



Indian Health Service
National Pharmacy and Therapeutics Committee
Formulary Brief: Nutritional Supplements in Oral Health
-February 2016-



Background:

In February 2016, the Indian Health Service (IHS) National Pharmacy and Therapeutics Committee (NPTC) reviewed the role of oral fluoride supplements for the prevention of dental decay. As a result of the February 2016 meeting discussion, the NPTC **added an oral fluoride supplement (any product) to the NCF.**

Discussion:

Dental decay is the leading chronic health condition affecting American children. According to the Centers for Disease Control and Prevention (CDC), American Indian and Alaskan Native (AI/AN) children have the highest prevalence of tooth decay among any ethnic group in the United States. Fluoride promotes dental health in several ways, including reduction of enamel demineralization, inhibition of bacterial metabolism, and reduction in microbial acid production. Regardless of access to fluoridated water, the American Academy of Pediatrics (AAP) recommends routine use of fluoridated toothpaste and the application of fluoride varnish every 3-6 months for all children beginning at tooth emergence. The application of fluoride varnish may be accomplished by dental staff or trained allied health professionals in the clinic or community public health setting.

Systemic fluorides consumed in the diet or as a supplement are used by the body primarily during the formation of teeth (6 months – 6 years). Consumption of systemic fluoride generally occurs through drinking either naturally or artificially fluoridated tap water, although there are wide regional and local variations in the fluoride content of water². Clinicians are encouraged to consult the following link⁸ to determine the fluoride content of local water sources:

https://nccd.cdc.gov/DOH_MWF/Default/Default.aspx

A 2011 Cochrane review of 11 studies involving 7196 children showed a 24% reduction (95% CI: 16-33%) in dental caries with fluoride supplements (tablets, drops, lozenges) compared to placebo.⁴ Both the American Dental Association (ADA) and the AAP recommend oral fluoride supplementation for all children lacking access to a fluoridated water supply, regardless of baseline risk of dental caries.

The following table is adapted from the ADA Council of Scientific Affairs guidelines and suggests fluoride supplementation based on patient age and amount of fluoride present in drinking water⁶.

	Fluoride in Drinking Water < 0.3 ppm (0.3 mg/L)	Fluoride in Drinking Water 0.3-0.6 ppm (0.3-0.6 mg/L)	Fluoride in Drinking Water > 0.6 ppm (0.6 mg/L)
Age: 6 mo. to 3 yrs	Fluoride 0.25mg/day	None	None
Age: 3 yrs to 6 yrs	Fluoride 0.5mg/day	0.25mg/day	None
Age: 6 yrs to 16 yrs	Fluoride 1mg/day	0.5mg/day	None

Currently available oral fluoride products include gels, chewable tablets, lozenges and pediatric drops.

Potential adverse effects of fluoride include fluorosis and fluoride toxicity, the latter of which is generally limited to accidental ingestion among small children. Fluorosis results from hypo-mineralization of subsurface tooth enamel resulting from excess fluoride consumption in children under age 8 years. This is usually limited to minor cosmetic changes in tooth enamel not readily noticeable to the casual observer. More severe forms of fluorosis can produce adverse structural and cosmetic effects involving permanent 6-year molars, although such findings are rare in the United States. Due to the risk of accidental ingestion of fluoride oral supplements, the AAP recommends that the quantity prescribed at one time not exceed a 4-month supply.

Findings:

Dental decay is highly prevalent among AI/AN children. Efforts to reduce decay include education about dental hygiene, as well as, improved dietary practices. Application of topical fluoride varnish by an appropriately trained dental or allied health professional is advocated for all children beginning at tooth eruption and every 3-6 months thereafter. The need for fluoride supplementation is dependent on the amount of fluoride available in local water supplies, which is highly variable depending on the water source. Based on NPTC review and discussion, in concert with IHS procurement and utilization trends, the **NPTC added an oral fluoride supplement (any product)** to the NCF. The decision of which particular oral fluoride product is optimal for each facility remains at the discretion of local Pharmacy and Therapeutics committee.

If you have any questions regarding this document, please contact the NPTC at IHSNPTC1@ihs.gov. For more information about the NPTC, please visit the [NPTC website](#).

References:

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