Guideline on Periodicity of Examination, Preventive Dental Services, Anticipatory Guidance/Counseling, and Oral Treatment for Infants, Children, and Adolescents

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Purpose
The American Academy of Pediatric Dentistry (**AAPD**) intends this guideline to help practitioners make clinical decisions concerning preventive oral health interventions, including anticipatory guidance and preventive counseling, for infants, children, and adolescents.

Methods
This guideline is an update of a document previously revised in 2009. The update used electronic database and hand searches of articles in the medical and dental literature using the following parameters: Terms: "periodicity of dental examinations", "dental recall intervals", "preventive dental services", "anticipatory guidance and dentistry", "caries risk assessment", "early childhood caries", "dental caries prediction", "dental care cost effectiveness children", "periodontal disease and children and adolescents US", "pit and fissure sealants", "dental sealants", "fluoride supplementation and topical fluoride", "dental trauma", "dental fracture and tooth", "nonnutritive oral habits", "treatment of developing malocclusion", "removal of wisdom teeth", "removal of third molars"; Fields: all; Limits: within the last 10 years, humans, English, and clinical trials; birth through age 18. From this search, 3,418 articles matched these criteria and were evaluated by title and/or abstract. Information from 113 articles was chosen for review to update this document. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background
Professional dental care is necessary to maintain oral health.[1,2] The AAPD emphasizes the importance of initiating professional oral health intervention in infancy and continuing through adolescence and beyond.[1-3] The periodicity of professional oral health intervention and services is based on a patient's individual needs and risk indicators.[4-7] Each age group, as well as each individual child, has distinct developmental needs to be addressed at specific intervals as part of a comprehensive evaluation.[8-11] Continuity of care is based on the assessed needs of the individual patient and assures appropriate management of all oral conditions, dental disease, and injuries.[12-18] The early dental visit to establish a dental home provides a foundation upon which a lifetime of preventive education and oral health care can be built.[19-21] Anticipatory guidance and counseling are essential components of the dental visit.[8-10,19-26]

Recommendations
This guideline addresses periodicity and general principles of examination, preventive dental services, anticipatory guidance/counseling, and oral treatment for children who have no contributory medical conditions and are developing normally. An accurate, comprehensive, and up-to-date medical history is necessary for correct diagnosis and effective treatment planning. Recommendations may be modified to meet the unique requirements of patients with special health care needs.

Clinical oral examination
The first examination is recommended at the time of the eruption of the first tooth and no later than 12 months of age.[19-21] The developing dentition and occlusion should be monitored throughout eruption at regular clinical examinations.[26] Early detection and management of oral conditions can improve a child's oral health, general health and well-being, and school readiness.[22,28-31] Delayed diagnosis of dental disease can result in exacerbated problems which lead to more extensive and costly care.[7,28,32-35] Early diagnosis of developing malocclusions may allow for timely therapeutic intervention.[9,26]

Components of a comprehensive oral examination include assessment of:

- General health/growth
- Pain
- Extraoral soft tissue
- Temporomandibular joint
- Intraoral soft tissue
- Oral hygiene and periodontal health
- Intraoral hard tissue
- Developing occlusion
- Caries risk
- Behavior of child

Based upon the visual examination, the dentist may employ additional diagnostic aids (eg, radiographs, photographs, pulp vitality testing, laboratory tests, study casts).[7,36]

The most common interval of examination is six months; however, some patients may require examination and preventive services at more or less frequent intervals, based upon historical, clinical, and radiographic findings.[5,7,16-18,37-42] Caries and its sequelae are among the most prevalent health problems facing infants, children, and adolescents in America.[1,43] Carious lesions are cumulative and progressive and, in the primary dentition, are highly predictive of caries occurring in the permanent dentition.[44-46] Reevaluation and reinforcement of preventive activities contribute to improved instruction for the caregiver of the child or adolescent, continuity of evaluation of the patient's health status, and repetitive exposure to dental procedures, potentially allaying anxiety and fear for the apprehensive child or adolescent.[47]

Caries-risk assessment

Risk assessment is a key element of contemporary preventive care for infants, children, adolescents, and persons with special health care needs. Its goal is to prevent disease by identifying and minimizing causative factors (eg, microbial burden, dietary habits, plaque accumulation) and optimizing protective factors (eg, fluoride exposure, oral hygiene, sealants).[48] Caries risk assessment forms and management protocols simplify and clarify the process.[24,49,50]

Sufficient evidence demonstrates certain groups of children at greater risk for development of early childhood caries (**ECC**) would benefit from infant oral health care.[22,28,51-53] Infants and young children have unique caries-risk factors such as ongoing establishment of oral flora and host defense systems, susceptibility of newly erupted teeth, and development of dietary habits. Children are most likely to develop caries if mutans streptococci are acquired at an early age.[51,54] The characteristics of ECC and the availability of preventive approaches support age-based strategies in addressing this significant pediatric health problem.[54] ECC can be a costly, devastating disease with lasting detrimental effects on the dentition and systemic health.[22,28-35]

Adolescence can be a time of heightened caries activity due to an increased intake of cariogenic substances and inattention to oral hygiene procedures.[9,55,56] Risk assessment can assure preventive care is tailored to each individual's needs and direct resources to those for whom preventive interventions provide the greatest benefit. Because a child's risk for developing dental disease can change over time due to changes in habits (eg, diet, home care), oral microflora, or physical condition, risk assessment must be documented and repeated regularly and frequently to maximize effectiveness.[11,23]

Prophylaxis and topical fluoride treatment

The interval for frequency of professional preventive services is based upon assessed risk for caries and periodontal disease.[4,5,7,11,23,37,49-51] Gingivitis is nearly universal in children and adolescents[41]; it usually responds to thorough removal of bacterial deposits and improved oral hygiene.[41,57,58] Hormonal fluctuations, including those occurring during the onset of puberty, can modify the gingival inflammatory response to dental plaque.[41,42] Children can develop any of the several forms of periodontitis, with aggressive periodontitis occurring more commonly in children and adolescents than adults.[41.42,58]

Caries risk may change quickly during active dental eruption phases. Newly erupted teeth may be at higher risk of developing caries, especially during the post-eruption maturation process. Children who exhibit higher risk of developing caries would benefit from recall appointments at greater frequency than every six months.[4,5,7,11,23,50] This allows increased professional fluoride therapy application, microbial monitoring, antimicrobial therapy reapplication, and reevaluating behavioral changes for effectiveness.[50,59,60] An individualized preventive plan increases the probability of good oral health by demonstrating proper oral hygiene methods/techniques and removing plaque, stain, and calculus.[4,42,61]

Professional topical fluoride treatments should be based on caries risk assessment.[23,24,62-64] Plaque and pellicle are not a barrier to fluoride uptake in enamel.[65-67] Consequently, there is no evidence of a difference in caries rates or fluoride uptake in patients who receive rubber cup prophylaxis or a toothbrush prophylaxis before fluoride treatment.[65,66] Precautionary measures should be taken to prevent swallowing of any professionally-applied topical fluoride. Children at moderate caries risk should receive a professional fluoride treatment at least every six months; those with high caries risk should receive greater frequency of professional fluoride applications (eg, every three to six months).[63,67-72] Ideally, this would occur as part of a comprehensive preventive program in a dental home.[19]

Fluoride supplementation

Fluoride contributes to the prevention, inhibition, and reversal of caries.[64,72-74] The AAPD encourages optimal fluoride exposure for every child, recognizing fluoride in the community water supplies as the most beneficial and cost-effective preventive intervention. Fluoride supplementation should be considered for children at moderate to high caries risk when fluoride exposure is not optimal.[72] Supplementation should be in accordance with the guidelines recommended by the AAPD[72] and the American Dental Association (**ADA**)[75].

Anticipatory guidance/counseling

Anticipatory guidance is the process of providing practical, developmentally-appropriate information about children's health to prepare parents for the significant physical, emotional, and psychological milestones.[8,9,19,20,76] Individualized discussion and counseling should be an integral part of each visit. Topics to be included are oral hygiene and dietary habits, injury prevention, nonnutritive habits, substance abuse, intraoral/perioral piercing, and speech/language development.[8,9,15,19,20,26,76-80]

Oral hygiene counseling involves the parent and patient. Initially, oral hygiene is the responsibility of the parent. As the child develops, home care is performed jointly by parent and child. When a child demonstrates the understanding and ability to perform personal hygiene techniques, the health care professional should counsel the child. The effectiveness of home care should be monitored at every visit and includes a discussion on the consistency of daily preventive activities.[4,5,9,23]

Caries-conducive dietary practices appear to be established early, probably by 12 months of age, and are maintained throughout early childhood.[81-83] Dietary practices, including prolonged and/or frequent bottle or training cup with sugar-containing drinks and frequent between-meal consumption of sugar-containing snacks or drinks (eg, juice, formula, soda), increase the risk of caries.[83,84] The role of carbohydrates in caries initiation is unequivocal. Acids in carbonated beverages and sports drinks can have a deleterious effect (ie, erosion) on enamel.[85-87] Excess consumption of carbohydrates, fats, and sodium contribute to poor systemic health.[88-90] Dietary analysis and the role of dietary choices on oral health, malnutrition, and obesity should be addressed through nutritional and preventive oral health counseling at periodic visits.[25] The US Department of Agriculture's Food Plate[91] and Center for Disease Control and Prevention/National Center for Health Statistics' Growth Charts[92] provide guidance for parents and their children and promote better understanding of the relationship between healthy diet and development.

Facial trauma that results in fractured, displaced, or lost teeth can have significant negative functional, esthetic, and psychological effects on children.[93] Practitioners should provide age-appropriate injury prevention counseling for orofacial trauma.[15,76] Initially, discussions would include advice regarding play objects, pacifiers, car seats, and electrical cords. As motor coordination develops, the parent/patient should be counseled on additional safety and preventive measures, including use of athletic mouthguards for sporting activities. The greatest incidence of trauma to the primary dentition occurs at two to three years of age, a time of increased mobility and developing coordination.[94] The most common injuries to permanent teeth occur secondary to falls, followed by traffic accidents, violence, and sports.[95-98] Dental injuries could have improved outcomes if the public were aware of first-aid measures and the need to seek immediate treatment.

Nonnutritive oral habits (eg, digital and pacifier habits, bruxism, abnormal tongue thrusts) may apply forces to teeth and dentoalveolar structures.[26] Although early use of pacifiers and digit sucking are considered normal, habits of sufficient frequency, intensity, and duration can contribute to deleterious changes in occlusion and facial development.[26] It is important to discuss the need for early pacifier and digit sucking, then the need to wean from the habits before malocclusion or skeletal dysplasias occur.[26] Early dental visits provide an opportunity to encourage parents to help their children stop sucking habits by age three years or younger. For school-aged children and adolescent patients, counseling regarding any existing habits (eg, fingernail biting, clenching, bruxism) is appropriate.[26]

Speech and language are integral components of a child's early development.[80] Deficiencies and abnormal delays in speech and language production can be recognized early and referral made to address these concerns. Communication and coordination of appliance therapy with a speech and language professional can assist in the timely treatment of speech disorders.[80]

Smoking and smokeless tobacco use almost always are initiated and established in adolescence.[99-101] During this time period, children may be exposed to opportunities to experiment with other substances that negatively impact their health and well-being. Practitioners should provide education regarding the serious health consequences of tobacco use and exposure to second hand smoke.[78,100] The practitioner may need to obtain information regarding tobacco use and alcohol/drug abuse confidentially from an adolescent patient.[9] When substance abuse has been identified, referral for appropriate intervention is indicated.[78]

Complications from intraoral/perioral piercings can range from pain, infection, and tooth fracture to life-threatening conditions of bleeding, edema, and airway obstruction.[79] Although piercings most commonly are observed in the teenaged pediatric dental patient, education regarding pathologic conditions and sequelae associated with these piercings should be initiated for the preteen child/parent and reinforced during subsequent periodic visits.[79]

Radiographic assessment

Appropriate radiographs are a valuable adjunct in the oral health care of infants, children, and adolescents.[38,39] Timing of initial radiographic examination should not be based on the patient's age.[39] Rather, after review of an individual's history and clinical findings, judicious determination of radiographic needs and examination can optimize patient care while minimizing radiation exposure. [38,39] The US Food and Drug Administration/ADA guidelines were developed to assist the dentist in deciding under what circumstances specific radiographs are indicated.[39]

Treatment of dental disease/injury

Healthcare providers who diagnose oral disease or trauma should either provide therapy or refer the patient to an appropriately-trained individual for treatment.[103] Immediate intervention is necessary to prevent further dental destruction, as well as more widespread health problems. Postponed

treatment can result in exacerbated problems that may lead to the need for more extensive care.[21,2930,,34] Early intervention could result in savings of healthcare dollars for individuals, community health care programs, and third party payors.[21,29,30,34]

Treatment of developing malocclusion

Guidance of eruption and development of the primary, mixed, and permanent dentitions is an integral component of comprehensive oral health care for all pediatric dental patients.[26] Early diagnosis and successful treatment of developing malocclusions can have both short-term and long-term benefits, while achieving the goals of occlusal harmony and function and dentofacial esthetics.[104-108] Early treatment is beneficial for many patients, but is not indicated for every patient. When there is a reasonable indication that an oral habit will result in unfavorable sequelae in the developing permanent dentition, any treatment must be appropriate for the child's development, comprehension, and ability to cooperate. Use of an appliance is indicated only when the child wants to stop the habit and would benefit from a reminder.[26] At each stage of occlusal development, the objectives of intervention/treatment include: (1) reversing adverse growth, (2) preventing dental and skeletal disharmonies, (3) improving esthetics of the smile, (4) improving self-image, and (5) improving the occlusion.[26]

Sealants

Sealants reduce the risk of pit and fissure caries in susceptible teeth and are cost-effective when maintained.[109-113] They are indicated for primary and permanent teeth with pits and fissures that are predisposed to plaque retention.[112] At-risk pits and fissures should be sealed as soon as possible. Because caries risk may increase at any time during a patient's life due to changes in habits (eg, dietary, home care), oral microflora, or physical condition, unsealed teeth subsequently might benefit from sealant application.[109,114] The need for sealant placement should be reassessed at periodic preventive care appointments. Sealants should be monitored and repaired or replaced as needed.[111,112,114]

Third molars

Panoramic or periapical radiographic assessment is indicated during late adolescence to assess the presence, position, and development of third molars.[38,39] A decision to remove or retain third molars should be made before the middle of the third decade.[115] Impacted third molars are potentially pathologic. Pathologic conditions generally are more common with an increase in age. Evaluation and treatment may require removal, exposure, and/or repositioning. In selected cases, long-term monitoring may be needed. Treatment should be provided before pathologic conditions adversely affect the patient's oral and/or systemic health.[108,115,116] Consideration should be given to removal when there is a high probability of disease or pathology and/or the risks associated with early removal are less than the risks of later removal.[14,108,116] Postoperative complications for removal of impacted third molars are low when performed at an early age. A Cochrane review in 2012 reported there was no difference in late lower incisor crowding with removal or retention of asymptomatic impacted third molars.[117]

Referral for regular and periodic dental care

As adolescent patients approach the age of majority, it is important to educate the patient and parent on the value of transitioning to a dentist who is knowledgeable in adult oral health care. At the time agreed upon by the patient, parent, and pediatric dentist, the patient should be referred to a specific practitioner in an environment sensitive to the adolescent's individual needs.[9,27] Until the new dental home is established, the patient should maintain a relationship with the current care provider and have access to emergency services. Proper communication and records transfer allow for consistent and continuous care for the patient.[36]

Recommendations by age

6 to 12 months

1. Complete the clinical oral examination with adjunctive diagnostic tools (eg, radiographs as determined by child's history, clinical findings, and susceptibility to oral disease) to assess oral growth and development, pathology, and/or injuries; provide diagnosis.
2. Provide oral hygiene counseling for parents, including the implications of the oral health of the caregiver.
3. Remove supragingival and subgingival stains or deposits as indicated.
4. Assess the child's systemic and topical fluoride status (including type of infant formula used, if any, and exposure to fluoridated toothpaste) and provide counseling regarding fluoride. Prescribe systemic fluoride supplements, if indicated, following assessment of total fluoride intake from drinking water, diet, and oral hygiene products.
5. Assess appropriateness of feeding practices, including bottle and breast-feeding, and provide counseling as indicated.
6. Provide dietary counseling related to oral health.
7. Provide age-appropriate injury prevention counseling for orofacial trauma.
8. Provide counseling for nonnutritive oral habits (eg, digit, pacifiers).
9. Provide required treatment and/or appropriate referral for any oral diseases or injuries.
10. Provide anticipatory guidance.
11. Consult with the child's physician as needed.
12. Complete a caries risk assessment.
13. Determine the interval for periodic reevaluation.

12 to 24 months

1. Repeat the procedures for ages 6 to 12 months every six months or as indicated by individual patient's risk status/susceptibility to disease.
2. Assess appropriateness of feeding practices (including bottle, breast-feeding, and no-spill training cups) and provide counseling as indicated.

3. Review patient's fluoride status (including any childcare arrangements which may impact systemic fluoride intake) and provide parental counseling.
4. Provide topical fluoride treatments every six months or as indicated by the individual patient's needs.

2 to 6 years

1. Repeat the procedures for 12 to 24 months every six months or as indicated by individual patient's risk status/ susceptibility to disease. Provide age-appropriate oral hygiene instructions.
2. Scale and clean the teeth every six months or as indicated by individual patient's needs.
3. Provide pit and fissure sealants for caries-susceptible primary molars and permanent molars, premolars, and anterior teeth.
4. Provide counseling and services (eg, mouthguards) as needed for orofacial trauma prevention.
5. Provide assessment/treatment or referral of developing malocclusion as indicated by individual patient's needs.
6. Provide required treatment and/or appropriate referral for any oral diseases, habits, or injuries as indicated.
7. Assess speech and language development and provide appropriate referral as indicated.

6 to 12 years

1. Repeat the procedures for ages two to six years every six months or as indicated by individual patient's risk status/susceptibility to disease.
2. Provide substance abuse counseling (eg, smoking, smokeless tobacco).
3. Provide counseling on intraoral/perioral piercing.

12 years and older

1. Repeat the procedures for ages six to 12 years every six months or as indicated by individual patient's risk status/ susceptibility to disease.
2. During late adolescence, assess the presence, position, and development of third molars, giving consideration to removal when there is a high probability of disease or pathology and/or the risks associated with early removal are less than the risks of later removal.
3. At an age determined by patient, parent, and pediatric dentist, refer the patient to a general dentist for continuing oral care.

References

1. US Dept of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, Md: US Dept of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.
2. US Dept of Health and Human Services. Office of the Surgeon General. A national call to action to promote oral health. Rockville, MD: US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Dental and Craniofacial Research; 2003.
3. Lewis DW, Ismail AI. Periodic health examination, 1995 Update: 2. Prevention of dental caries. The Canadian Task Force on the Periodic Health Examination. Can Med Assoc J 1995;152(6):836-46.
4. Pienihakkinen K, Jokela J, Alanen P. Risk-based early prevention in comparison with routine prevention of dental caries: A 7-year follow-up of a controlled clinical trial; clinical and economic results. BMC Oral Health 2005;5(2):1-5.
5. Beil HA, Rozier RG. Primary health care providers' advice for a dental checkup and dental use in children. Pediatr 2010;126(2):435-41.
6. Patel S, Bay C, Glick M. A systematic review of dental recall intervals and incidence of dental caries. J Am Dent Assoc 2010;141(5):527-39.
7. Pahel BT, Rozier RG, Stearns SC, Quiñonez RB. Effectiveness of preventive dental treatments by physicians for young Medicaid enrollees. Pediatr 2011;127(3):682-9.
8. American Academy of Pediatric Dentistry. Guideline on infant oral health care. Pediatr Dent 2012;34(special issue):132-6.
9. American Academy of Pediatric Dentistry. Guideline on adolescent oral health care. Pediatr Dent 2012;34(special issue):137-44.
10. American Academy of Pediatric Dentistry. Policy on the role of dental prophylaxis in pediatric dentistry. Pediatr Dent 2012;34(special issue):141-2.
11. Ramos-Gomez FJ, Crystal YO, Ng MW, Crall JJ, Featherstone JBD. Pediatric dental care: Prevention and management protocols based on caries risk assessment. CDAJ 2010;38(10):746-61.
12. American Academy of Pediatric Dentistry. Guideline on pediatric restorative dentistry. Pediatr Dent 2012;34 (special issue):214-21.
13. American Academy of Pediatric Dentistry. Guideline on acquired temporomandibular disorders in infants, children, and adolescents. Pediatr Dent 2012;34(special issue): 258-63.
14. American Academy of Pediatric Dentistry. Guideline on pediatric oral surgery. Pediatr Dent 2012;34(special issue):264-71.
15. American Academy of Pediatric Dentistry. Policy on prevention of sports-related orofacial injuries. Pediatr Dent 2013;35(special issue):67-71.
16. Diangelis AJ, Andreasen JO, Ebeleseder KA, et al. International Association of Dental Traumatology Guidelines for the Management of Traumatic Dental Injuries: 1. Fractures and luxations of permanent teeth. Dent Traumatol 2012;28(1):2-12.
17. Andersson L, Andreasen JO, Day P, et al. International Association of Dental Traumatology Guidelines for the Management of Traumatic Dental Injuries: 2. Avulsion of permanent teeth. Dent Traumatol 2012;28(2):88-96.

18. Malmgren B, Andreasen JO, Flores MT, et al. International Association of Dental Traumatology Guidelines for the Management of Traumatic Injuries: 3. Injuries in the primary dentition. Dent Traumatol 2012;28(3):174-82.
19. American Academy of Pediatric Dentistry. Policy on the dental home. Pediatr Dent 2012;34(special issue):24-5.
20. American Academy of Pediatrics. Oral health risk assessment timing and establishment of the dental home. Pediatr 2003:11(5):1113-6. Reaffirmed 2009;124(2): 845.
21. Berg JH, Stapleton FB. Physician and dentist: New initiatives to jointly mitigate early childhood oral disease. Clin Pediatr 2012:51(6):531-7.
22. American Academy of Pediatric Dentistry. Policy on early childhood caries: Classifications, consequences, and preventive strategies. Pediatr Dent 2012;34(special issue): 50-2.
23. American Academy of Pediatric Dentistry. Guideline on caries risk assessment and management for infants, children, and adolescents. Pediatr Dent 2013;35(special issue):123-30.
24. CDC. Recommendations for using fluoride to prevent and control dental caries in the United States. MMWR Recomm Rep 2001;50(RR14):1-42.
25. American Academy of Pediatric Dentistry. Policy on dietary recommendations for infants, children, and adolescents. Pediatr Dent 2012;34(special issue):56-8.
26. American Academy of Pediatric Dentistry. Guideline on management of the developing dentition and occlusion in pediatric dentistry. Pediatr Dent 2012;34(special issue):239-51.
27. American Academy of Pediatric Dentistry. Guideline on management of persons with special health care needs. Pediatr Dent 2012;34(special issue):152-7.
28. American Academy of Pediatric Dentistry. Policy on early childhood caries: Unique challenges and treatment options. Pediatr Dent 2012;34(special issue):53-5.
29. Clarke M, Locker D, Berall G, Pencharz P, Kenny DJ, Judd P. Malnourishment in a population of young children with severe early childhood caries. Pediatr Dent 2006;28(3):254-9.
30. Dye BA, Shenkin JD, Ogden CL, Marshall TA, Levy SM, Kanellis MJ. The relationship between healthful eating practices and dental caries in children ages 2-5 years in the United States, 1988-1994. J Am Dent Assoc 2004; 135(1):55-6.
31. Jackson SL, Vann WF, Kotch J, Pahel BT, Lee JY. Impact of poor oral health on children's school attendance and performance. Amer J Publ Health 2011;10(10):1900-6.
32. Davis EE, Deinard AS, Maiga EW. Doctor, my tooth hurts: The costs of incomplete dental care in the emergency room. J Pub Health Dent 2010;70(3):205-10.
33. Kobayashi M, Chi D, Coldwell SE, Domoto P, Milgrom P. The effectiveness and estimated costs of the access to baby and child dentistry programs in Washington State. J Am Dent Assoc 2005;136(9):1257-63.
34. Lee JY, Bouwens TJ, Savage MF, Vann WF Jr. Examining the cost-effectiveness of early dental visits. Pediatr Dent 2006;28(2):102-5, discussion 192-8.
35. American Academy of Pediatrics. Early childhood caries in indigenous communities. Pediatr 2011;127(6):1190-8.
36. American Academy of Pediatric Dentistry. Guideline on record-keeping. Pediatr Dent 2012;34(special issue):287-94.
37. Patel S, Bay RC, Glick M. A systematic review of dental recall intervals and incidence of dental caries. J Am Dent Assoc 2010;141(5):527-39.
38. American Academy of Pediatric Dentistry. Guideline on prescribing dental radiographs. Pediatr Dent 2012;34 (special issue):299-301.
39. American Dental Association Council on Scientific Affairs. The use of dental radiographs; Update and recommendations. J Am Dent Assoc 2006;137(9):1304-12.
40. Greenwell H, Committee on Research, Science and Therapy American Academy of Periodontology. Guidelines forperiodontal therapy. J Periodontol 2001;72(11):1624-8.
41. Califano JV, Research Science and Therapy Committee American Academy of Periodontology. Periodontal diseases of children and adolescents. J Periodontol 2003;74 (11):1696-704.
42. Clerehugh V. Periodontal diseases in children and adolescents. British Dental J 2008;204(8):469-71.
43. Dye BA, Tan S, Smith V, et al. Trends in oral health status. United States, 1988-1984 and 1999-2004. Vital Health Stat ll 2007;248:1-92.
44. Li Y, Wang W. Predicting caries in permanent teeth from caries in primary teeth: An eight-year cohort study. J Dent Res 2002;81(8):561-6.
45. Powell LV. Caries prediction: A review of the literature. Community Dent Oral Epidemiol 1998;26(6):361-76.
46. Tagliaferro EP, Pereina AC, Meneghin MDC, Ambrosono GBM. Assessment of dental caries prediction in a seven-year longitudinal study. J Pub Health Dent 2006;66(3): 169-73.
47. American Academy of Pediatric Dentistry. Guideline on behavior guidance for the pediatric dental patient. Pediatr Dent 2012;34(special issue):170-82.
48. Fontana M, Zero DT. Assessing patients' caries risk. J Am Dent Assoc 2006;137(9):1231-9.
49. Domejean S, White JM, Featherstone JD. Validation of the CDA CAMBRA caries risk assessment: A six year retrospective study. J Calif Dent Assoc 2011;39(10):709-15.
50. Ramos-Gomez F, Ng MW. Into the future: Keeping healthy teeth caries free: Pediatric CAMBRA protocols. J Calif Dent Assoc 2011;39(10):723-33.
51. Harris R, Nicoll AD, Adair PM, Pine CM. Risk factors for dental caries in young children: A systematic review of the literature. Community Dent Health 2004;21 (suppl):71-85.
52. Southward LH, Robertson A, Edelstein BL. Oral health of young children in Mississippi Delta child care centers. A second look at early childhood caries risk assessment. J Public Health Dent 2008;68(4):188-95.

53. Nunn ME, Dietrich T, Singh HK, Henshaw MM, Kressin NR. Prevalence of early childhood caries among very young urban Boston children compared with US children. J Public Health Dent 2009;69(3):156-62.
54. Berkowitz RJ. Mutans streptococci: Acquisition and transmission. Pediatr Dent 2006;28(2):106-9.
55. American Psychological Association. Developing adolescents: A reference for professionals. Washington, DC. American Psychological Association; 2002.
56. Macgregor ID, Regis D, Balding J. Self-concept and dental health behaviors in adolescents. J Clin Periodontol 1997;24(5):335-9.
57. Research Science and Therapy Committee American Academy of Periodontology. Treatment of plaque-induced gingivitis, chronic periodontitis, and other clinical conditions. J Periodontol 2001;72:1790-800. Erratum J Periodontol 2003;74(10):1568.
58. American Academy of Periodontology. Comprehensive periodontal therapy: A statement by the American Academy of Periodontology. J Periodontol 2011;82(7): 943-49.
59. Featherstone JDB. Caries prevention and reversal based on the caries balance. Pediatr Dent 2006;28(2):128-32.
60. Anderson MH, Shi W. A probiotic approach to caries management. Pediatr Dent 2006;28(2):151-3.
61. Clerehugh V, Tugnait A. Periodontal diseases in children and adolescents: 2. Management. Dent Update 2001;28 (6):274-81.
62. Facts about Fluoride. CDS Rev 2006;99(1):44.
63. American Dental Association Council on Scientific Affairs. Professionally-applied topical fluoride: Evidence-based clinical recommendations. J Am Dent Assoc 2006; 137(8):1151-9.
64. Adair SM. Evidence-based use of fluoride in contemporary pediatric dental practice. Pediatr Dent 2006;28 (2):133-42.
65. Johnston DW, Lewis DW. Three-year randomized trial of professionally applied topical fluoride gel comparing annual and biannual applications with/without prior prophylaxis. Caries Res 1995;29(5):331-6.
66. Ripa LW. Need for prior tooth cleaning when performing a professional topical fluoride application. A review and recommendation for change. J Am Dent Assoc 1984; 109(2):281-5.
67. Bader JD, Shugars DA, Bonito AJ. A systematic review of selected caries prevention and management methods. Community Dent Oral Epidemiol 2001;29(6):399-411.
68. Axelsson S, Söder B, Norderam G, et al. Effect of combined caries-preventive methods: A systematic review of controlled clinical trials. Acta Odontol Scand 2004;62 (3):163-9.
69. Källestål C. The effect of five years' implementation of caries-preventive methods in Swedish high-risk adolescents. Caries Res 2005;39(1):20-6.
70. Featherstone JD, Adair SM, Anderson MH, et al. Caries management by risk assessment: Consensus statement, April 2002. J Calif Dent Assoc 2003;331(3):257-69.
71. Featherstone JD. The caries balance: The basis for caries management by risk assessment. Oral Health Prev Dent 2004;2(suppl 1):259-64.
72. American Academy of Pediatric Dentistry. Guideline on fluoride therapy. Pediatr Dent 2013;35(special issue): 167-70.
73. CDC. Recommendations for using fluoride to prevent and control dental caries in the United States. MMWR 2001;50(RR14):1-42.
74. Tinanoff N. Use of fluoride in early oral health. In: Berg J, Slayton RA, eds, Early Childhood Oral Health. Wiley-Blackwell, Ames, Ia 2009:92-109.
75. Rozier RG, Adair, S, Graham F, et al. Evidence-based clinical recommendations on the prescription of dietary fluoride supplements for caries prevention. J Am Dent Assoc 2010;141(12):1480-9.
76. Sigurdsson, A. Evidence-based review of prevention of dental injuries. Pediatr Dent 2013;35(2):184-90.
77. Lewis CW, Grossman DC, Domoto PK, Deyo RA. The role of the pediatrician in the oral health of children: A national survey. Pediatrics 2000;106(6):E84.
78. American Academy of Pediatric Dentistry. Policy on tobacco use. Pediatr Dent 2012;34(special issue):61-4.
79. American Academy of Pediatric Dentistry. Policy on intraoral/perioral piercing and oral jewelry/accessories. Pediatr Dent 2012;34(special issue):65-6.
81. Douglass JM. Response to Tinanoff and Palmer: Dietary determinants of dental caries and dietary recommendations for preschool children. J Public Health Dent 2000; 60(3):207-9.
82. Kranz S, Smiciklas-Wright H, Francis LA. Diet quality, added sugar, and dietary fiber intakes in American preschoolers. Pediatr Dent 2006;28(2):164-71.
83. Reisine S, Douglass JM. Pyschosocial and behavorial issues in early childhood caries. Comm Dent Oral Epidem 1998;26(suppl):132-44.
84. Tinanoff NT, Palmer C. Dietary determinants of dental caries in pre-school children and dietary recommendations for pre-school children. J Pub Health Dent 2000; 60(3):197-206.
85. Li H, Zou Y, Ding G. Dietary factors associated with dental erosion: A meta-analysis. PLoS One 2012;7(8):e42626. doi:10.1371/journal.pone.0042626. Epub2012 Aug 31.
86. Jawale BA, Bendgude V, Mahuli AV, Dave B, Kulkarni H, Mittal S. Dental plaque pH variation with regular soft drink, diet soft drink, and high energy drink: An in vivo study. J Contemp Dent Pract 2012;13(2):201-4.
87. Gambon DL, Brand HS, Boutkabout C, Levie D, Veerman EC. Patterns in consumption of potentially erosive beverages among adolescent school children in the Netherlands. Int Dent J 2011;61(5):247-51.

88. Ervin RB, Kit BK, Carroll MD, Ogden CL. Consumption of added sugar amoung US children and adolescents, 2005-2008. NCHS Data Brief 2012;3(87):1-8.
89. Drewnowski A. The cost of US foods as related to their nutritive value. Am J Clin Nutr 2010;92(5):1181-8.
90. Mobley C, Marshall TA, Milgrom P, Coldwell SE. The contribution of dietary factors to dental caries and disparities in caries. Acad Pediatr 2009;9(6):410-4.
91. US Dept of Agriculture. Food Plate. Available at: "http://www.choosemyplate.gov". Accessed March 11, 2013.
92. CDC, National Center for Health Statistics. Growth charts. Available at: "http://www.cdc.gov/growthcharts/". Accessed March 11, 2013.
93. Cortes MI, Marcenes W, Shelham A. Impact of traumatic injuries to the permanent teeth on the oral health-related quality of life in 12- to 14-year old children. Comm Dent Oral Epidemiol 2002;30(3):193-8.
94. Flores MT. Traumatic injuries in the primary dentition. Dental Traumatol 2002;18(6):287-98.
95. Rocha MJdC, Cardoso M. Traumatized permanent teeth in Brazilian children assisted at the Federal University of Santa Catarina, Brazil. Dental Traumatol 2001;17(6):245-9.
96. Caldas FA Jr, Burgos ME. A retrospective study of traumatic dental injuries in a Brazilian dental trauma clinic. Dental Traumatol 2001;17(6):250-3.
97. Skaare AB, Jacobsen I. Dental injuries in Norwegians aged 7-18 years. Dental Traumatol 2003;19(2):67-71.
98. Tapias MA, Jiménez-García R, Lamas F, Gil AA. Prevalence of traumatic crown fractures to permanent incisors in a childhood population: Mostoles, Spain. Dental Traumatol 2003;19(3):119-22.
99. American Lung Association. Stop Smoking. Available at: "http://www.lung.org/stop-smoking/". Accessed March 11, 2013.
100. CDC. Preventing tobacco use among young people: A report of the Surgeon General (executive summary). MM WR Recommend Reports 1994;43(RR-4):[inclusive page numbers].
101. Albert DA, Severson HH, Andrews JA. Tobacco use by adolescents: The role of the oral health professional in evidence-based cessation program. Pediatr Dent 2006; 28(2):177-87.
102. American Academy of Pediatrics. Tobacco use: A pediatric disease. Pediatr 2009;24(5):1474-87.
103. American Academy of Pediatric Dentistry. Policy on ethical responsibility to treat or refer. Pediatr Dent 2013;35 (special issue):106.
104. Kanellis MJ. Orthodontic Treatment in the Primary Dentition. In Bishara SE, ed. Textbook of Orthodontics. Philadelphia, Pa: WB Saunders Co; 2001:248-56.
105. Woodside DG. The significance of late developmental crowding to early treatment planning for incisor crowding. Am J Orthod Dentofacial Orthop 2000;117(5): 559-61.
106. Kurol J. Early treatment of tooth-eruption disturbances. Am J Orthod Dentofacial Orthop 2002;121(6):588-91.
107. Sankey WL, Buschang PH, English J, Owen AH III. Early treatment of vertical skeletal dysplasia: The hyperdivergent phenotype. Am J Orthod Dentofacial Orthop 2000;118(3):317-27.
108. Bell RA, Dean JA, McDonald RE, Avery DR. Managing the developing dentition. In: Dean JA, McDonald RE, Avery DR, eds. McDonald and Avery's Dentistry for the Child and Adolescent. Maryland Heights, Mo: Mosby-Elsevier Co; 2011:550-613.
109. Feigal RJ. The use of pit and fissure sealants. Pediatr Dent 2002;24(5):415-22.
110. Feigal RJ, Donly KJ. The use of pit and fissure sealants. Pediatr Dent 2006;28(2):143-50.
111. American Academy of Pediatric Dentistry. Policy on third-party reimbursement of fees related to dental sealants. Pediatr Dent 2012;34(special issue):91-2.
112. Beauchamp J, Caufield PW, Crall JJ, et al. Evidence-based clinical recommendations for the use of pit-and-fissure sealants. J Am Dent Assoc 2008;139(3):257-67.
113. Isman R. Dental sealants: A public health perspective. Calif Dent Assoc J 2010;38(10):735-45.
114. Sasa I, Donly KJ. Dental sealants: A review of the materials. Calif Dent Assoc J 2010;38(10):730-4.
115. American Association of Oral and Maxillofacial Surgeons. Parameters and Pathways: Clinical Practice Guidelines for Oral and Maxillofacial Surgery (AAOMS: ParCare 07) 2007;(4.0):69-72.
116. American Association of Oral and Maxillofacial Surgeons (AAOMS). Advocacy white paper on evidence based third molar surgery. Available at: "http://aaoms.org/advocacy_position_statements.php". Accessed June 30, 2013.
117. Mettes TD, Ghaeminia H, Nienhuijs ME, Perry J, van deer Sanden WJ, Plasschaert A. Surgical removal versus retention for the management of asymptomatic impacted wisdom teeth. Cochrane Database Syst Rev 2012;13(6): CD003879.

Recommendations for Pediatric Oral Health Assessment, Preventive Services, and Anticipatory Guidance/Counseling

Since each child is unique, these recommendations are designed for the care of children who have no contributing medical conditions and are developing normally. These recommendations will need to be modified for children with special health care needs or if disease or trauma manifests variations from normal. The American Academy of Pediatric Dentistry (AAPD) emphasizes the importance of very early professional intervention and the continuity of care based on the individualized needs of the child. Refer to the text of this guideline for supporting information and references. Refer to the text in the Guideline on Periodicity of Examination, Preventive Dental Services, Anticipatory Guidance, and Oral Treatment for Infants, Children, and Adolescents (www.aapd.org/media/Policies_Guidelines/G_Periodicity.pdf) for supporting information and references.

American Academy of Pediatric Dentistry	AGE				
	6 TO 12 MONTHS	12 TO 24 MONTHS	2 TO 6 YEARS	6 TO 12 YEARS	12 YEARS AND OLDER
Clinical oral examination [1]	•	•	•	•	•
Assess oral growth and development [2]	•	•	•	•	•
Caries-risk assessment [3]	•	•	•	•	•
Radiographic assessment [4]	•	•	•	•	•
Prophylaxis and topical fluoride [3,4]	•	•	•	•	•
Fluoride supplementation [5]	•	•	•	•	•
Anticipatory guidance/counseling [6]	•	•	•	•	•
Oral hygiene counseling [7]	Parent	Parent	Patient/parent	Patient/parent	Patient
Dietary counseling [8]	•	•	•	•	•
Injury prevention counseling [9]	•	•	•	•	•
Counseling for nonnutritive habits [10]	•	•	•	•	•
Counseling for speech/language development	•	•	•		
Assessment and treatment of developing malocclusion			•	•	•
Assessment for pit and fissure sealants [11]			•	•	•
Substance abuse counseling				•	•
Counseling for intraoral/perioral piercing				•	•
Assessment and/or removal of third molars					•
Transition to adult dental care					•

1 First examination at the eruption of the first tooth and no later than 12 months. Repeat every 6 months or as indicated by child's risk status/susceptibility to disease. Includes assessment of pathology and injuries.

2 By clinical examination.

3 Must be repeated regularly and frequently to maximize effectiveness.

4 Timing, selection, and frequency determined by child's history, clinical findings, and susceptibility to oral disease.

5 Consider when systemic fluoride exposure is suboptimal. Up to at least 16 years.

6 Appropriate discussion and counseling should be an integral part of each visit for care.

7 Initially, responsibility of parent; as child matures, jointly with parent; then, when indicated, only child.

8 At every appointment; initially discuss appropriate feeding practices, then the role of refined carbohydrates and frequency of snacking in caries development and childhood obesity.

9 Initially play objects, pacifiers, car seats; when learning to walk; then with sports and routine playing, including the importance of mouthguards.

10 At first, discuss the need for additional sucking: digits vs pacifiers; then the need to wean from the habit before malocclusion or skeletal dysplasia occurs. For school-aged children and adolescent patients, counsel regarding any existing habits such as fingernail biting, clenching, or bruxism.

11 For caries-susceptible primary molars, permanent molars, premolars, and anterior teeth with deep pits and fissures; placed as soon as possible after eruption.