

Adolescent Oral Health Care

Review Council

Council on Clinical Affairs, Committee on the Adolescent

Latest Revision

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Purpose

The American Academy of Pediatric Dentistry (AAPD) recognizes that the adolescent patient has unique needs. This guideline addresses these unique needs and proposes general recommendations for their management. This guideline serves as a summary document; more detailed information regarding these topics is provided in referenced AAPD oral health policies and clinical practice guidelines.

Methods

This document was developed by the Clinical Affairs Committee and adopted in 1986. This document is a revision of the previous version, last revised in 2010. The update includes an electronic search using the terms: adolescent combined with dental, gingivitis, oral piercing, sealants, oral health, caries, tobacco use, dental trauma, orofacial trauma, periodontal, dental esthetics, smokeless tobacco, nutrition, and diet; fields: all; limits: humans, English, clinical trials. The reviewers agreed upon the inclusion of 92 electronic and hand searched articles that met the defined criteria. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background

There is no standard definition of adolescent.¹ Adolescents are defined very broadly as youths between the ages of 10 to 18. Using this definition, there were approximately 41.5 million adolescents in the United States in 2008, according to the U.S. Census Bureau.² The adolescent patient is recognized as having distinctive needs^{3,4} due to: (1) a potentially high caries rate; (2) increased risk for traumatic injury and periodontal disease; (3) a tendency for poor nutritional habits; (4) an increased esthetic desire and awareness; (5) complexity of combined orthodontic and restorative care (e.g., congenitally missing teeth); (6) dental phobia; (7) potential use of tobacco, alcohol, and other drugs; (8) pregnancy; (9) eating disorders; and (10) unique social and psychological needs.⁵⁻⁸

Treatment of the adolescent patient can be multi-faceted and complex. Accurate, comprehensive, and up-to-date medical and social histories are necessary for correct diagnosis and effective treatment planning. Familiarity with the patient's medical history is essential for decreasing the risk of aggravating a medical condition while rendering dental care. If the parent

is unable to provide adequate details regarding a patient's medical history, consultation with the medical health care provider may be indicated. The practitioner also may need to obtain additional information confidentially from an adolescent patient.⁹

Recommendations

This guideline addresses some of the special needs within the adolescent population and proposes general recommendations for their management.

Caries

Adolescence marks a period of significant caries activity for many individuals. Research suggests that the overall caries rate is declining, yet remains highest during adolescence.^{10,11} Immature permanent tooth enamel,¹² a total increase in susceptible tooth surfaces, and environmental factors such as diet, independence to seek care or avoid it, a low priority for oral hygiene, and additional social factors also may contribute to the upward slope of caries during adolescence.^{1,13-16} It is important for the dental provider to emphasize the positive effects that fluoridation, professional topical fluoride treatment, routine professional care, patient education, and personal hygiene can have in counteracting the changing pattern of caries in the adolescent population.^{5,6}

Management of caries

Primary prevention

Fluoride: Fluoridation has proven to be the most economical and effective caries prevention measure. The adolescent can benefit from fluoride throughout the teenage years and into early adulthood. Although the systemic benefit of fluoride incorporation into developing enamel is not considered necessary past 16 years of age, topical benefits can be obtained through optimally-fluoridated water, professionally-applied and prescribed compounds, and fluoridated dentifrices.^{17,18}

Recommendations: The adolescent should receive maximum fluoride benefit dependent on risk assessment.^{18,19}

ABBREVIATIONS

AAPD: American Academy Pediatric Dentistry. **SHCN:** Special health care needs. **TMJ:** Temporomandibular joint.

- brushing teeth twice a day with a fluoridated dentifrice is recommended to provide continuing topical benefits.²⁰
- professionally-applied fluoride treatments should be based on the individual patient's caries-risk assessment, as determined by the patient's dental provider.^{18,20}
- home-applied prescription strength topical fluoride products [e.g., 0.4 percent stannous fluoride gel, 0.5 percent fluoride gel or paste, 0.2 percent sodium fluoride (NaF) rinse] may be used when indicated by an individual's caries pattern or caries risk status.²⁰
- systemic fluoride intake via optimal fluoridation of drinking water or professionally-prescribed supplements is recommended to 16 years of age. Supplements should be given only after all other sources of fluoride have been evaluated.²⁰

Oral hygiene: Adolescence can be a time of heightened caries activity and periodontal disease due to an increased intake of cariogenic substances and inattention to oral hygiene procedures.^{1,21} Tooth brushing with a fluoridated dentifrice and flossing can provide benefit through the topical effect of the fluoride and plaque removal from tooth surfaces.²²

Recommendations:

- adolescents should be educated and motivated to maintain personal oral hygiene through daily plaque removal, including flossing, with the frequency and technique based on the individual's disease pattern and oral hygiene needs.^{21,22}
- professional removal of plaque and calculus is recommended highly for the adolescent, with the frequency of such intervention based on the individual's assessed risk for caries/periodontal disease, as determined by the patient's dental provider.^{22,23}

Diet management: Many adolescents are exposed to and consume high quantities of refined carbohydrates and acid-containing beverages.^{13,14,16,24} The adolescent can benefit from diet analysis and modification.

Recommendations: Diet analysis, along with professionally-determined recommendations for maximal general and dental health, should be part of an adolescent's dental health management.²⁵

Sealants: Sealant placement is an effective caries-preventive technique that should be considered on an individual basis. Sealants have been recommended for any tooth, primary or permanent, that is judged to be at risk for pit and fissure caries.^{6,14,26-29} Caries risk may increase due to changes in patient habits, oral microflora, or physical condition, and unsealed teeth subsequently might benefit from sealant applications.^{29,30}

Recommendations: Adolescents at risk for caries should have sealants placed. An individual's caries risk may change over time; periodic reassessment for sealant need is indicated throughout adolescence.²⁹

Secondary prevention

Professional preventive care: Professional preventive dental care, on a routine basis, may prevent oral disease or disclose existing disease in its early stages. The adolescent patient whose oral health has not been monitored routinely by a dentist may have advanced caries, periodontal disease, or other oral involvement urgently in need of professional evaluation and extensive treatment.

Recommendations:

- timing of periodic oral examinations should take into consideration the individual's needs and risk indicators to determine the most cost-effective, disease-preventive benefit to the adolescent.¹⁹
- initial and periodic radiographic examination should be a part of a clinical evaluation. The type, number, and frequency of radiographs should be determined only after an oral examination and history taking. Previously exposed radiographs should be available, whenever possible, for comparison. Currently accepted guidelines for radiographic exposures (i.e., appropriate films based upon medical history, caries risk, history of periodontal disease, and growth and development assessments) should be followed.³¹

Restorative dentistry: In cases where remineralization of non-cavitated, demineralized tooth surfaces is not successful, as demonstrated by progression of carious lesions, dental restorations are necessary. Preservation of tooth structure, esthetics, and each individual patient's needs must be considered when selecting a restorative material.³² Molars with extensive caries or malformed, hypoplastic enamel—for which traditional amalgam or composite resin restorations are not feasible—may require full coverage restorations.²⁹ Small noncavitated interproximal carious lesions and facial post orthodontic white spot lesions may be treated by resin infiltration.^{29,33,34}

Recommendations: Each adolescent patient and restoration must be evaluated on an individual basis. Preservation of non-carious tooth structure is desirable. Referral should be made when treatment needs are beyond the treating dentist's scope of practice.²⁹

Periodontal diseases

Adolescence can be a critical period in the human being's periodontal status. Epidemiologic and immunologic data suggest that irreversible tissue damage from periodontal disease begins in late adolescence and early adulthood.^{8,35} Adolescents have a higher prevalence of gingivitis than prepubertal children or adults. The rise of sex hormones during adolescence is suspected to be a cause of the increased prevalence. Studies suggest that the increase in sex hormones during puberty affects the composition of the subgingival microflora.³⁶ Other studies suggest circulating sex hormones may alter capillary permeability and increase fluid accumulation in the gingival tissues. This inflammatory gingivitis is believed to be transient as the body accommodates to the ongoing presence of the sex hormones.^{37,38}

Conditions affecting the adolescent include, but are not limited to, gingivitis, puberty gingivitis, hyperplastic gingivitis related to orthodontic therapy, gingival recession that may or may not be related to orthodontic therapy, drug-related gingivitis, pregnancy gingivitis, necrotizing ulcerative gingivitis, localized aggressive periodontitis, and periodontitis.^{36,37,39} Personal oral hygiene and regular professional intervention can minimize occurrence of these conditions and prevent irreversible damage.

Recommendations: The adolescent will benefit from an individualized preventive dental health program, which includes the following items aimed specifically at periodontal health:

- patient education emphasizing the etiology, characteristics, and prevention of periodontal diseases, as well as self-hygiene skills.^{37,39,40}
- a personal, age-appropriate oral hygiene program including plaque removal, oral health self-assessment, and diet. Sulcular brushing and flossing should be included in plaque removal, and frequent follow-up to determine adequacy of plaque removal and improvement of gingival health should be considered.^{37,39-41}
- regular professional intervention, the frequency of which should be based on individual needs and should include evaluation of personal oral hygiene success, periodontal status, and potential complicating factors such as medical conditions, malocclusion, or handicapping conditions. Periodontal probing, periodontal charting, and radiographic periodontal diagnosis should be a consideration when caring for the adolescent. The extent and nature of the periodontal evaluation should be determined professionally on an individual basis. Those patients with progressive periodontal disease should be referred when the treatment needs are beyond the treating dentist's scope of practice.^{37,39,40}
- appropriate evaluation for procedures to facilitate orthodontic treatment including, but not limited to, tooth exposure, frenectomy, fiberotomy, gingival augmentation, and implant placement.⁴²

Occlusal considerations

Malocclusion can be a significant treatment need in the adolescent population as both environmental and/or genetic factors come into play. Although the genetic basis of much malocclusion makes it unpreventable, numerous methods exist to treat the occlusal disharmonies, temporomandibular joint dysfunction, periodontal disease, and disfiguration which may be associated with malocclusion. Within the area of occlusal problems are several tooth/jaw-related discrepancies that can affect the adolescent. Third molar malposition and temporomandibular disorders require special attention to avoid long-term problems. Congenitally missing teeth present complex problems for the adolescent and often require combined orthodontic and restorative care for satisfactory resolution.

Malocclusion: Any tooth/jaw positional problems that present significant esthetic, functional, physiologic, or emotional dysfunction are potential difficulties for the adolescent. These can include single or multiple tooth malpositions, tooth/jaw size discrepancies, and craniofacial disfigurements.

Recommendations: Malposition of teeth, malrelationship of teeth to jaws, tooth/jaw size discrepancy, skeletal malrelationship, or craniofacial malformations or disfigurement that presents functional, esthetic, physiologic, or emotional problems for the adolescent should be referred for evaluation when the treatment needs are beyond the treating dentist's scope of practice. Treatment of malocclusion by a dentist should be based on professional diagnosis, available treatment options, patient motivation and readiness, and other factors to maximize progress.⁴³

Third molars: Third molars can present acute and chronic problems for the adolescent. Impaction or malposition leading to such problems as pericoronitis, caries, cysts, or periodontal problems merits evaluation for removal.⁴⁴⁻⁴⁸ The role of the third molar as a functional tooth also should be considered.

Recommendations: Evaluation of third molars, including radiographic diagnostic aids, should be an integral part of the dental examination of the adolescent.³¹ For diagnostic and extraction criteria, refer to AAPD's Guideline on Pediatric Oral Surgery.⁴⁴ Referral should be made if treatment is beyond the treating dentist's scope of practice.

Temporomandibular joint (TMJ) problems: Disorders of the TMJ can occur at any age, but symptoms appear more prevalent in adolescence.^{49,50}

Recommendations: Evaluation of the TMJ and related structures should be a part of the examination of the adolescent. An adolescent comprehensive dental examination should include a screening evaluation of the TMJ and surrounding area. This evaluation will include a screening history for symptoms, clinical examination and evaluation of jaw movements, and if indicated, radiographic imaging. Referral should be made when the diagnostic and/or treatment needs are beyond the treating dentist's scope of practice.^{44,49,50}

Congenitally missing teeth: The impact of a congenitally missing permanent tooth on the developing dentition can be significant.^{3,51} When treating adolescent patients with congenitally missing teeth, many factors must be taken into consideration including, but not limited to, esthetics, patient age, and growth potential, as well as orthodontic, periodontal, and oral surgical needs.^{43,51-53}

Recommendations: Evaluation of congenitally missing permanent teeth should include both immediate and long-term management. Referral should be made when the treatment needs are beyond the treating dentist's scope of practice. Due to the complexity of the growing adolescent, a team approach may be indicated.^{51,54}

Ectopic eruption: Abnormal eruption patterns of the adolescent's permanent teeth can contribute to root resorption, bone loss, gingival defects, space loss, and esthetic concerns. Early diagnosis and treatment of ectopically erupting teeth can result in a healthier and more esthetic dentition. Prevention and treatment may include extraction of deciduous teeth, surgical intervention, and/or endodontic, orthodontic, periodontal, and/or restorative care.⁵⁵⁻⁵⁷

Recommendations: The dentist should be proactive in diagnosing and treating ectopic eruption and impacted teeth in the young adolescent. Early diagnosis, including appropriate radiographic examination,³¹ is important. Referral should be made when the treatment needs are beyond the treating dentist's scope of practice.⁵⁴

Traumatic injuries

The most common injuries to permanent teeth occur secondary to falls, followed by traffic accidents, violence, and sports.⁵⁸⁻⁶¹ All sporting activities have an associated risk of orofacial injuries due to falls, collisions, and contact with hard surfaces.⁶² The administrators of youth, high school, and college organized sports have demonstrated that dental and facial injuries can be reduced significantly by introducing mandatory protective equipment such as face guards and mouthguards. Additionally, youths participating in leisure activities such as skateboarding, roller skating, and bicycling also benefit from appropriate protective equipment.^{63,64}

Recommendations: Dentists should introduce a comprehensive trauma prevention program to help reduce the incidence of traumatic injury to the adolescent dentition. This prevention plan should consider assessment of the patient's sport or activity, including level and frequency of activity.⁶⁵ Once this information is acquired, recommendation and fabrication of an age-appropriate, sport-specific, and properly-fitted mouthguard/faceguard can be initiated.⁶⁵ Players should be warned about altering the protective equipment that will disrupt the fit of the appliance. In addition, players and parents must be informed that injury may occur, even with properly-fitted protective equipment.⁶⁵

Additional considerations in oral/dental management of the adolescent

The adolescent can present particular psychosocial characteristics that impact the health status of the oral cavity, care seeking, and compliance. The self-concept development process, emergence of independence, and the influence of peers are just a few of the psychodynamic factors impacting dental health during this period.^{1,5,7,17}

Esthetic concerns: Desire to improve esthetics of the dentition by tooth whitening and removal of stained areas or defects can be a concern of the adolescent. Indications for the appropriate use of tooth-whitening methods and products are dependent upon correct diagnosis and consideration of eruption pattern of the permanent dentition.⁶⁶ The dentist

must determine the appropriate mode of treatment. Use of bleaching agents, microabrasion, placement of an esthetic restoration, or a combination of treatments all can be considered.^{67,68}

Recommendations: For the adolescent patient, judicious use of bleaching can be considered part of a comprehensive, sequenced treatment plan that takes into consideration the patient's dental developmental stage, oral hygiene, and caries status. A dentist should monitor the bleaching process, ensuring the least invasive, most effective treatment method. Dental professionals also should consider possible side effects when contemplating dental bleaching for adolescent patients.⁶⁸⁻⁷⁰

Tobacco use: Significant oral, dental, and systemic health consequences and death are associated with all current forms of tobacco use. These include the use of products such as cigars, cigarettes, snus, hookahs, smokeless tobacco, pipes, bidis, kreteks, dissolvable tobacco, and electronic cigarettes.⁷¹ Smoking and smokeless tobacco use are initiated and established primarily during adolescence.⁷²⁻⁷⁶

Recommendations: The oral and systemic consequences of all current forms of tobacco use should be part of each patient's oral health education. For those adolescent patients who use tobacco products, the practitioner should provide or refer the patient to appropriate educational and counseling services.⁷⁷⁻⁸⁰ Supplemental medical history questions regarding tobacco use should be added to the adolescent dental record.⁸¹ When associated pathology is present, referral should be made when the treatment needs are beyond the treating dentist's scope of practice.

Psychosocial and other considerations: Behavioral considerations when treating an adolescent may include anxiety, phobia, and intellectual dysfunction.¹ Referral should be made when the treatment needs are beyond the treating dentist's scope of practice and consultation with nondental professionals or a team approach may be indicated.

Additional examples of oral problems associated with adolescent behaviors include, but are not limited to:

- oral manifestations of sexually transmitted diseases.
- effects of oral contraceptives or antibiotics on periodontal structures.
- perimyolysis (severe enamel erosion) in bulimia.⁸²
- traumatic injury to teeth and oral structures in athletic or other activities (short- and long-term management).^{63,83-85}
- intraoral and perioral piercing with possible local and systemic effects.^{86,87}

The impact of psychosocial factors relating to oral health must include consideration of the following:

- changes in dietary habits (e.g., fads, freedom to snack, increased energy needs, access to carbohydrates).
- use of tobacco, alcohol, and drugs.
- motivation for maintenance of good oral hygiene.
- potential for traumatic injury.

- adolescent as responsible for care.
- lack of knowledge about periodontal disease.

Physiologic changes also can contribute to significant oral concerns in the adolescent. These changes include: (1) loss of remaining primary teeth; (2) eruption of remaining permanent teeth; (3) gingival maturity; (4) facial growth; and (5) hormonal changes.

Recommendations:

- an adolescent's oral health care should be provided by a dentist who has appropriate training in managing the patient's specific needs. Referral should be made when the treatment needs are beyond the treating dentist's scope of practice. This may include both dental and non-dental problems.⁸⁸
- supplemental medical history topics regarding questions on pregnancy, alcohol and drug use, oral piercings, tobacco use, sexual activity and eating disorders should be included in the adolescent dental record.⁷⁹
- attention should be given to the particular psychosocial aspects of adolescent dental care. Other issues such as assent, confidentiality, and compliance should be addressed in the care of these patients.^{81,89}
- a complete oral health care program for the adolescent requires an educational component that addresses the particular concerns and needs of the adolescent patient and focuses on:
 - specific behaviorally-and physiologically-induced oral manifestations in this age group;²²
 - shared responsibility for care and health by the adolescent, parent, and provider;²² and
 - consequences of adolescent behavior on oral health.^{90,91}

Transitioning to adult 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. The adult's oral health needs may go beyond the scope of the pediatric dentist's training. The transitioning adolescent should continue professional oral health care in an environment sensitive to his/her individual needs. Many adolescent patients independently will choose the time to seek care from a general dentist and may elect to seek treatment from a parent's primary care provider. In some instances, however, the treating pediatric dentist will be required to suggest transfer to adult care.

Pediatric dentists are concerned about decreased access to oral health care for persons with special health care needs (SHCN)⁹² as they transition beyond the age of majority. Pediatric hospitals, by imposing age restrictions, can create a barrier to care for these patients. Transitioning to a dentist who is knowledgeable and comfortable with adult oral health care needs often is difficult due to a lack of trained providers willing to accept the responsibility of caring for SHCN patients.

Recommendations: At a time agreed upon by the patient, parent, and pediatric dentist, the patient should be transitioned to a dentist knowledgeable and comfortable with managing that patient's specific oral care needs. For the SHCN patient, in cases where it is not possible or desired to transition to another practitioner, the dental home can remain with the pediatric dentist and appropriate referrals for specialized dental care should be recommended when needed.⁹²

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