretical possibilities, can be the basis for a contraindication.”²²

‡‡ Blocking or infiltrating using a local anesthetic right before the patient is discharged is 1 additional complementary intervention to provide extended pain relief. This does not replace the need for pain management using analgesics.

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inflammatory nature of dental pain, NSAIDs are successful in minimizing postoperative pain in most situations. In instances when a patient presents with severe pain 72 h after a dental procedure, the emergency physicians and advanced practice providers should determine the possibility of a post-operative infection or other complication and refer the patient back to the dentist who performed the procedure.

The panel urges prescribing opioid medications only after first-line therapy is exhausted and avoiding delayed prescriptions (“just-in-case

approach” [19]). If opioids are prescribed, use the lowest effective dose, the fewest tablets, and the shortest duration, which should rarely exceed three days.

4.2. Dissemination

This publication is part of a comprehensive dissemination and implementation strategy that includes developing a continuing medical education course, obtaining endorsements from professional

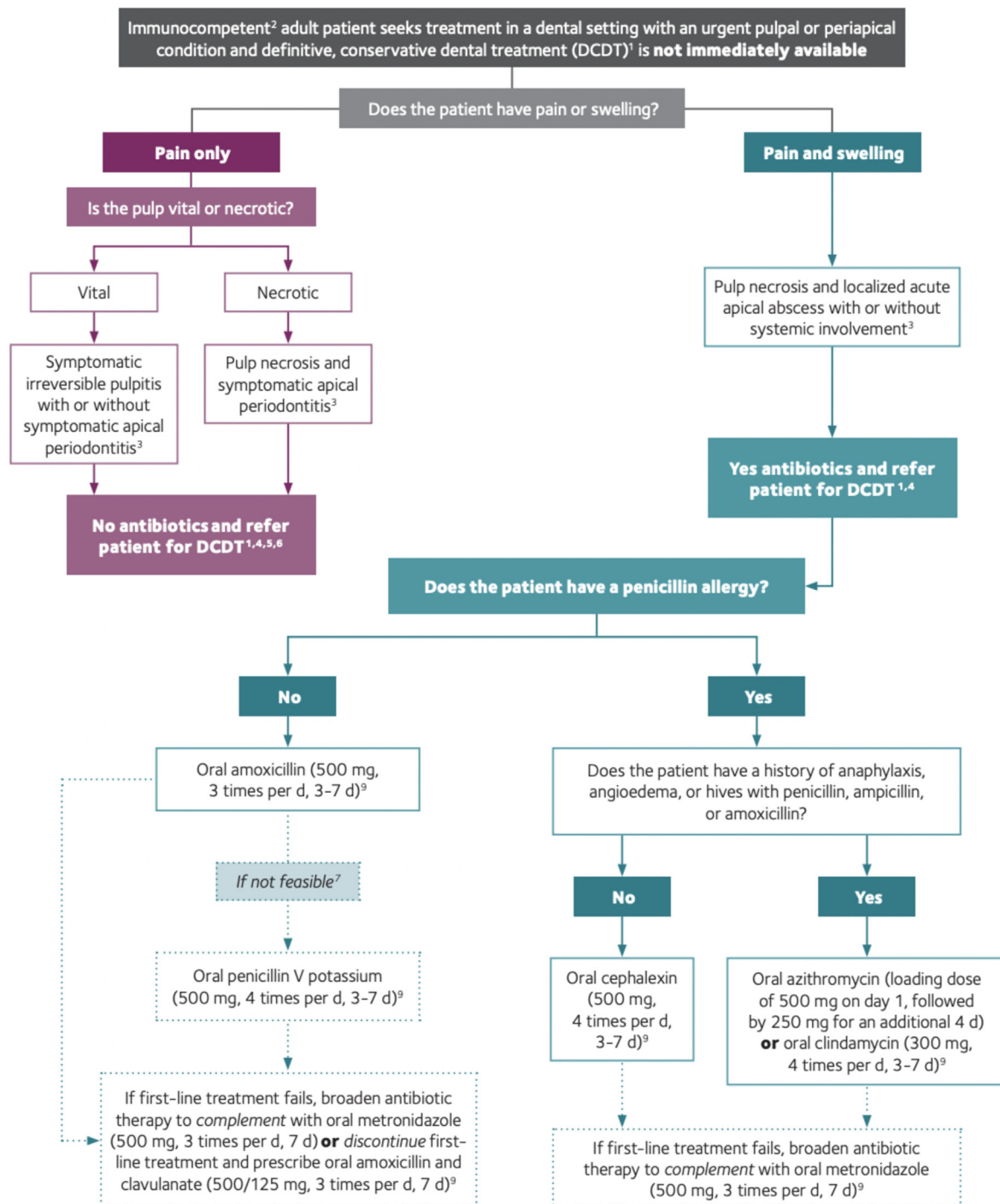


Fig. 2. Evidence-based clinical practice guideline on antibiotic use for the urgent management of pulpal- and periapical-related dental pain and intraoral swelling: A report from the American Dental Association.

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organizations, and incorporating the guideline into emergency medicine point of care mobile applications.

4.3. Suggestions for the future

The significant barriers to obtaining dental care in the US experienced by patients highlight the need for the integration of dental

and emergency medical services. Equipping medical personnel with the skills to evaluate dental pain has the potential to optimize referral from emergency medicine to dental services [20], increase appropriate and timely management of toothache, and mitigate over-prescription of opioids and antibiotics. The panel also urges policymakers and leaders in oral health to increase access to dental care for all by making preventive oral health care available across all age

groups to reduce the risk of caries lesions that can progress to pulpal or periapical disease.

5. Conclusion

NSAIDs alone or in combination with acetaminophen are the first-line therapy for managing acute dental pain following tooth extraction (s) and temporary management of toothache. Opioid use should be reserved for clinical situations when first-line therapy proved insufficient, or contraindications to NSAIDs exist. Clinicians should develop a pain management plan that aligns the patient's values and preferences with the expected pain intensity, minimizes the risk of undesirable outcomes related to opioid medications, and emphasizes the importance of seeking definitive dental care to address the etiology of acute dental pain.

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CRedit authorship contribution statement

Victoria G. Green: Writing – original draft. **Deborah E. Polk:** Writing – review & editing, Supervision, Project administration, Funding acquisition, Conceptualization. **Michael A. Turturro:** Writing – review & editing, Formal analysis. **Paul A. Moore:** Writing – review & editing, Formal analysis. **Alonso Carrasco-Labra:** Writing – review & editing, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Deborah Polk reports financial support was provided by US Food and Drug Administration. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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