Guideline on dental health of the adolescent oral health care

Originating Committee
Clinical Affairs Committee
Review Council
Council on Clinical Affairs

Adopted
1986
Revised
1999, 2003

Purpose
Adolescents currently comprise 20% of the US population and historically have been perceived largely as dental patients who experienced an increase in caries due to a greater intake of refined carbohydrates superimposed on unusually careless oral hygiene habits. The delivery of special care for these patients, if any, has historically consisted only of orthodontic management of malocclusion.

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. It is well documented that adolescents have unique dental problems. The skills of the pediatric dentist in areas such as primary preventive care, space maintenance, minor orthodontics and care of traumatic injuries are essential in management of these problems. It is the American Academy of Pediatric Dentistry’s position that the long-term health of the permanent dentition is more likely to be assured if the dental needs of the adolescent are under the care of the pediatric dentist.

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

Background/literature review
There is no standard definition of “adolescent”. Adolescents are defined very broadly as youth ages 10 to 18. Using this definition, there were approximately 36.6 million
adolescents in the United States in 2000 according to the U.S. Census Bureau. Today, the adolescent patient is recognized as having a patient with additional special needs due to an accelerating potentially high caries rate, increased risk for traumatic injury and periodontal disease, a tendency for poor nutritional habits, an increased esthetic desire and awareness, greater awareness of treatment and preventive needs for hard and soft tissues, complexity of combined orthodontic and restorative care (e.g., congenitally missing teeth), and dental phobia and unique social and psychological needs.

Recommendations

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

Dental caries—Caries

Dental caries continues to be the major dental infectious disease problem for the adolescent. Adolescence marks a period of significant caries activity for many individuals. Current research suggests that the caries rate is declining, yet the rate remains highest during adolescence. Of particular concern to the health professional is the changing pattern of caries within the population. The numbers of caries-free children are increasing and there is growing evidence that a small percentage of children and adolescents account for the most severe decay. There are also many children whose decay is often confined to developmental pits and fissures. These carious lesions often are is often being attributed to the positive aspects of fluoridation, professional care, patient education and personal hygiene.

Adolescents are still prone to tooth decay. Immature permanent tooth enamel teeth, a total increase in susceptible tooth surfaces and environmental factors such as diet, independence to seek care or avoid it, and a low priority for oral hygiene and additional social factors also may contribute to the upward slope of caries in adolescence. It is important for the dental provider to emphasize the positive effects fluoridation, routine professional care, patient education and personal hygiene can have in counteracting the changing pattern of caries in the adolescent population.

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
adolescence. 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. Regular professionally applied fluoride treatments should be deemed as necessary through adolescence as during the early childhood period and should be based on the individual patient’s caries-risk assessment as determined by the patient’s dental provider, pattern and fluoride status of community water.

4. Topical fluoride supplementation via home-applied compounds should be a professional recommendation when indicated by an individual’s dental 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.17 Tooth-brushing with a fluoride-containing dentifrice and flossing can provide 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 highly recommended highly for the adolescent, with the frequency of such intervention determined by a dentist 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. The adolescent can benefit from diet analysis and modification when caries is a problem.

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 to those whose dental caries affects mainly pits and fissures in the reduction of caries risk. The occlusal surfaces of second molars in adolescents are highly prone to caries attack due to lack of enamel maturation, the presence of deep grooves, poor oral hygiene and dietary habits. Sealants are an effective decay-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 professionally deemed necessary and, placed according to current standards, applied using criteria such as the 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 intervention for dental caries preventive dental care, on a routine basis, may prevent oral disease or disclose existing disease in its early stages. The adolescent patient who has not been seen whose oral health has not been monitored routinely by a dentist for a year or more may have advanced caries, or periodontal disease or other oral involvement urgently in need of professional evaluation and extensive treatment.

Recommendations:
1. The adolescent dental patient should be professionally evaluated by a dentist who is thoroughly trained in the special needs of the adolescent.

2. Periodic recall examination. Timing of periodic oral examinations should take into consideration the individual’s needs and risk indicators, to determine be at a frequency which provides 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 films radiographs should be professionally determined only after oral examination and history taking. Previously exposed radiographs should be available, whenever possible, for comparison. Currently accepted guidelines for radiographic exposures should be followed. Special attention should be given to the physiological status of the adolescent, and the potential for gonadal or fetal x-ray exposure in pregnant patients.

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. Molars with extensive caries or malformed, hypoplastic enamel for which traditional amalgam or composite resin restorations are not feasible, may require full coverage restorations.

Recommendations

Each adolescent patient and restoration must be evaluated on an individual basis. Preservation of non-carious tooth structure is desirable.

Periodontal diseases

Adolescence seems to 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. The adolescent also is prone to a number of acute periodontal conditions which require immediate and occasional long-term management.
Acute conditions

The adolescent periodontium 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

The 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 which should include evaluation of personal oral hygiene success, periodontal status and potential complicating factors such as medical conditions, malocclusion or handicapping conditions. Attention to periodontal needs should be given at all ages, but the use of periodontal 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 problems considerations

Malocclusion remains 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 treatment 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 disorders, discrepancies, which can affect the adolescent. Third-molar malposition and temporomandibular disorders are not infrequent in adolescents and 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. Treatment of malocclusion and related problems should be by an appropriately trained dentist.

Recommendations: Any malposition of teeth, malrelationship of teeth to jaws, tooth/jaw size discrepancy, bimaxillary malrelationship or craniofacial malformations or disfigurement which 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. 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. Third molars that are determined to be potential or active problems should be considered for treatment by the appropriately trained dentist. 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 due to increased stress and orthodontically induced disharmonies.

**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.

**Congenitally missing teeth**

The impact of a congenitally missing permanent tooth on the developing dentition can be significant. 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.

**Recommendations:** Evaluation of congenitally missing permanent teeth should include both immediate and long-term management. Treatment should be by an appropriately trained and/or experienced dentist, or 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.

**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.
Special Additional considerations in oral/dental management of oral problems in adolescence 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 effects influence of peers are just a few of the psychodynamic factors impacting dental health during this period.\textsuperscript{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.\textsuperscript{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.\textsuperscript{42}

Tobacco usage

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.\textsuperscript{43-45}

**Recommendations:** Education of the adolescent patient on the oral and systemic consequences of tobacco usage 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.\textsuperscript{46-47}

Positive Youth Development

Treatment and management or 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).\textsuperscript{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 an unique opportunity 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.

Integrating PYD into clinical practice can be attained through continuing education on adolescent development issues as well as partnerships with community-based organizations and schools. The pediatric dentists can be a part of the web of adolescent support and services.

**Psychosocial and other considerations**

Behavior management of the adolescent may require dealing with anxiety, phobia or intellectual dysfunction. 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.

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

1. Oral manifestations of venereal diseases;
2. Effects of tobacco (leukoplakia, tissue damage from smokeless tobacco);
3. Effects of oral contraceptives on periodontal structures;
4. Permyosilis in anorexia nervosa;
5. Traumatic injury to teeth and oral structures in athletic or other activities (short- and long-term management);
6. Intraoral and perioral piercing with possible local and systemic effects.

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, manifesting at first in this age group. 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.

References


