

Clinical Guideline on Adolescent Oral Health Care

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Purpose

The American Academy of Pediatric Dentistry (AAPD) recognizes that long-term oral health is more likely to be assured if the oral health needs of the adolescent are managed by a pediatric dentist. These guidelines address the unique needs within the adolescent population and propose general recommendations for their management.

Methods

These guidelines are based on a review of the accessible literature on adolescents, as well as policies and guidelines of the AAPD.

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 36.6 million adolescents in the United States in 2000, according to the US Census Bureau.² The adolescent patient is recognized as having distinctive needs^{3,4} due to a potentially high caries rate, increased risk for traumatic injury and periodontal disease, a tendency for poor nutritional habits, an increased esthetic desire and awareness, complexity of combined orthodontic and restorative care (eg, congenitally missing teeth), dental phobia, and unique social and psychological needs.^{5,6}

Recommendations

These guidelines address some of the special needs within the adolescent population and propose general recommendations for their management.

Caries

Adolescence marks a period of significant caries activity for many individuals. Current research suggests that the caries rate is declining, yet remains highest during adolescence.⁷ A particular concern is the changing pattern of caries. The numbers of caries-free adolescents is increasing, and there is growing evidence that a small percentage of children and adolescents account for the most severe caries.^{8,9} These carious lesions often are confined to developmental pits and fissures.¹⁰

Immature permanent tooth enamel,¹¹ 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 in adolescence.^{1,12-14} It is important for the dental provider to emphasize the positive effects that fluoridation, routine professional care, patient education, and personal hygiene can have in counteracting the changing pattern of caries in the adolescent population.^{5,6,15}

Management of caries *Primary prevention*

Fluoride: Fluoridation has proven 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, the topical benefits of remineralization and antimicrobial activity still can be obtained through water fluoridation, professionally applied and prescribed compounds, and fluoride dentifrices.¹⁶

Recommendations: The adolescent should receive maximum fluoride benefit:

1. Systemic fluoride intake via optimal fluoridation of drinking water or professionally prescribed supplements is recommended to 16 years of age or the eruption of the second permanent molars, whichever comes first.
2. A fluoride dentifrice is recommended to provide continuing topical benefits through adolescence.
3. Professionally applied fluoride treatments should be based on the individual patient's caries-risk assessment, as determined by the patient's dental provider.
4. Topical fluoride supplementation via home-applied compounds should be a professional recommendation when indicated by an individual's caries pattern or caries-risk status.
5. The criteria for determination of need and the methods of delivery should be those currently recommended by the American Dental Association.

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.^{1,17} Tooth-brushing with a fluoride-containing dentifrice and flossing can provide an anticaries benefit

through plaque removal from tooth surfaces and the topical effect of the fluoride.

Recommendations: Adolescents should be educated and motivated to maintain personal oral hygiene through daily plaque removal, including flossing, with the frequency and pattern based on the individual's disease pattern and oral hygiene needs.

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.

Diet management: The role of carbohydrates in caries initiation is unequivocal. Adolescents are exposed to and consume high quantities of refined carbohydrates.^{12,13,18} The adolescent can benefit from diet analysis and modification.

Recommendations: Diet analysis, along with professionally determined recommendations for maximal general and dental health, may be a part of an adolescent's dental health management. A diet analysis and management should consider:

1. dental disease patterns;
2. overall nutrient and energy needs;
3. psychosocial aspects of adolescent nutrition;
4. dietary carbohydrate intake;
5. wellness considerations.

Sealants: Pit and fissure sealants can be of significant benefit in the reduction of caries risk.¹⁹ The occlusal surfaces of second molars in adolescents can be highly prone to caries attack due to lack of enamel maturation, the presence of deep grooves, poor oral hygiene, and dietary habits.^{5,10} Sealants are an effective caries-preventive technique that should be considered on an individual basis.

Recommendations: Adolescents should have pit and fissure sealants available as a caries-preventive technique. Sealants should be placed according to current standards, using criteria such as caries history, oral hygiene, age of patient, length of time a tooth has been exposed to the oral cavity, and tooth surface anatomy.

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:

1. The adolescent dental patient should be evaluated by a dentist thoroughly trained in the special needs of the adolescent.
2. 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.

3. Initial and periodic radiographic evaluation 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 should be followed.

Restorative dentistry: In cases where remineralization of noncavitated, 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.²⁰ Molars with extensive caries or malformed, hypoplastic enamel for which traditional amalgam or composite resin restorations are not feasible may require full coverage restorations.²¹

Recommendations: Each adolescent patient and restoration must be evaluated on an individual basis. Preservation of noncarious tooth structure is desirable.

Periodontal diseases

Adolescence can be a critical period in periodontal status of the human. Epidemiologic and immunologic data suggests that irreversible tissue damage from periodontal disease begins in late adolescence and early adulthood. Pubertal changes characteristically affect the periodontium of the young adolescent with an increase in inflammation which is, in most cases, manageable through oral hygiene and regular professional care.

Acute conditions: The adolescent may be subjected to acute conditions such as acute necrotizing ulcerative gingivitis, periodontitis, and traumatic injuries, which can require immediate and occasional long-term management. In most cases, early diagnosis, treatment, and appropriate management can prevent irreversible damage.²²⁻²⁴

Recommendations: Acute intraoral infection involving the periodontium and oral mucosa requires immediate treatment. Therapeutic management should be based on currently accepted techniques of periodontal therapy. Traumatic injuries to the teeth and periodontium always require dental evaluation and treatment.

Chronic conditions: Chronic conditions affecting the adolescent include, but are not limited to, gingivitis, puberty gingivitis, hyperplastic gingivitis related to orthodontic therapy, drug-related gingivitis, pregnancy gingivitis, localized juvenile periodontitis, and periodontitis.¹⁹⁻²¹

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:

1. Patient education emphasizing the etiology, characteristics, and prevention of periodontal diseases, as well as self-hygiene skills.
2. 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.
3. 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 become a consideration when caring for the adolescent. The extent and nature of the periodontal evaluation should be determined professionally on an individual basis.

Occlusal considerations

Malocclusion can be a significant treatment need in the adolescent population as both environmental and 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 disfigurement, which may be associated with malocclusion. Within the area of occlusal problems are several tooth/jaw-related discrepancies, which 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: Any malposition of teeth, malrelationship of teeth to jaws, tooth/jaw size discrepancy, bimaxillary malrelationship, or craniofacial malformations or disfigurement that presents functional, esthetic, physiologic, or emotional problems to the adolescent should be evaluated by the appropriately trained dentist or professional team. Treatment of malocclusion by an appropriately trained and/or experienced dentist should be based on professional diagnosis, available treatment options, patient motivation and readiness, and other factors to maximize progress.

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.^{25,26} The role of the third molar as a functional tooth should also be considered.

Recommendations: Evaluation of third molars, including radiographic diagnostic aids, should be an integral part of the dental examination of the adolescent. Treatment of third molars that are potential or active problems should be performed by an appropriately trained and/or experienced dentist. Diagnostic criteria for extraction should be those currently accepted by the dental profession.

Temporomandibular joint problems: Disorders of the temporomandibular joint can occur at any age, but adolescence may provide the stimulus to trigger problems.²⁷⁻³⁰

Recommendations: Evaluation of the temporomandibular joint and related structures should be a part of the examination of the adolescent. Abnormalities should be managed by an appropriately trained and/or experienced dentist following clinically accepted procedures.^{31,32}

Congenitally missing teeth: The impact of a congenitally missing permanent tooth on the developing dentition can be significant.³ When treating adolescent patients who are congenitally missing teeth, many factors must be taken into consideration including, but not limited to, esthetics, patient age, and growth potential, as well as periodontal and oral surgical needs.³³⁻³⁵

Recommendations: Evaluation of congenitally missing permanent teeth should include both immediate and long-term management. Management should be by an appropriately trained and/or experienced dentist, and a team approach may be indicated.

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.³⁶⁻⁴⁰

Recommendations: The dentist should be proactive in diagnosing and treating ectopic eruption in the young adolescent. Early diagnosis of ectopic eruption is important. An appropriately trained and/or experienced dentist should manage treatment and a team approach may be necessary.

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.^{1,5,6,16}

Discolored or stained teeth: 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.⁴¹

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.

Recommendations: For the adolescent patient, tooth whitening can be considered as a part of a comprehensive treatment plan that takes into consideration the patient's age, oral hygiene, and caries status. A dentist should monitor the bleaching process ensuring the least invasive, most effective treatment method.⁴²

Tobacco use: Significant oral, dental, and systemic health consequences and death are associated with all forms of tobacco use. Smoking and other tobacco use almost always are initiated and established in adolescence.⁴³⁻⁴⁵

Recommendations: Education of the adolescent patient on the oral and systemic consequences 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.⁴⁶⁻⁴⁷

Positive youth development: Treatment and management of adolescent oral health that takes into account the adolescent's psychological and social needs can be approached through the framework of positive youth development (PYD).⁴⁸ The approach goes beyond traditional prevention, intervention, and treatment of risky behaviors and problems and suggests that a strong interpersonal relationship between the adolescent patient and the pediatric dentist can be influential in improving adolescent oral health and transitioning patients to adult care. In the office, dental professionals have a unique opportunity to serve as positive role models.

Recommendations: PYD should be recognized as containing a number of key elements that are relevant to pediatric dentistry:

1. providing youth with safe and supportive environments;
2. fostering relationships between young people and caring adults who can mentor and guide them;
3. promoting healthy lifestyles and teaching positive patterns of social interaction;
4. providing a safety net in times of need.⁴⁸

Integrating PYD into clinical practice can be attained through continuing education on adolescent development issues, as well as partnerships with community-based orga-

nizations and schools. The pediatric dentists can be a part of the myriad of adolescent support and services.

Psychosocial and other considerations: Behavior management of the adolescent may require dealing with anxiety, phobia, or intellectual dysfunction.¹ These special-needs patients should receive attention to these aspects of their care by appropriately trained dentists. Referral to nondental professionals or a team approach may be indicated.

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

1. oral manifestations of venereal diseases;
2. effects of oral contraceptives on periodontal structures;
3. perimyolysis in anorexia nervosa;
4. traumatic injury to teeth and oral structures in athletic or other activities (short- and long-term management);⁴⁹⁻⁵⁰
5. intraoral and perioral piercing with possible local and systemic effects.⁵¹⁻⁵²

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

1. changes in dietary habits (fads, freedom to snack, increased energy needs, access to carbohydrates);
2. use and abuse of drugs;
3. motivation for maintenance of good oral hygiene;
4. potential for traumatic injury;
5. adolescent as responsible for care;
6. lack of knowledge about periodontal disease.

Physiologic changes also can account for significant oral problems in the adolescent. These include:

1. loss of remaining primary teeth;
2. eruption of remaining permanent teeth;
3. gingival maturity;
4. facial growth;
5. hormonal changes.

Recommendations:

1. Oral health care of the adolescent should be provided by a dentist who has appropriate training in managing the specific needs of this patient. The general dentist should consider referral to a specialist for treatment of particular problems outside his or her expertise. This may include both dental and nondental problems.
2. Attention should be given to the particular psychosocial aspects of adolescent dental care. Issues of consent, confidentiality, compliance, and others should be addressed in the care of these patients.
3. A complete oral health care program for the adolescent requires an educational component which addresses the particular concerns and needs of the adolescent patient and focuses on:
 - a. specific behaviorally and physiologically induced oral manifestations in this age group;
 - b. shared responsibility for care and health by the adolescent and provider;
 - c. consequences of adolescent behavior on oral health.

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