

Policy on Use of Fluoride

Review Council

Council on Clinical Affairs

Latest Revision

2014*

Purpose

The American Academy of Pediatric Dentistry (AAPD), affirming that fluoride is a safe and effective adjunct in reducing the risk of caries and reversing enamel demineralization, encourages public health officials, health care providers, and parents/caregivers to optimize fluoride exposure.

Methods

This document was originally developed by the Liaison with Other Groups Committee and adopted in 1967. This is an update from the last revision in 2013. An electronic database search using the terms: fluoride, fluoridation, acidulated phosphate fluoride, fluoride varnish, fluoride therapy, and topical fluoride was conducted to update this policy. Expert opinions and best current practices also were relied upon for this policy.

Background

The adjustment of the fluoride level in community water supplies to optimal concentration is the most beneficial and inexpensive method of reducing the occurrence of caries.¹ Epidemiologic data from the last half-century indicate reductions in caries of 55 to 60 percent, and recent data show caries reduction of approximately 25 percent, without significant enamel fluorosis, when domestic water supplies are fluoridated at an optimal level.² Evidence accumulated from long-term use of fluorides has demonstrated that the cost of oral health care for children can be reduced by as much as 50 percent.³ These savings in health dollars accrue to private individuals, group purchasers, and government care programs. An even higher caries reduction can be obtained if the proper use of fluorides is combined with other dietary, oral hygiene, and preventive measures⁴ as prescribed by a dentist familiar with the child's oral health and family history.

A large body of literature supports the incorporation of optimal fluoride levels in drinking water supplies. When fluoridation of drinking water is impossible, effective systemic fluoridation can be achieved through the intake of daily fluoride supplements. Before supplements are prescribed, it is essential to review dietary sources of fluoride (e.g., all drinking water sources, consumed beverages, prepared food, toothpaste) to determine the patient's true exposure to fluor-

ide.^{1,5,6} Fluoride content of ready-to-use infant formulas in the U.S. and Canada ranges from 0.1 to 0.3 mg/L⁷, which provides only a modest source of fluoride. The more important issue, however, is the fluoride content of concentrated or powdered formula when reconstituted with fluoridated water. Considering the potential for mild fluorosis, caution is advised for infants consuming formula that is reconstituted with optimally-fluoridated water.⁸ As the Environmental Protection Agency/Department of Health and Human Services' recommendation⁹ for optimizing community water supplies to 0.7 ppm F is instituted, fluorosis due to reconstituting infant formula with fluoridated water will be less of an issue.

Significant cariostatic benefits can be achieved by the use of over-the-counter fluoride-containing preparations such as toothpastes, gels, and rinses, especially in areas without water fluoridation.¹ Monitoring children's use of topical fluoride-containing products, including toothpaste, may prevent ingestion of excessive amounts of fluoride.^{10,11} Numerous clinical trials have confirmed the anti-caries effect of professional topical fluoride treatments, including 1.23 percent acidulated phosphate fluoride, five percent neutral sodium fluoride varnish, 0.09 percent fluoride mouthrinse, and 0.5 percent fluoride gel/paste.¹²

Policy statement

The AAPD:

- Endorses and encourages the adjustment of fluoride content of domestic community water supplies to optimal levels where feasible.
- Endorses the supplementation of a child's diet with fluoride according to established guidelines^{1,13-15} when fluoride levels in community water supplies are suboptimal and after consideration of sources of dietary fluoride and the caries risk of the child.
- Encourages the brushing of teeth with appropriate amounts of fluoride toothpaste (e.g., no more than a smear or rice-sized amount for children less than three years of age; no more than a pea-sized amount for children aged three to six) twice daily for all children.¹¹
- Encourages the application of professional fluoride treatments for all children at risk for dental caries.
- Encourages dental professionals to inform medical peers of the potential of enamel fluorosis when excess fluoride is ingested prior to enamel maturation.

*The 2014 revision was limited to use of fluoridated toothpaste in young children.

- Encourages the continued research on safe and effective fluoride products.
- Supports the delegation of fluoride application to auxiliary dental personnel or other trained allied health professionals by prescription or order of a dentist after a comprehensive oral examination or by a physician after a dental screening has been performed.
- Encourages all beverage and infant formula manufacturers to include fluoride concentration with the nutritional content on food labels.
- Encourages dentists and other health care providers to educate parents that infant formula, if constituted with optimally fluoridated water, contains fluoride. Dentists and other health care providers, therefore, should assist parents in determining the infant's fluoride exposure.
- Recognizes that drinking fluoridated water and brushing with fluoridated toothpaste at least daily are perhaps the most effective method in reducing dental caries prevalence in children.

References

1. CDC. Recommendations for using fluoride to prevent and control dental caries in the United States. *MMWR Recomm Rep* 2001;50(RR14):1-42.
2. CDC. Achievements in public health, 1900-1999: Fluoridation of drinking water to prevent dental caries. *MMWR* 1999;48(12):933-40.
3. Griffen SO, Jones K, Tomar, SL. An economic evaluation of community water fluoridation. *J Pub Health Dent* 2001;61(2):78-86.
4. Featherstone JD. The science and practice of caries prevention. *J Am Dent Assoc* 2000;131(7):887-99.
5. Levy SM, Kohout FJ, Kiritsy MC, Heillman JR, Wefel JS. Infants' fluoride ingestion from water, supplements, and dentifrice. *J Am Dent Assoc* 1995;126(12):1625-32.
6. Adair SM. Evidence-based use of fluoride in contemporary pediatric dental practice. *Pediatr Dent* 2006;28(2):133-42.
7. Foman SJ, Ekstrand J. Fluoride intake. In Fejerskov O, Ekstrand J, Burt BA eds. *Fluoride in Dentistry*, 2nd ed. Copenhagen: Munksgaard; 1996:40-52.
8. Hujoel PP, Zina LG, Moimas SAS, Cunha-Cruz J. Infant formula and enamel fluorosis: A systematic review. *J Am Dent Assoc* 2009;140(7):841-54.
9. Department of Health and Human Services. News Release: HHS and EPA announce new scientific assessments and actions on fluoride. January 7, 2011. Available at: "<http://yosemite.epa.gov/opa/admpress.nsf/3881d73f4d4aa0b85257359003f5348/86964af577c37ab285257811005a8417!OpenDocument>". Accessed August 20, 2014.
10. Warren JJ, Levy SM. A review of fluoride dentifrice related to dental fluorosis. *Pediatr Dent* 1999;21(4):265-71.
11. American Dental Association Council on Scientific Affairs. Fluoride toothpaste use for young children. *J Am Dent Assoc* 2014;145(2):190-1.
12. Weyant RJ, Tracy SL, Anselmo T, Beltrán-Aguilar EJ, Donly KJ, Frese WA. Topical fluoride for caries prevention: Executive summary of the updated clinical recommendations and supporting systematic review. *J Am Dent Assoc* 2013;144(11):1279-91.
13. Rozier RG, Adair S, Graham F, et al. Evidence-based clinical recommendations on the prescription of dietary fluoride supplements for caries prevention: A report of the American Dental Association Council on Scientific Affairs. *J Am Dent Assoc* 2010;141(12):1480-9.
14. American Academy of Pediatrics Committee on Nutrition. Fluoride supplementation for children: Interim policy recommendations. *Pediatrics* 1995;95(5):777.
15. American Academy of Pediatric Dentistry. Guideline on fluoride therapy. *Pediatr Dent* 2014;36(special issue):171-4.