

Promoting Oral Health

Oral health is critically important to the overall health and well-being of infants, children, and adolescents. It covers a range of health promotion and disease prevention concerns, including dental caries; periodontal (gums) health; proper development and alignment of facial bones, jaws, and teeth; other oral diseases and conditions; and trauma or injury to the mouth and teeth. Oral health is an important issue requiring continued health supervision from the health care professional.

Childhood caries is a preventable and transmissible infectious disease caused by bacteria (eg, *Streptococcus mutans* or *Streptococcus sobrinus*) that form plaque on the surface of teeth. The bacteria interact with sugar in foods and beverages, turning them into acids that dissolve tooth enamel, causing caries. Caries is one of the most common chronic diseases in children—5 times more common than asthma.¹ Left untreated, pain and

infection caused by dental caries can lead to problems in eating, speaking, and learning.² Twenty-three percent of children aged 2 to 5 years and 56% of children aged 6 to 8 have caries, and many school hours are lost each year because of dental problems related to caries.³

Dental caries is a complex disease with individual-, family-, and community-level influences.⁴ Several population groups are particularly vulnerable to caries. For example, children and youth with special health care needs are at increased risk. National surveys also have demonstrated that children in low- and moderate-income households are more likely to have caries and more decayed teeth than are children from more affluent households. Even within income levels, children of color are more likely to have caries than are white children.¹ Thus, sociodemographic status should be viewed as an initial indicator of risk.





Health care professionals can teach children, adolescents, and their families about oral hygiene, healthy diet and feeding practices, optimal exposure to fluoride, and timely referral to a dentist (see Box 1 for useful resources). Health care professionals also often provide the initial response for oral trauma. They should keep in mind that the differential diagnosis for oral trauma includes intentional injury.⁵

The Importance of a Dental Home

The dental home is the ongoing relationship between the dentist and the patient, includes all aspects of oral health, and is delivered in a comprehensive, continuously accessible, coordinated, and family-centered way (Box 2).⁸

Three dental organizations (the American Dental Association, the Academy of General Dentistry,

Box 1

Oral Health Resources

Bright Futures in Practice: Oral Health Pocket Guide (2016) provides a structured and comprehensive approach to oral health anticipatory guidance for the health care professional.⁶ The Health Resources and Services Administration National Maternal and Child Oral Health Resource Center (www.mchoralhealth.org) also provides many valuable tools and resources for health care professionals.⁷ Additional information is available at the AAP Web site (www.aap.org).

Abbreviation: AAP, American Academy of Pediatrics.

Box 2

Responsibilities of the Dental Home⁹

According to the AAPD, the dental home should provide

- Comprehensive oral health care, including acute care and preventive services, in accordance with AAPD periodicity schedules.
- Comprehensive assessment for oral diseases and conditions.
- An individualized preventive dental health program based on a caries risk assessment and a periodontal disease risk assessment.
- Anticipatory guidance about growth and development issues (ie, teething, thumb- or finger-sucking behaviors, or pacifier habits).
- A plan for responding to acute dental trauma.
- Information about proper care of the child's teeth and gingivae. This would include prevention, diagnosis, and treatment of disease of the supporting and surrounding tissues and the maintenance of health, function, and esthetics of those structures and tissues.
- Dietary counseling.
- Referrals to dental specialists when care cannot directly be provided within the dental home.
- Education regarding future referral to a dentist knowledgeable and comfortable with adult oral health issues for continuing oral health care. Referral at an age determined by patient, parent, and pediatric dentist.

Abbreviation: AAPD, American Academy of Pediatric Dentistry.

Reproduced with permission from American Academy of Pediatric Dentistry Council on Clinical Affairs. Policy on the dental home. *Pediatr Dent*. 2015;37(6)(Reference Manual):24-25.



and the American Academy of Pediatric Dentistry [AAPD]) are united in encouraging parents to establish a dental home for their child no later than 12 months of age.⁹ As children and adolescents mature into adulthood, a dental home also can ensure that they receive oral health education and counseling, preventive and early intervention measures, and treatment, including treatment for periodontal care, orthodontic services, trauma, and other conditions.

Efforts to establish a dental home offer an opportunity for partnerships and foster a connection with the community. A partnership among health care professionals in primary care, dental health, public health, early care and education (including child care and home visiting), and school settings can help ensure access to a dental home for each child during the early childhood, middle childhood, and adolescent years.

Fluoride

Fluoride plays a key role in preventing and controlling caries. Fluoride helps reduce the loss of minerals from tooth enamel (demineralization) and promotes the replacement of minerals (remineralization) in dental enamel that has been damaged by acids produced by bacteria in plaque. Regular and frequent exposure to small amounts of fluoride is the best way to protect the teeth against caries. This exposure can be readily accomplished through drinking water that has been optimally fluoridated¹⁰ and brushing with fluoride toothpaste twice daily.¹¹

Fluoride supplementation typically is not needed in the first 6 months of life. Children who do not drink fluoridated water should begin taking fluoride supplements (ie, drops or chewable tablets) at 6 months of age.¹² Parents can purchase bottled water that contains fluoride, as an alternative to fluoride supplements. Evidence reviewed by the US Preventive Services Task Force (USPSTF) found

oral fluoride supplementation effective at reducing caries incidence.^{13,14}

Additional types of fluoride may be used as a primary preventive measure and, generally, are recommended for infants, children, and adolescents who are deemed to be at high risk of caries. Research has shown that the primary caries prevention effects of fluoride result from its topical contact with enamel and through its antibacterial actions.¹² The USPSTF also found new evidence to support the effectiveness of fluoride varnish in infants and children, starting at first primary tooth eruption through age 5.^{13,14}

Even if indicated, additional or combination of fluoride intake should be used judiciously in children to minimize the risk of fluorosis from the overexposure to fluoride. Fluoride varnish is not a risk factor for fluorosis. Fluorosis can come from swallowing too much toothpaste that contains fluoride, drinking water with higher than recommended fluoride levels, and taking fluoride supplements when other sources of fluoride are available.¹⁵ To prevent fluorosis, if noncommunity water sources, such as wells and other natural sources, are the primary water sources, they must be tested before parents are advised to supplement with fluoride.¹⁶

For all children and adolescents, optimal fluoride levels in drinking water combined with fluoride-containing preparations, such as toothpastes, gels, varnishes, and rinses, have significantly reduced dental decay, but caries risk remains high during childhood.^{3,14} Children and adolescents at high risk of caries should be risk assessed and evaluated for topical fluoride beyond that provided by water supply and a fluoridated toothpaste.

Fluoridated toothpaste also is recommended for all children from the time the first tooth erupts. Children's teeth should be brushed with fluoride toothpaste twice a day, after breakfast and before bed. Use a soft toothbrush made for young children. Infants and children younger than 3 years



should use a small smear (ie, no larger than a grain of rice); children aged 3 to 6 should use a pea-sized amount of toothpaste (Figure 1).¹⁷

Children and Youth With Special Health Care Needs

Children with special health care needs present a unique set of concerns for oral health because they are particularly prone to developing caries. Because dental care for these children is often difficult and sometimes risky, the health care professional should refer the child to a dentist as early as possible for vigilant preventive oral health care, which may alleviate the need for future surgical intervention.

Oral diseases also may have a direct and devastating effect on the general health of children with certain systemic or developmental problems or conditions. Children with compromised immunity or certain cardiac, kidney, or liver conditions may be especially vulnerable to the effects of oral diseases. Children with cognitive disabilities or developmental or neuromuscular conditions who do not have the ability to understand and assume responsibility for or adhere to preventive oral health practices may be at higher risk for complications or systemic infections from oral diseases.¹⁸

Children and youth with special health care needs may require more help with their oral self-care routines (ie, brushing and flossing) than other children. Health care professionals should advise parents or caregivers to supervise and intervene as needed to help their children with brushing and flossing if their special needs prevent them from doing a thorough job. As with all other children, the child with special needs should begin dental care in the first year and visit the dentist every 6 months or more frequently, as needed.

Adolescents with special health care needs may face difficulties because of their physical condition, malformations, medicines, or nutrition. They

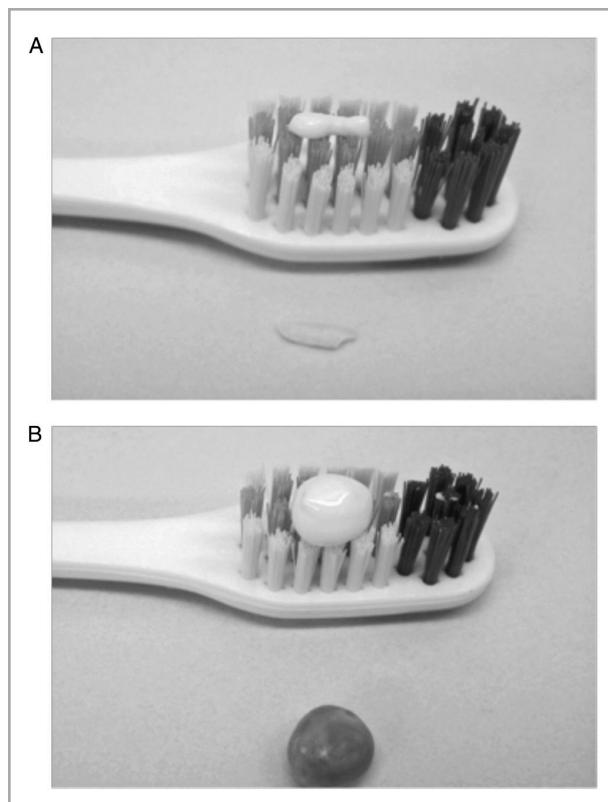


Figure 1: Recommended Amounts of Toothpaste

Reproduced with permission from Lewis CW. Fluoride and dental caries prevention in children. *Pediatr Rev.* 2014;35(3). Figure 5.

should receive regular dental care and be encouraged to take as much responsibility as possible for their own oral hygiene.^{18,19}

Promoting Oral Health: Infancy—Birth Through 11 Months

Even though an infant's teeth do not begin to appear until the middle of this developmental period, oral health is still a concern because caries can develop during the first year of life. Exclusive breastfeeding has been associated with a reduction in malocclusion.²⁰

Oral Hygiene and Feeding Practices That Promote Oral Health

Even before the baby's birth, parents and other caregivers should make sure their own mouths are as healthy as possible to reduce transmission of caries-causing harmful bacteria from their saliva to the newborn's mouth.²¹ Health care professionals



should educate family members in the following ways to promote the adult's oral health and prevent the transmission of caries-causing bacteria from adult to infant:

- Practice good oral hygiene and seek oral health care.
- Do not share utensils, cups, spoons, or toothbrushes with the infant.
- Do not put the child's pacifiers in their own mouths. Clean pacifiers with mild soap and water.
- Consult with an oral health professional about the use of xylitol gum or lozenges (if the adult's oral health is a concern). This gum may have a positive effect on oral health by decreasing the bacterial load in an adult's mouth.^{22,23}

The primary teeth begin to erupt at different ages during the first year of life. An infant is susceptible to tooth decay as soon as the first teeth come into his oral cavity if he has a sufficient bacterial load already present in his mouth and prolonged exposure to sugars. Chalky white areas on the teeth are the first sign of dental decay. Both inadequate oral hygiene and inappropriate feeding practices that expose teeth to natural or refined sugars for prolonged periods contribute to the development of early childhood caries. Health care professionals should educate parents in the following ways to keep teeth clean and remove plaque:

- Minimize exposure to natural or refined sugars in the infant's mouth.
 - Avoid frequent exposure to foods that can lead to dental caries.
 - Hold the infant while feeding. Never prop a bottle (ie, use pillows or any other object to hold a bottle in the infant's mouth).
 - Do not allow the infant to fall asleep with a bottle that contains milk, formula, juice, or other sweetened liquid.
 - Avoid dipping pacifiers in any sweetened liquid, sugars, or syrups.¹⁶

- For infants and children younger than 3 years, brush the teeth with a small smear (ie, no larger than a grain of rice) of fluoride toothpaste twice a day (after breakfast and before bed). The child should not spit out the toothpaste or rinse with water. The small amount of toothpaste that remains in his mouth helps prevent dental caries.^{11,17}

To help prevent early childhood caries, parents also should take advantage of this developmental stage to establish lifelong nutritious eating patterns for the family that emphasize consumption of vegetables, fruits, whole grains, lean meats, and dairy products and that minimize consumptions of foods and beverages containing added sugars. (*For more information on this topic, see the Promoting Healthy Nutrition theme.*)

Oral Health Risk Assessment

Since 2003, the American Academy of Pediatrics (AAP) has recommended that health care professionals conduct an oral health risk assessment when an infant is 6 months of age.²⁴ In 2012, the AAP refined the risk factors and developed an Oral Health Risk Assessment Tool for caries risk determination (Figure 2).^{6,25} This assessment consists of the health care professional asking parents about their and the child's oral health practices and examining the child's mouth to assess the risk of caries. Fluoride varnish may be applied in the primary care medical home every 6 months, beginning when the first tooth erupts until age 5 years.

The AAP recognizes that, even today, some children live in communities that lack pediatric dentists or general dentists who are able to see infants and young children. Therefore, health care professionals who care for these children may have to continue to perform periodic oral health risk assessments even after 6 to 12 months of age. These assessments allow health care professionals to identify children at the highest risk of oral health



Patient Name: _____ Date of Birth: _____ Date: _____ Visit: <input type="checkbox"/> 6 month <input type="checkbox"/> 9 month <input type="checkbox"/> 12 month <input type="checkbox"/> 15 month <input type="checkbox"/> 18 month <input type="checkbox"/> 24 month <input type="checkbox"/> 30 month <input type="checkbox"/> 3 year <input type="checkbox"/> 4 year <input type="checkbox"/> 5 year <input type="checkbox"/> 6 year <input type="checkbox"/> Other _____		
RISK FACTORS	PROTECTIVE FACTORS	CLINICAL FINDINGS
<ul style="list-style-type: none"> <input type="checkbox"/> Mother or primary caregiver had active decay in the past 12 months <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Mother or primary caregiver does not have a dentist <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Continual bottle/sippy cup use with fluid other than water <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Frequent snacking <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Special health care needs <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Medicaid eligible <input type="checkbox"/> Yes <input type="checkbox"/> No 	<ul style="list-style-type: none"> <input type="checkbox"/> Existing dental home <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Drinks fluoridated water or takes fluoride supplements <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Fluoride varnish in the last 6 months <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Has teeth brushed twice daily <input type="checkbox"/> Yes <input type="checkbox"/> No 	<ul style="list-style-type: none"> <input type="checkbox"/> White spots or visible decalcifications in the past 12 months <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Obvious decay <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Restorations (fillings) present <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Visible plaque accumulation <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Gingivitis (swollen/bleeding gums) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Teeth present <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Healthy teeth <input type="checkbox"/> Yes <input type="checkbox"/> No
ASSESSMENT/PLAN		
Caries Risk: <input type="checkbox"/> Low <input type="checkbox"/> High Completed: <input type="checkbox"/> Anticipatory Guidance <input type="checkbox"/> Fluoride Varnish <input type="checkbox"/> Dental Referral	Self Management Goals: <input type="checkbox"/> Regular dental visits <input type="checkbox"/> Dental treatment for parents <input type="checkbox"/> Brush twice daily <input type="checkbox"/> Use fluoride toothpaste	<input type="checkbox"/> Wean off bottle <input type="checkbox"/> Less/No juice <input type="checkbox"/> Only water in sippy cup <input type="checkbox"/> Drink tap water <input type="checkbox"/> Healthy snacks <input type="checkbox"/> Less/No junk food or candy <input type="checkbox"/> No soda <input type="checkbox"/> Xylitol

Figure 2: Oral Health Risk Assessment Tool²⁵

Reproduced with permission from Oral Health Risk Assessment Tool. American Academy of Pediatrics Children's Oral Health Web site. <http://www2.aap.org/oralhealth/docs/RiskAssessmentTool.pdf>. Accessed November 20, 2016.

problems so they can be referred to whatever limited resources are available.²⁶⁻²⁹ In addition, public health professionals often assist health care professionals and families to link to a dental home.

Promoting Oral Health: Early Childhood—1 Through 4 Years

The key oral health priorities of this developmental stage are the same as those of infancy—namely, preventing caries and developing healthy oral

hygiene habits. Early childhood also is a good time for parents, caregivers, and health care professionals to build positive dietary habits as they introduce new foods and the child establishes taste preferences. Parents may have questions during this period about pacifiers and thumb- and finger-sucking behaviors that are related to teeth and jaw alignment.



Oral Hygiene, Fluoride, and Feeding Practices That Promote Oral Health

Parents and caregivers can do much to prevent the development of caries and promote overall oral health during this period. As noted earlier, caries is an infectious disease, and parents should make sure their oral hygiene and diet meet the standards outlined here. Health care professionals should educate the family and caregivers in the following ways to promote the adult's oral health and prevent transmission of bacteria from the adult to the child:

- Practice good oral hygiene and seek oral health care.
- Do not share utensils, cups, spoons, or toothbrushes with the child.
- Do not put the child's pacifiers in their own mouths. Clean pacifiers with mild soap and water.
- Consult with an oral health care professional about the use of gum or lozenges containing xylitol (if the adult's oral health is a concern).

Health care professionals also should educate parents about ways to keep their child's teeth clean and ensure sufficient fluoride intake.

- Brush children's teeth with fluoride toothpaste twice daily as soon as teeth erupt. Because young children do not have the manual dexterity to brush their teeth well until they are able to tie their own shoes (usually around age 7 or 8 years), an adult should brush or help children brush their teeth. For children younger than 3, brush the teeth with a small smear (ie, no larger than a grain of rice) of fluoride toothpaste twice a day (after breakfast and before bed). The child should not spit out the toothpaste or rinse with water. The small amount of toothpaste that remains in her mouth helps prevent dental caries.^{11,17}

For children aged 3 to 6, brush the teeth with no more than a pea-sized amount of fluoride toothpaste twice a day (after breakfast and before bed). The child should spit out the toothpaste after brushing but not rinse her mouth with water. The small amount of toothpaste that

remains in her mouth helps prevent tooth decay. Children can be taught to floss if recommended by the dental professional.

- Make sure the child drinks fluoridated water or takes prescribed fluoride supplements.

Early childhood is a time in which children are exposed to new tastes, textures, and eating experiences. It is an important opportunity for parents and caregivers to firmly establish healthful eating patterns for the child and her family. These patterns should emphasize consumption of vegetables, fruits, whole grains, lean meats, and dairy products and minimize consumptions of foods and beverages containing added sugars. (*For more information on this topic, see the Promoting Healthy Nutrition theme.*)

Oral Health Risk Assessment

As recommended by the AAPD, by 12 months of age, a child should be seen by a dentist every 6 months or according to a schedule recommended by the dentist, based on the child's individual needs and susceptibility to disease.³⁰ If a dental home is unavailable, the primary care professional should apply topical fluoride varnish to patients every 6 months. As noted by the AAP, in the absence of a dental home program that is able to see a child between the ages of 1 and 4, the primary care professional should continue to perform oral health risk assessments. The AAPD also recommends that health care professionals use the AAP Oral Health Risk Assessment Tool (see Figure 2).

Other Oral Health Issues

The health care professional should be prepared to discuss the use of pacifiers and thumb- or finger sucking. Finger sucking often fills an emotional need, but it can lead to malocclusion, including anterior open bite (top teeth do not overlap the bottom teeth) and excess overjet (top teeth protrude relative to the bottom teeth). The intensity, duration, and nature of the sucking habit can be used to predict the amount of harm that can occur. Positive reinforcement, including a reward system



or reminder system, is the most effective way to discourage finger sucking.

Promoting Oral Health: Middle Childhood—5 Through 10 Years

During the early part of middle childhood, a child loses his first tooth, and the first permanent teeth (maxillary and mandibular incisors and first molars) start to erupt. By the end of middle childhood, many of the permanent teeth have erupted. For the child, these are exciting signs of getting older. Middle childhood also is a good time for parents and caregivers to reinforce oral hygiene, optimal fluoride exposure, proper protection to avoid oral traumatic injuries, and the positive dietary habits they pursued in early childhood.

The history and physical examination performed by the health care professional should include oral health and, as necessary, an oral health risk assessment (see Figure 2). The child should see the dentist every 6 months or according to a schedule recommended by the dentist, based on the child's individual needs and susceptibility to disease. When the permanent molars erupt, the dentist should evaluate the child's teeth to determine the need for sealants that protect the teeth from caries.

The key oral health issues for this developmental stage are preventing caries and gingivitis and ensuring proper development of the mouth and jaw. Reducing the risk of injury or trauma to the mouth and teeth and avoiding risky behaviors that negatively affect oral health also are important.

Oral Hygiene, Fluoride, and Nutrition Practices That Promote Oral Health

Health care professionals should educate parents in the following ways to help their child keep his teeth clean and remove plaque:

- Helping with, and supervising, the brushing of their child's teeth at least twice a day for 2 minutes and flossing once a day before bedtime.

- Using a pea-sized amount of fluoridated toothpaste to clean the child's teeth. The child should spit out the toothpaste after brushing but not rinse his mouth with water. The small amount of toothpaste that remains in his mouth helps prevent tooth decay.^{11,17}
- Make sure the child drinks fluoridated water. Children who do not drink fluoridated water and are at high risk of caries should take prescribed fluoride supplements.

As children begin school and expand their horizons beyond the immediate circle of home and family, they are increasingly exposed to eating habits and foods that put them at increased risk of caries. Media, especially television (TV), likely play a role in this increasing risk. Studies of the content of TV programming show that advertisements directed at children are heavily weighted toward foods high in added sugars, such as sweetened breakfast cereals, fruit juice, soft drinks, snacks, and candy.³¹

Parents continue to have the most influence on their children's eating behaviors and attitudes toward food. To the extent possible, parents should make sure that nutritious foods are available to their children, and they should continue to emphasize healthful eating patterns. It is important to avoid the frequent consumption of sugar-sweetened beverages and snacks. (*For more information on this topic, see the Promoting Healthy Nutrition theme.*)

Other Oral Health Issues

Finger or other sucking habits sometimes continue into middle childhood. These habits should be stopped when the permanent teeth begin to erupt. As the child begins to grow, the mouth grows, and the child should be evaluated by a dentist if malocclusion is seen.

Some children begin using tobacco during middle childhood. Therefore, the child should be encouraged not to smoke or use smokeless tobacco because smoking increases the risk of periodontal



disease and oral cancer and poses substantial risks to overall health.

As children mature and begin to play with increased strength and vigor, in free play and organized sports, the risk of injury to the mouth increases. The child and parent should know what to do in the event of an emergency, especially if a tooth is visibly broken (chipped or fractured), displaced (luxated), or knocked completely out of the socket (avulsed). In these cases, the child should be referred to a dentist immediately. An avulsed permanent tooth needs to be reimplanted as quickly as possible, but an avulsed primary tooth should not be reimplanted, because it likely would cause damage to developing permanent teeth.⁵

Mouth guards worn during sports and other athletics greatly reduce the severity of unintentional trauma to individual teeth by distributing the forces of impact to all of the teeth and jaws. Custom adaptations range from softening a generic plastic mouth guard in boiling water and biting into it to register a custom bite to fabricating a guard on a custom mold. Both types work well to prevent oral trauma; they differ only in cost and comfort. The protection afforded by any type of guard mandates use in both organized and leisure-time sports activity.

Promoting Oral Health: Adolescence—11 Through 21 Years

Adolescence is characterized by the loss of the remaining primary teeth and complete eruption of all the permanent teeth, including the third molars or wisdom teeth in late adolescence. Growth spurts of the facial bones occur early and then taper off as adolescence progresses. The end result is a fully established bite.

Several oral health issues from earlier developmental stages continue to be important in adolescence. For example, vigilant oral hygiene and positive dietary habits can strengthen a sound foundation

for adult oral health by preventing destructive periodontal disease and dental caries. Avoiding traumatic injury to the mouth is another continuing priority. Other issues are new. For example, adolescence brings increased susceptibility to irreversible periodontal or gum disease that may be related to hormonal and immunologic changes. A comprehensive oral hygiene regimen of brushing and flossing combined with regular professional care can manage this response.

Oral Hygiene, Fluoride, and Nutrition Practices That Promote Oral Health

The adolescent should be responsible for her own preventive oral health care and should have an established dental home. She should see the dentist every 6 months or according to a schedule recommended by the dentist, based on individual needs and susceptibility to disease. The dental professional also may consider diet analysis, topical fluoride applications, antimicrobial regimens, and dental sealants for high-risk patients or those with significant dental disease.^{1,3,32,33}

Although preventive therapy has resulted in increased numbers of adolescents with healthy teeth, caries is still common in adolescents and untreated caries is higher among adolescents and young adults aged 16 to 19 years compared with adolescents aged 12 to 15.³

Adolescents' risk of caries may be increased by

- Susceptible tooth surfaces caused by immature enamel in newly erupted permanent teeth.
- Indifference to oral hygiene, which allows plaque to accumulate and mature.
- Frequent and unregulated exposure to high quantities of sugars, a feature of many adolescent diets, which provides the perfect medium for caries to develop.³⁴
- Frequent consumption of acidic drinks, such as juices, and acid-producing drinks, such as sugar-sweetened beverages, which can directly erode the enamel.³⁵



- Eating disorders, such as bulimia, which can result in a characteristic erosion of the dental enamel by repeated exposure of the teeth to gastric acids.
- Use of certain drugs, specifically methamphetamine, which has a detrimental effect on oral health. Methamphetamine use is associated with rampant decay that is attributed to some combination of the acidic nature of the drug, decreased saliva, tooth grinding and clenching, poor oral hygiene, and drug-induced cravings for high-calorie carbonated beverages.³⁶

Health care professionals should educate adolescents to keep their teeth clean and remove plaque by following a comprehensive, daily home care regimen, including a minimum of twice-daily brushing with fluoride toothpaste and once-daily flossing. It is recommended that the adolescent spit out the toothpaste but not rinse with water. This regimen should be customized to each patient according to risk factors. Adolescents also should follow nutritious eating patterns that include only modest consumption of foods and beverages high in added sugars and should drink fluoridated water. (*For more information on this topic, see the Promoting Healthy Nutrition theme.*) If necessary, prescribed fluoride supplements until the age of 16 years are appropriate.³⁷

Other Oral Health Issues

Adolescence is a period of experimentation and making choices. Added freedom and extension of boundaries are characteristic of appropriate supervision, but certain behaviors can lead to oral health problems. Substance use, including tobacco and drugs, can affect soft and hard tissues of the oral cavity and is linked to oral cancer.³⁸ Oral piercing can cause local and systemic infection, tooth fracture, and hemorrhage. Sexual behaviors can lead to infectious and traumatic consequences to the mouth. The health care professional should

continue to counsel the adolescent about these non-dietary behavioral factors that affect oral health.

Periodontal Conditions

Evidence suggests that irreversible tissue damage from periodontal disease begins in late adolescence and early adulthood. Early diagnosis, prevention, and treatment can, in most cases, prevent irreversible damage to the periodontal structures in adulthood.³⁹ Preventing this damage obviates the need for dental restorations, which require lifelong care and monitoring.

Traumatic Injury to the Mouth

Adolescents' risk of traumatic injury to the mouth may be increased by

- High-risk behaviors that may involve trauma to the head and neck
- Driving crashes
- Injuries that occur because of participating in organized and leisure-time sports
- Family or peer violence

Health care professionals should make sure that parents and adolescents know what to do and who to call if an injury occurs and a tooth is fractured or avulsed.

Orthodontics

Genetically related abnormal development, premature primary tooth loss or extraction, or thumb- or finger sucking all can result in significant crowding and malalignment of the teeth, which can adversely affect oral health, function, and aesthetics. Preventing premature tooth loss early in life has a significant effect on minimizing space loss and the resultant crowding in adolescence.



References

- Dye BA, Li X, Beltrán-Aguilar ED. Selected oral health indicators in the United States, 2005-2008. *NCHS Data Brief*. 2012;(96):1-8. <http://www.cdc.gov/nchs/data/databriefs/db96.pdf>. Accessed September 14, 2016
- Jackson SL, Vann WF Jr, Kotch JB, Pahel BT, Lee JY. Impact of poor oral health on children's school attendance and performance. *Am J Public Health*. 2011;101(10):1900-1906
- Dye BA, Thornton-Evans G, Li X, Iafolla TJ. Dental caries and sealant prevalence in children and adolescents in the United States, 2011-2012. *NCHS Data Brief*. 2015;(191):1-8. <http://www.cdc.gov/nchs/data/databriefs/db191.pdf>. Accessed September 17, 2016
- Fisher-Owens SA, Gansky SA, Platt LJ, et al. Influences on children's oral health: a conceptual model. *Pediatrics*. 2007;120(3):e510-e520
- Keels MA; American Academy of Pediatrics Section on Oral Health. Management of dental trauma in a primary care setting. *Pediatrics*. 2014;133(2):e466-e476
- Casamassimo PS, Holt KA, eds. *Bright Futures: Oral Health—Pocket Guide*. 3rd ed. Washington, DC: National Maternal and Child Oral Health Resource Center; 2016
- National Maternal and Child Oral Health Resource Center Web site. <http://www.mchoralhealth.org>. Accessed September 17, 2016
- American Academy of Pediatrics Children's Oral Health Web site. <http://www.2.aap.org/compeds/doch/oralhealth/index.html>. Accessed September 17, 2016
- American Academy of Pediatric Dentistry Council on Clinical Affairs. Policy on the dental home. *Pediatr Dent*. 2015;37(6) (Reference Manual):24-25
- US Department of Health and Human Services Federal Panel on Community Water Fluoridation. U.S. Public Health Service recommendation for fluoride concentration in drinking water for the prevention of dental caries. *Public Health Rep*. 2015;130(4):318-331
- American Dental Association Council on Scientific Affairs. Fluoride toothpaste use for young children. *J Am Dent Assoc*. 2014;145(2):190-191
- Clark MB, Slayton RL; American Academy of Pediatrics Section on Oral Health. Fluoride use in caries prevention in the primary care setting. *Pediatrics*. 2014;134(3):626-633
- Chou R, Cantor A, Zakher B, Mitchell JP, Pappas M. Preventing dental caries in children <5 years: systematic review updating USPSTF Recommendation. *Pediatrics*. 2013;132(2):332-350
- Moyer VA; US Preventive Services Task Force. Prevention of dental caries in children from birth through age 5 years: US Preventive Services Task Force recommendation statement. *Pediatrics*. 2014;133(6):1102-1111
- Levy SM, Broffitt B, Marshall TA, Eichenberger-Gilmore JM, Warren JJ. Associations between fluorosis of permanent incisors and fluoride intake from infant formula, other dietary sources and dentifrice during early childhood. *J Am Dent Assoc*. 2010;141(10):1190-1201
- American Academy of Pediatrics Committee on Nutrition. Kleinman RE, Greer FR, eds. *Pediatric Nutrition: Policy of the American Academy of Pediatrics*. 7th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2014
- Wright JT, Hanson N, Ristic H, Whall CW, Estrich CG, Zentz RR. Fluoride toothpaste efficacy and safety in children younger than 6 years: a systematic review. *J Am Dent Assoc*. 2014;145(2):182-189
- American Academy of Pediatric Dentistry Council on Clinical Affairs. Guideline on management of dental patients with special health care needs. *Pediatr Dent*. 2015;37(6) (Reference Manual):166-171
- Norwood KW Jr, Slayton RL; American Academy of Pediatrics Council on Children With Disabilities, Section on Oral Health. Oral health care for children with developmental disabilities. *Pediatrics*. 2013;131(3):614-619
- Peres KG, Cascaes AM, Peres MA, et al. Exclusive breastfeeding and risk of dental malocclusion. *Pediatrics*. 2015;136(1):e60-e67
- Weintraub JA, Prakash P, Shain SG, Laccabue M, Gansky SA. Mothers' caries increases odds of children's caries. *J Dent Res*. 2010;89(9):954-958
- Laitala ML, Alanen P, Isokangas P, Söderling E, Pienihäkkinen K. Long-term effects of maternal prevention on children's dental decay and need for restorative treatment. *Community Dent Oral Epidemiol*. 2013;41(6):534-540
- Riley P, Moore D, Sharif MO, Ahmed F, Worthington HV. Xylitol-containing products for preventing dental caries in children and adults. *Cochrane Database Syst Rev*. 2015;(3):CD010743
- Hale KJ; American Academy of Pediatrics Section on Pediatric Dentistry. Oral health risk assessment timing and establishment of the dental home. *Pediatrics*. 2003;111(5 pt 1):1113-1116
- Oral Health Risk Assessment Tool. American Academy of Pediatrics Children's Oral Health Web site. <http://www.2.aap.org/oralhealth/docs/RiskAssessmentTool.pdf>. Accessed September 17, 2016
- Stearns SC, Rozier R, Kranz AM, Pahel BT, Quiñonez RB. Cost-effectiveness of preventive oral health care in medical offices for young Medicaid enrollees. *Arch Pediatr Adolesc Med*. 2012;166(10):945-951
- Pahel BT, Rozier RG, Stearns SC, Quiñonez RB. Effectiveness of preventive dental treatments by physicians for young Medicaid enrollees. *Pediatrics*. 2011;127(3):e682-e689



28. Rozier RG, Stearns SC, Pahel BT, Quinonez RB, Park J. How a North Carolina program boosted preventive oral health services for low-income children. *Health Aff (Millwood)*. 2010;29(12):2278-2285
29. Rozier RG, Slade GD, Zeldin LP, Wang H. Parents' satisfaction with preventive dental care for young children provided by nondental primary care providers. *Pediatr Dent*. 2005;27(4):313-322
30. American Academy of Pediatric Dentistry Clinical Affairs Committee. Guideline on periodicity of examination, preventative dental services, anticipatory guidance/counseling, and oral treatment for infants, children, and adolescents. *Pediatr Dent*. 2015;37(6)(Reference Manual):123-130
31. Galbraith-Emami S, Lobstein T. The impact of initiatives to limit the advertising of food and beverage products to children: a systematic review. *Obes Rev*. 2013;14(12):960-974
32. Dye BA, Li X, Thornton-Evans G. Oral health disparities as determined by selected Healthy People 2020 Oral Health Objectives for the United States, 2009-2010. *NCHS Data Brief*. 2012;(104):1-8. <http://www.cdc.gov/nchs/data/databriefs/db104.pdf>. Accessed September 17, 2016
33. Dye BA, Tan S, Smith V, et al. Trends in oral health status: United States, 1988-1994 and 1999-2004. *Vital Health Stat 11*. 2007;(248):1-92. http://www.cdc.gov/nchs/data/series/sr_11/sr11_248.pdf. Accessed September 17, 2016
34. Moynihan PJ, Kelly SA. Effect on caries of restricting sugars intake: systematic review to inform WHO guidelines. *J Dent Res*. 2014;93(1):8-18
35. American Academy of Pediatric Dentistry Clinical Affairs Committee. Policy on dietary recommendations for infants, children, and adolescents. *Pediatr Dent*. 2015;37(6)(Reference Manual):56-58
36. American Dental Association Division of Communications, Division of Scientific Affairs. For the dental patient ... methamphetamine use and oral health. *J Am Dent Assoc*. 2005;136(10):1491
37. American Academy on Pediatric Dentistry Liaison with Other Groups Committee. Guideline on fluoride therapy. *Pediatr Dent*. 2015;37(6)(Reference Manual):176-179
38. Petti S. Lifestyle risk factors for oral cancer. *Oral Oncol*. 2009;45(4-5):340-350
39. American Academy of Pediatric Dentistry, American Academy of Periodontology Research Science and Therapy Committee. Periodontal diseases of children and adolescents. *Pediatr Dent*. 2015;37(6)(Reference Manual):352-360