

RISK MANAGEMENT ARTICLE

Managing Caries Through Risk Assessment

According to the National Institute of Dental and Craniofacial Research, the presence of dental caries remains the most prevalent chronic disease in children and adults in the United States, despite the fact that it is largely preventable. The National Health and Nutrition Examination Survey estimates that more than half (51%) of children ages 6 to 11 have dental caries, and 26% adults ages 20 to 64 have untreated tooth decay.

Caries can be thought of as a continuum that ranges from subclinical changes on one end to a visible cavity with significant tooth destruction on the other. This continuum provides multiple opportunities for prevention and early intervention so patients can avoid systemic health problems associated with caries, such as cardiovascular disease.

Caries management by risk assessment is an evidence-based approach that begins with a brief but effective assessment designed to detect risks for caries development. Dentists then work with patients to create a risk reduction plan. Conducting a proper assessment and intervening as needed based on the results will help dentists optimize patient health and reduce possible claims of malpractice.

A matter of risk

Dentists can use established, age-based tools to streamline risk assessment. For example, the American Dental Association (ADA) has one tool for patients 0 to 6 years old and another for those older than age 6. Both can be downloaded and used for non-commercial purposes (see *Caries risk assessment tools*, below).

The ADA tools assess contributing conditions (e.g., caries experience of mother, caregiver and/or other siblings), general health conditions (e.g., physical disabilities), and clinical conditions (e.g., exposed root surfaces, xerostomia). A dental hygienist can complete the first two sections of the form, but the dentist should complete the clinical section. Based on the results, patients are classified as low, moderate, or high risk for caries.

Dentists should use their clinical judgment to interpret results from assessment tools in the context of their own findings. In addition, dentists should use the ADA Caries Classification System when assessing a tooth for caries. The four criteria in this system are pit and fissure, approximal, cervical and smooth surface, and root; results are categorized into sound, initial, moderate, and advanced, all of which relate to the degree of mineral loss.

Caries risk assessment tools

Dentists can use existing tools to streamline their assessment of caries risk.

- **Caries Risk Assessment Form**
The ADA developed two versions of this form: One for children [ages 0 to 6 years](#) and another for those [older than age 6 years](#).
- **Oral Health Risk Assessment**
[This tool](#), developed by the American Academy of Pediatrics, is available in English and Spanish.

RISK MANAGEMENT ARTICLE

Addressing risk factors

Individual risks identified on assessment can be addressed through behavioral, chemical, and minimally invasive procedures. Behavioral modifications include addressing oral hygiene and diet. Teach patients or a child's caregiver to brush with fluoride toothpaste twice a day and floss daily.

Diet instructions should reflect the importance of limiting the amount and frequency of carbohydrate and sugar consumption. For example, parents may give excessive amounts of milk or dairy products with added sugars to their baby, incorrectly thinking "more is better". To help prevent potential erosion of tooth enamel, patients should eat a healthy, balanced diet and limit foods with added sugars, as well as high-acid foods, especially when it comes to snacks between meals.

Fluoride is recommended for those at risk of developing caries. Only 2.26% fluoride varnish is recommended for children younger than age 6 years; those who are older have a wider range of options.

Minimally invasive pit-and-fissure sealants may be used to help prevent caries. For more information, refer to the evidence-based clinical practice guideline on this topic (Wright, et al., 2016).

Creating an action plan

Risk factors for the development of caries can be effectively addressed when the dentist works collaboratively with patients and (in the case of children) caregivers to create an action plan. Guidelines from the American Academy of Pediatric Dentistry suggest developing a caries management protocol based on risk category and patient age. The protocol should be divided into three categories:

- diagnostics (e.g., frequency of radiographs)
- interventions (e.g., fluoride use, diet, sealants)
- restorative (e.g., active surveillance of incipient lesions).

The protocol or plan should aim to enhance protective factors and reduce harmful ones. For example, the United States Preventive Services Task Force recommends applying fluoride varnish to the primary teeth of all infants and children starting at the age of primary tooth eruption through age 5 years, which is a protective option. Encouraging healthy snacks is a simple example of a way to reduce harm.

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Who is at risk?

The ADA lists the following characteristics that place a patient at high risk for caries:

- Intake of sugary foods or drinks: A bottle or sippy cup with anything other than water at bedtime (ages 0 to 6 years) or frequent or prolonged intervals between meal exposures/day (ages over 6 years)
- Eligibility for government programs: WIC, Head Start, Medicaid or SCHIP (ages 0 to 6 years)
- Caries experience of mother, caregiver, and/or other siblings: carious lesions in the last 6 months (ages 0 to 14 years)
- Special health care needs: developmental, physical, medical, or mental disabilities (ages 0 to 14 years)
- Chemotherapy or radiation therapy (ages over 6 years)
- Visual or radiographically evident restorations/cavitated carious lesions: carious lesions or restorations in last 24 months (ages 0 to 6 years)
- Non-cavitated (incipient) carious lesions: new lesions in the last 24 months (ages 0 to 6 years)
- Cavitated or non-cavitated (incipient) carious lesions or restorations (visually or radiographically evident): three or more carious lesions or restorations in last 36 months (ages over 6 years)
- Teeth missing due to caries: any (ages 0 to 6 years) or in the past 36 months (ages over 6 years)
- Severe dry mouth (xerostomia; ages over 6 years) or visually inadequate salivary flow (ages 0 to 6 years).

Source: American Dental Association. *Caries risk assessment and management*. 2017. <http://www.ada.org/en/member-center/oral-health-topics/caries-risk-assessment-and-management>

The National Society of Dental Practitioners and the Dentist's Advantage Insurance Program for Dentists

RISK MANAGEMENT ARTICLE

Documenting care for caries

As with any dental intervention, dentists should document efforts related to caries prevention. Items to document in the dental record include:

- Completion of the assessment tool and the results
- Discussion of the assessment results with the patient
- A plan to address identified risks; include how the patient (or caregiver) was involved in developing the plan
- Patient education provided in the patient's preferred language
- Planned follow-up to evaluate effectiveness of the plan.

To encourage commitment to the plan (and as a risk management strategy), have patients or a child's caregiver sign a form listing the goals and the plan.

Risk assessment pays off

Dental caries can harm not just an individual's oral health, but his or her general health as well. Conducting a risk assessment, followed by development of a plan to address risk, keeps patients in optimal health.

Article reviewed by: Dr. Kenneth W.M. Judy, DDS, FACD, FICD, PhD

Article by: Cynthia Saver, MS, RN, President, CLS Development, Columbia, Maryland

RESOURCES

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