Putting Prevention Into Practice

An Evidence-Based Approach

Screening and Interventions to Prevent Dental Caries in Children Younger Than Five Years

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Case Study

Hispanic parents who are new to your practice bring in their two children, two years of age and four months of age, for routine wellness visits. Neither child has any known chronic medical conditions, and both are current on routine immunizations. The four-month-old recently had a primary tooth eruption, and most of the two-year-old's primary teeth have erupted. The parents have questions about dental care for their children. The family has recently moved to Church Point, in Acadia County, La.

Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF) recommendation statement on dental caries in children younger than five years, which of the following factors may elevate risk of dental caries?

- ☐ A. Low socioeconomic status.
- ☐ B. Lack of access to dental care.
- ☐ C. Living in an area with an average water fluoride level of 0.7 parts fluoride per million parts water.
- ☐ D. Frequent intake of dietary sugars.

2. According to the USPSTF recommendation statement, how should you approach preventing dental caries in the two-year-old patient?

- ☐ A. Recommend introducing one to two 12-oz servings of orange juice per day.
- ☐ B. Order serum fluoride levels to assess for low fluoride levels.
- ☐ C. Begin oral fluoride supplementation.
- ☐ D. Begin topical fluoride varnish application to primary teeth.
- ☐ E. Begin oral fluoride supplementation and topical fluoride varnish application.

3. According to the USPSTF recommendation statement, how should you approach preventing dental caries in the four-month-old patient?

- ☐ A. No intervention is needed at this time.
- ☐ B. Order serum fluoride levels to assess for low fluoride levels.
- ☐ C. Begin oral fluoride supplementation.
- ☐ D. Begin topical fluoride varnish application to primary teeth.
- ☐ E. Begin oral fluoride supplementation and topical fluoride varnish application.

Answers appear on the following page.

See related USPSTF Clinical Summary at https://www.aafp.org/afp/2022/0300/od1.

This PPIP quiz is based on the recommendations of the USPSTF. More information is available in the USPSTF Recommendation Statement and supporting documents on the USPSTF website (https://www.uspreventiveservicestaskforce.org). The practice recommendations in this activity are available at https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/prevention-of-dental-caries-in-children-younger-than-age-5-years-screening-and-interventions1.

This series is coordinated by Kenny Lin, MD, MPH, deputy editor.

A collection of Putting Prevention Into Practice published in *AFP* is available at https://www.aafp.org/afp/ppip.

CME This clinical content conforms to AAFP criteria for CME. See CME Quiz on page 230.

Author disclosure: No relevant financial affiliations.

Answers

1. The correct answers are A, B, and D. Many factors may increase a child's risk of dental caries. Biologic risk factors include cariogenic bacteria, developmental defects of tooth enamel, or low saliva flow rates. Social determinants of health (nonbiologic factors) associated with increased risk of dental caries include low socioeconomic status, lack of access to dental care, poor oral hygiene practices, personal and family oral health history, or frequent exposure to dietary sugar and refined carbohydrates and inappropriate bottle feeding. Hispanic and non-Hispanic Black children and those living in an area with low community water fluoride levels (less than 0.6 parts fluoride per million parts water) may also have increased risk of dental caries.[1,2]

2. The correct answer is E. The USPSTF recommends that primary care physicians apply fluoride varnish to the primary teeth of all infants and children starting at the age of primary tooth eruption (B recommendation) and prescribe oral fluoride supplementation for children whose water supply is deficient in fluoride starting at six months of age to prevent future dental caries (B recommendation).[1] In this scenario, according to the Centers for Disease Control and Prevention's My Water's Fluoride tool (https://nccd.cdc.gov/doh_mwf/default/default.aspx), the water system in Church Point is not fluoridated with an average fluoride level of 0.10 mg per L (equivalent to 0.10 parts per million). Therefore, the two-year-old child should start topical fluoride varnish and oral fluoride supplementation; starting oral fluoride supplementation or topical fluoride varnish alone will not be sufficient. All children are at potential risk for dental caries, and high-sugar food and drinks such as orange juice can increase the risk of dental caries.[1] Currently, there is no role for checking serum fluoride levels to assess the risk of dental caries in children.

3. The correct answer is D. The USPSTF recommends that primary care physicians apply fluoride varnish to the primary teeth of all infants and children starting at the age of primary tooth eruption (B recommendation).[1] In this scenario, topical fluoride varnish should be applied to the teeth of the four-month-old child at this visit. All children are at potential risk of dental caries, so providing no intervention would be incorrect. Currently, there is no role for checking serum fluoride levels to assess the risk of dental caries in children.

The views expressed in this work are those of the authors and do not reflect the official policy or position of the Mayo Clinic, the Uniformed Services University of the Health Sciences, the Department of Defense, or the U.S. government.

References

1. Davidson KW, Barry MJ, Mangione CM, et al. Screening and interventions to prevent dental caries in children younger than 5 years: US Preventive Services Task Force recommendation statement. *JAMA*. 2021;326(21):2172-2178.
2. Chou R, Pappas M, Dana T, et al. Screening and interventions to prevent dental caries in children younger than 5 years: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2021; 326(21):2179-2192. ■