

FLUORIDE SUPPLEMENTATION

I. INTRODUCTION

Primary as well as permanent teeth benefit from supplemental fluoride. Because of the potential risk of developing enamel fluorosis, The American Dental Association (ADA) and the American Academy of Pediatric Dentistry (AAPD) recommend the daily administration of individualized dietary supplements of sodium fluoride (drops, tablets or vitamins with fluoride) only for children at high risk for developing caries and whose daily fluoride exposure from beverages, including drinking water, is deficient. When indicated, prescribe fluoride supplements on a daily basis from age six months up to 16 years of age to provide the maximum benefits.

The American Academy of Pediatrics and the US Preventive Services Task Force recommend fluoride supplementation for all children ages six months up to 16 years (not only those at high risk for caries) whose daily exposure to systemic fluoride is deficient. For more information on this recommendation go to:

- Moyer, Va on behalf of the USPSTF. Prevention of dental caries in children from birth through age 5 years: US Preventive Services Task Force Recommendation Statement, Pediatrics 133(5) May 2014. <http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/dental-caries-in-children-from-birth-through-age-5-years-screening> accessed 5/12/16.
- Clark MB, Slayton RL. American Academy of Pediatrics Section on Oral Health, Fluoride use in caries prevention in the primary care setting, Pediatrics 134 (3) September 2014. <http://pediatrics.aappublications.org/content/134/3/626> accessed 5/12/16.

II. CALCULATING THE CORRECT DOSE

The tables below show the current recommended American Dental Association's (ADA) Dietary Fluoride Supplement Dosing Schedule for children at high risk for developing caries.

ADA Fluoride Supplement Chairside Guide:

http://ebd.ada.org/~media/EBD/Files/ADA_Evidence-based_Fluoride_Supplement_Chairside%20Guide.pdf?la=en

Current Schedule

Age of Child	Parts per million (ppm) fluoride in water supply		
	Less than 0.3 ppm	0.3 to 0.6 ppm	Greater than 0.6 ppm
Birth to 6 months	0	0	0
6 months to 3 years	0.25 mg/day	0	0
3 to 6 years	0.50 mg/day	0.25 mg/day	0
6 to 16 years	1.0 mg/day	0.50 mg/day	0

The North Carolina Oral Health Section (OHS) recommends this schedule to determine fluoride supplement dosage. The following steps will help you determine the need and dosage for each child for whom you may prescribe supplements:

- CONDUCT A CARIES RISK ASSESSMENT:** The ADA and AAPD recommend fluoride supplements only for high risk children. To determine a child's risk for caries, conduct a caries risk

assessment. There are several tools available, including those developed by the ADA, AAPD, and AAP.

- The ADA has two risk assessment tools:
 - For patients 0-6 years of age:
http://www.ada.org/~media/ADA/Member%20Center/Files/topics_caries_under6.ashx
 - For patients over 6 years of age:
http://www.ada.org/~media/ADA/Science%20and%20Research/Files/topic_caries_over6.ashx
- The AAPD caries risk assessment tool (CAT):
http://www.aapd.org/media/policies_guidelines/p_cariesriskassess.pdf
- The American Academy of Pediatrics/Bright Futures Oral Health Risk Assessment Tool:
<http://www2.aap.org/oralhealth/docs/RiskAssessmentTool.pdf>

B. **ANALYZE HOME WATER:** If the child's home water source is not a fluoridated community system or is unknown, **always have a sample of the home water analyzed for the fluoride content before prescribing a fluoride supplement** (See Section III for details). If the child drinks significant amounts of water from more than one source of unknown fluoride content, analyze the other source(s) as well.

C. **ESTIMATE OTHER SOURCES OF FLUORIDE:** If the child is drinking water from multiple sources that contain various amounts of fluoride, estimate the percent of the daily water intake from each source and adjust the dose accordingly. For example, if a five-year-old child consumes well water at home with no fluoride, but goes to day school in town where the water is fluoridated at one ppm fluoride, estimate the water consumption from each source. If it appears that the child consumes about half his water from each source, the net result would be the same as if the child were drinking water containing 0.50 ppm. Refer to the supplementation schedule to determine the correct dose (0.25 mg/day). A variety of similar circumstances can occur. In any case, it is important to **thoroughly understand** the child's total systemic fluoride exposure and to use sound judgment in calculating the dose.

Keep in mind that many soft drinks and reconstituted juices are often processed with fluoridated water, and this may lead to significant fluoride intake. If you are unable to make an assessment of the child's daily fluoride intake, it is better not to prescribe supplements at all. Inappropriate supplementation carries a high risk of dental fluorosis for young children.

D. **DETERMINE DOSAGE FROM SCHEDULE:** For high risk children, when daily fluoride exposure has been determined, that value and the child's age should be matched on the fluoride supplementation schedule to determine the correct supplement dose.

E. **MONITOR PERIODICALLY:** It is important to periodically monitor patients taking fluoride supplements. Review the following items every six months:

- Risk assessment: supplement only if high risk.
- Proper dosage relative to current age.

- Change in fluoride intake that might result from changes in community water fluoridation status, home well construction, prescriptions for fluoride supplements from other health professionals; and other beverages consumed.
- Changes in where the child spends their time (school, child care, relatives) and the fluoridation status of the water consumed at each place.

Remember, since fluoride supplementation is only recommended for children at high risk for dental decay by the American Dental Association and the American Academy of Pediatric Dentistry, it is important to regularly conduct a caries risk assessment and evaluate all potential fluoride sources before prescribing fluoride supplements to minimize the risk of fluorosis.

III. WATER SAMPLING PROCEDURE

The North Carolina State Laboratory of Public Health (NCSLPH) will perform fluoride analysis on a water sample submitted by a dentist or physician according to the following procedure:

- A. Establish an account online with NCSLPH (<http://slph.ncpublichealth.com/>)
Click on ‘forms, newsletters, and documents’. Once you are notified the account has been approved, testing kits can be ordered online.
 - B. Cost for one fluoride analysis is approximately \$3 and includes the sample collection bottle.
 - C. Collect the water sample to be analyzed, complete the report form and mail as instructed.
 - D. Include the collection date and the patient’s name on the report form.
 - E. The results will be sent to the health professional indicated on the report form.
- For questions about ordering kits, please contact William.McDowell@dhhs.nc.gov or 919-807-8959. For questions about how to use the kits, please call the Environmental Health Section at 919-733-3708.

IV. REFERENCES

- A. Rozier RG, et al. *Evidenced-Based Clinical Recommendations on the Prescription of Dietary Fluoride Supplements for Caries Prevention: A Report of the American Dental Association Council on Scientific Affairs*, JADA 141:1480-1489, 2010.
<http://ebd.ada.org/en/evidence/guidelines/fluoride-supplements> accessed 3/18/16.
- B. American Dental Association. Caries Risk Assessment Form (Age > 6) www.ADA.org accessed 3/18/16.
- C. American Dental Association. Caries risk Assessment Form (Ages 0 – 6) www.ADA.org accessed 3/18/16.
- D. American Academy of Pediatric Dentistry. Guideline on caries-risk assessment and management for infants, children, and adolescents. *Clinical Practice Guidelines Reference Manual*; 2014, V37 (6): 132-139.
http://www.aapd.org/media/policies_guidelines/g_cariesriskassessment.pdf accessed 3/18/16.

