

# Policy on Pediatric Dental Pain Management

## Latest Revision

2022

### Purpose

The American Academy of Pediatric Dentistry (AAPD) recognizes that children vary greatly in their cognitive and emotional development, medical conditions, and responses to pain and interventions. This policy is not intended to provide clinical recommendations, which can be found in AAPD's best practice on pain management<sup>1</sup>; rather, the purpose of this document is to support efforts to prevent or alleviate pediatric pain and complications from pain medications. Infants, children, adolescents, and those with special health care needs can and do experience pain; dental-related pain in most patients can be prevented or substantially relieved. The AAPD further recognizes many therapeutics are available to treat pain with varying regimens. Recent concerns have developed about toxicities associated with codeine and the adverse effects of opioid analgesics.

### Methods

This policy was developed by the Council on Clinical Affairs, adopted in 2012<sup>2</sup>, and last revised in 2017<sup>3</sup>. This document is an update of the previous version and is based on a review of current dental and medical literature pertaining to pediatric pain management including a search with PubMed®/MEDLINE using the terms: pediatric dental pain management, pediatric pain management, pediatric postoperative pain management, pediatric analgesic overdose; fields: all; limits: within the last ten years, humans, all children zero to 18 years, English, clinical trials, and literature reviews. The search returned 8,031 articles. When data did not appear sufficient or were inconclusive, information included in this policy was based upon expert and/or consensus opinion by experienced researchers and clinicians.

### Background

Pain assessment is an integral component of the dental history and comprehensive evaluation. A detailed pain assessment helps the dentist to derive a clinical diagnosis, develop a prioritized treatment plan, and better estimate analgesic requirements for the patient.<sup>4</sup> Assessment of pain indicates the need for intervention and appropriateness of treatment.<sup>4</sup> Assessment of pediatric pain may significantly improve the patient's comfort and quality of life.<sup>5</sup> Research suggests that undertreatment of pediatric pain can amplify future pain experience.<sup>6</sup> Effective pain management is important in both the short and the long-term.<sup>4</sup> Children with an established dental home have better access for acute and chronic orofacial pain management.

**How to Cite:** American Academy of Pediatric Dentistry. Policy on pediatric dental pain management. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2022:139-41.

A dental home provides comprehensive care which can assess and manage acute and chronic oral pain and infection.<sup>7</sup>

Pain management may range from nonpharmacologic modalities to pharmacological treatment. Nonpharmacologic therapy includes maintaining a calm environment, encouraging deep breathing, and employing guided imagery, distraction, play therapy, hypnotherapy, virtual reality, and other (e.g., acupuncture, transcutaneous nerve stimulation) techniques.<sup>1,8</sup> Pharmacologic therapy may consist of administration of topical and local anesthesia, analgesic medications, and/or mild, moderate, or deep sedation regimens.<sup>8,9</sup> Analgesic selection depends on the individual patient, the extent of treatment, the duration of the procedure, psychological factors, and the patient's medical history.<sup>10</sup> If moderate to severe postoperative pain is considered likely, administering an analgesic on a regular schedule for 36 to 48 hours helps to maintain a stable plasma levels of the agent and decreases risk for breakthrough pain.<sup>11,12</sup>

Many therapeutics are available for the prevention of pain. Acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, are considered first line agents in the treatment of acute mild to moderate postoperative pain.<sup>10</sup> Alternating administration of ibuprofen and acetaminophen is another strategy for pain management in children and may allow lower doses of each individual medication to be used.<sup>11,13,14</sup> Many analgesics have multiple modalities of administration, such as oral, rectal, or intravenous, to accommodate a wide patient population.<sup>15</sup> Consideration of these modalities may be pertinent when treating patients in different environments such as an office-based outpatient setting versus in the hospital.

Certain analgesics are contraindicated in the pediatric population due to concerns for toxicity and adverse reactions. NSAIDs may prolong bleeding time and exacerbate kidney or liver impairment, and acetaminophen overuse may be associated with hepatotoxicity.<sup>10,16</sup> Aspirin-containing analgesics are contraindicated for pediatric pain management in most situations because, if administered during a viral illness, the potential exists for a serious condition known as Reye syndrome, a condition that causes swelling of the liver and brain.<sup>15</sup>

#### ABBREVIATIONS

**AAPD:** American Academy Pediatric Dentistry. **FDA:** U.S. Food and Drug Administration. **NSAIDs:** Nonsteroidal anti-inflammatory drugs.

Although opioid analgesics can be effective for moderate to severe postoperative pain, there are potential adverse effects (e.g., nausea, emesis, constipation, sedation, respiratory depression) and diversion.<sup>13,17,18</sup> From 2006 to 2018, the opioid dispensing rate for the pediatric population steadily decreased.<sup>19</sup> Persistent opioid use among children and adolescents is a major concern and represents an important pathway to opioid misuse.<sup>20</sup> A 2013 systematic review found a combination of acetaminophen and ibuprofen provided effective analgesia without the adverse side effects associated with opioids; the combination of acetaminophen and ibuprofen was shown to be more effective in combination than either medication alone.<sup>14</sup> In 2017, the United States Food and Drug Administration (FDA) issued a warning to restrict the use of codeine and tramadol in children and breastfeeding mothers.<sup>21</sup>

### Policy statement

The AAPD recognizes that pediatric dental patients may experience pain as a direct result of their oral condition or secondary to invasive dental procedures. Inadequate pain control has the potential for significant physical and psychological consequences, including altering future pain experiences for these children. Furthermore, pharmacologic agents used in pediatric pain management have potential for toxicity and adverse reactions, with narcotics at risk for diversion to unintended recipients. Therefore, the AAPD encourages:

- healthcare professionals to emphasize preventive oral health practices and to implement safe and effective pre-, intra-, and post-operative approaches to minimize the patient's risk for pain.
- healthcare practitioners to follow evidence-based recommendations regarding analgesic use by pediatric patients to minimize untoward reactions and potential for substance misuse.
- additional research to determine safe and effective treatment modalities for acute pain.

### References

1. American Academy of Pediatric Dentistry. Pain management in infants, children, adolescents, and individuals with special health care needs. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2022:392-400.
2. American Academy of Pediatric Dentistry. Policy on pediatric pain management. *Pediatr Dent* 2012;34(special issue):74-5.
3. American Academy of Pediatric Dentistry. Policy on acute pediatric dental pain management. *Pediatr Dent* 2017;39(6):99-101.
4. De Leeuw R, Klasser G. *American Academy of Orofacial Pain: Guidelines for Assessment, Diagnosis and Management*. 6th ed. Hanover, Ill.: Quintessence Publishing; 2018:26-49.
5. Zielinski J, Morawska-Kochman M, Zatonski T. Pain assessment and management in children in the postoperative period: A review of the most common postoperative pain assessment tools, new diagnostic methods and the latest guidelines for postoperative pain therapy in children. *Adv Clin Exp Med* 2020;29(3):365-74.
6. Cramton R, Gruchala NE. Managing procedural pain in pediatric patients. *Curr Opin Pediatr* 2012;24(4):530-8.
7. American Academy of Pediatric Dentistry. Policy on the dental home. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2022:21-2.
8. Lee GY, Yamada J, Kyololo O, Shorkey A, Stevens B. Pediatric clinical practice guidelines for acute procedural pain: A systematic review. *Pediatr* 2014;133(3):500-15.
9. American Academy of Pediatric Dentistry. Use of local anesthesia for pediatric dental patients. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2022:347-52.
10. Laskarides C. Update on analgesic medication for adult and pediatric dental patients. *Dent Clin North Am* 2016; 60(2):347-66.
11. Chou R, Gordon DB, de Leon-Cassola OA, et al. Guidelines on the management of postoperative pain. Management of postoperative pain: A clinical practice guideline from the American Pain Society, American Society of Regional Anesthesia and Pain Medicine, American Society of Anesthesiologists' Committee on Regional Anesthesia, Executive Committee, and Administrative Counsel. *J Pain* 2016;17(2):131-57.
12. Sutters KA, Miaskowsk C, Holdridge-Zeuner D, et al. A randomized clinical trial of the efficacy of scheduled dosing of acetaminophen and hydrocodone for the management of postoperative pain in children after tonsillectomy. *Clin J Pain* 2010;26(2):95-103.
13. Liu C, Ulualp SO. Outcomes of an alternating ibuprofen and acetaminophen regimen for pain relief after tonsillectomy in children. *Ann Otol Rhinol Laryngol* 2015;124(10):777-81.
14. Moore PA, Hersh EV. Combining ibuprofen and acetaminophen for acute pain management after third-molar extractions. *J Am Dental Assoc* 2013;144(8):898-908.
15. Ruest C, Anderson A. Management of acute pediatric pain in the emergency department. *Curr Opin Pediatr* 2016;28(3):298-304.
16. U.S. Food and Drug Administration. Drug Safety Communication: Prescription acetaminophen products to be limited to 325 mg per dosage unit; boxed warning will highlight potential for severe liver failure. Available at: "https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-prescription-acetaminophen-products-be-limited-325-mg-dosage-unit". Accessed March 15, 2022.

17. Jutkiewicz EM, Traynor JR. Opioid analgesics. Section II: Neuropharmacology. In: Brunton LL, Knollmann BC. eds. Goodman & Gilman's: The Pharmacological Basis of Therapeutics. 14th ed. New York City, New York: McGraw Hill; 2023.
18. Dionne R, Moore PA. Opioid prescribing in dentistry: Keys for safe and proper usage. *Contin Educ Dent* 2016; 37(1):29-32; quiz 34.
19. Renny MH, Yin SY, Jen V, Hadland SE, Cerda M. Temporal trends in opioid prescribing practices in children, adolescents, and younger teens in the US from 2006 to 2018. *JAMA Pediatrics* 2021;175(10):1043-52.
20. Harbaugh CM, Lee JS, Hu HM, et al. Persistent opioid uses among pediatric patients after surgery. *Pediatrics* 2018;141(1):e20172349.
21. U.S. Food and Drug Administration. Drug Safety Communication: FDA restricts use of prescription codeine pain and cough medicines and tramadol pain medicines in children; recommends against use in breastfeeding women. Available at: "<https://www.fda.gov/Drugs/DrugSafety/ucm549679.htm>". Accessed March 15, 2022.