Policy Statement on the Use of a Caries-Risk Assessment Tool for Infants, Children and Adolescents

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Council on Clinical Affairs

Purpose

The American Academy of Pediatric Dentistry (AAPD) recognizes that caries risk assessment is an essential element of contemporary clinical care for infants, children, and adolescents.

Background

Over the past fifteen years, strategies for managing dental caries increasingly have emphasized the concept of risk assessment.[1-5] However, a practical tool for assessing caries risk in infants, children, and adolescents has been lacking. While assessment of caries risk undoubtedly will benefit from emerging science and technologies, the AAPD believes that sufficient evidence exists to support the creation of a framework for classifying caries risk in infants, children, and adolescents based on a set of physical, environmental and general health factors.[6-8]

The attached table represents a first step toward incorporating available evidence into a concise, practical tool to assist both dental and non-dental health care providers in assessing levels of risk for caries development in infants, children,

and adolescents. The AAPD intends this to be a dynamic instrument that will be evaluated and revised periodically as new evidence warrants.

Clinicians using this tool should:

- Be able to visualize adequately a child's teeth and mouth, and have access to a reliable historian for non-clinical data elements;
- Assess all three components of caries risk — clinical conditions, environmental characteristics, and general health conditions;
- Be familiar with footnotes that clarify use of individual factors in this instrument;
- Understand that each child's ultimate risk classification is determined by the highest risk category where a risk indicator exists (i.e., the presence of a single risk indicator in any area of the "High Risk" category is sufficient to classify a child as being at "High Risk"; the presence of at least one "Moderate Risk" indicator and no "High-Risk" indicators results in a "Moderate Risk" classification; and a child designated as "Low Risk" would have no "Moderate Risk" or "High Risk" indicators).

Users of the AAPD Caries-Risk Assessment Tool (CAT) must understand the following caveats:

- CAT provides a means of classifying dental caries risk at a point in time and therefore should be applied periodically to assess changes in an individual's risk status.

- CAT is intended to be used when clinical guidelines call for caries risk assessment. Decisions regarding clinical management of caries, however, are left to qualified dentists (ideally the dentist responsible for the child's "dental home").
- CAT can be used by both dental and non-dental personnel. It does NOT render a diagnosis. However, clinicians using CAT must be familiar with the clinical presentation of dental caries and factors related to caries initiation and progression.
- Because clinicians with various levels of skill working in a variety of settings will use this instrument, advanced technologies such as radiographic assessment and microbiologic testing (shaded areas) have been included but are not essential for using this tool.

Policy Statement

The American Academy of Pediatric Dentistry

1. Encourages both dental and non-dental health care providers to use CAT in the care of infants, children, and adolescents
2. Encourages dentists to use advanced technologies such as radiographic assessment and microbiologic testing with CAT when assessing an individual's caries risk
3. Recognizes the need to evaluate CAT periodically and revise the tool as new science and technologies warrant.

References

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3. Casamassimo P. Bright Futures in Practice: Oral Health. Arlington, VA: National Center for Education in Maternal and Child Health, 1996.
4. Centers for Disease Control and Prevention. Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States. MMWR August 17,2001;50 (RR14): 1-42.
5. American Academy of Pediatric Dentistry. Periodicity of Examination, Preventive Dental Services, Anticipatory Guidance, and Oral Treatment for Children. 2000-01 AAPD Reference Manual, pp. 84-85. Available at www.aapd.org.
6. U.S. Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.
7. Vargas C, Crall J, Schneider D. Sociodemographic distribution of pediatric dental caries: NHANES III, 1988-1994. J Am Dent Assoc 1998;129:1229-1238.

8. Ekstrand KR, Bruun G, Bruun M. Plaque and gingival status as indicators for caries progression on approximal surfaces. Caries Res 1998;32(1):41-5.

AAPD Caries-Risk Assessment Tool (CAT)

		Low Risk	Moderate Risk	High Risk
Caries Risk Indicators	**Clinical Conditions**	• No carious teeth in past 24 months • No enamel demineralization (enamel caries "white-spot lesions") • No visible plaque; no gingivitis	• Carious teeth in the past 24 months • 1 area of enamel demineralization (enamel caries "white-spot lesions") • Gingivitis[A]	• Carious teeth in the past 12 months • More than 1 area of enamel demineralization (enamel caries "white-spot lesions") • Radiographic enamel caries • Visible plaque on anterior (front) teeth • High titers of mutans treptococci • Wearing dental or orthodontic appliances[B] • Enamel hypoplasia[C]
	Environmental Characteristics	• Optimal systemic and topical fluoride exposure[D] • Consumption of simple sugars or foods strongly associated with caries initiation[E] primarily at mealtimes • High caregiver socioeconomic status[F] • Regular use of dental care in an established Dental Home	• Suboptimal systemic fluoride exposure with optimal topical exposure[D] • Occasional (e.g., 1-2) between-meal exposures to simple sugars or foods strongly associated with caries • Mid-level caregiver socioeconomic status (e.g., eligible for school lunch program or SCHIP) • Irregular use of dental services	• Suboptimal topical fluoride exposure[D] • Frequent (e.g., 3 or more) between-meal exposures to simple sugars or foods strongly associated with caries • Low-level caregiver socioeconomic status (e.g., eligible for Medicaid) • No usual source of dental care • Active caries present in the primary care provider
	General Health Conditions			• Children with special health care needs[G] • Conditions impairing saliva composition/flow[H]

Footnotes for Application of the AAPD CAT:

A Although microbial organisms responsible for gingivitis may be different than those primarily implicated in dental caries, the presence of gingivitis is an indicator of poor or infrequent oral hygiene practices and has been associated with caries progression.

B Orthodontic appliances include both fixed and removable appliances, space maintainers, and other devices that remain in the mouth continuously or for prolonged time intervals and which may trap food and plaque, prevent oral hygiene, compromise access of tooth surfaces to fluoride, or otherwise create an environment supporting dental caries initiation.

C Tooth anatomy and hypoplastic defects such as poorly formed enamel, developmental pits, and deep pits may predispose a child to develop dental caries.

D Optimal systemic and topical fluoride exposure is based on the American Dental Association /American Academy of Pediatrics guidelines for exposure from fluoride drinking water and/or supplementation (Reference #4) and use of a fluoride dentifrice.

E Examples of sources of simple sugars include carbonated beverages, cookies, cake, candy, cereal, potato chips, French fries, corn chips, pretzels, breads, juices and fruits. Clinicians using caries-risk assessment should investigate individual exposures to sugars known to be involved in caries initiation.

F National surveys have demonstrated that children in low-income and moderate-income households are more likely to have dental caries and more decayed or filled primary teeth than children from more affluent households. Also, within income levels, minority children are more likely to have caries. Thus, sociodemographic status should be viewed as an initial indicator of risk that may be offset by the absence of other risk indicators.

G Children with special health care needs are those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally (Source: Newacheck PW et al. New estimates of children with special health care needs and implications for the state children's health insurance program. Maternal and Child Health Policy Research Center Fact Sheet, No. 4, March, 1998).

H Alteration in salivary flow can be the result of congenital or acquired conditions, surgery, radiation, medication or age-related changes in salivary function. Any condition, treatment, or process known or reported to alter saliva flow should be considered an indication of risk unless proven otherwise.