



## Safe medication prescribing for older adult patients

As the baby boomer generation continues to age, dentists will see an increasing number of geriatric patients. Experts have long acknowledged that children cannot be treated as “small adults” because they have unique needs. Similarly, older adults (age 65 and older) have unique needs because of physiologic and psychological changes related to aging.

The unique needs of geriatric patients are particularly important when it comes to prescribing medications. Dentists who fail to understand the nuances of safe medication practices for older adults may put their patients at risk for harm. They may also put themselves at risk for legal action prompted by situations such as adverse events from an inappropriate medication dosage or a patient’s failure to take medications correctly because of inadequate education. Fortunately, dentists can take steps to help promote medication safety in geriatric patients.

### Understand the issues

The aging population comes with dental challenges. According to the National Health and Nutrition Examination Survey, 18 percent of older adults and older have untreated tooth decay, with the percentage higher in Black Americans, Hispanics, and those with lower incomes.

Geriatric patients typically have multiple comorbidities and multiple medications (polypharmacy). Too often, patients unknowingly take medications that interact negatively because two different prescribers ordered the drugs.

In addition to polypharmacy, physiologic changes that occur with age, such as reduced liver and kidney function, need to be considered when prescribing medications for older adults. These changes may have negative effects on pharmacokinetics, which includes drug absorption, distribution, metabolism, and elimination. For example, the decreased glomerular filtration rate seen in the aging adult impairs drug elimination, which can lead to toxicity.

The physiologic changes of aging also affect pharmacodynamics. For example, older adults often have a more intense reaction to drugs affecting the central nervous system.

### Take a thorough history

A thorough patient history is especially important for safe prescribing. In addition to asking about medical conditions such as cardiovascular disease and diabetes, and current medications, including dosages and reason for taking the medication, dentists should ask about allergies, over-the-counter medications, and herbs. Herbs can interfere with the effects of prescription medications; for instance, ginkgo can interfere with the effects of prescription anticoagulants.

### Prescribe thoughtfully

Dentists should carefully consider the risks and benefits of medications prescribed to older adults. The 2015 American Geriatrics Society Beers Criteria is one resource. The list includes drugs that should be avoided or used with caution.

Because cardiovascular disease is common among older adults, Ouanounou and Haas recommend limiting epinephrine use in all geriatric patients because of possible cardiac effects and restricting the dose of epinephrine in local anesthetics to a maximum of 0.04 mg.

Ouanounou and Haas note that the drug of choice for the control of mild to moderate pain is acetaminophen, but it should not be used long-

term. On the other hand, nonsteroidal anti-inflammatory drugs should be avoided in patients with gastrointestinal disease and used with caution in patients with a history of renal disease, significant cardiovascular disease, or severe asthma.

For patients who require antibiotics, the dosage should be reduced when renal disease is present. In addition, dentists should keep in mind that older adults are more susceptible to antimicrobial-induced drug reactions such as *Clostridium difficile*-associated colitis.

### Monitor closely

When administering medications such as local anesthetics, dentists should monitor the patient’s pulse and blood pressure. Each patient’s intake of pain medication should be monitored as well to check for possible misuse.

### Consider patient limitations

Cognitive and sensory impairments can affect a patient’s ability to understand instructions related to medications and the ability to take the drugs correctly. To better communicate with patients who have cognitive impairment, dentists should hold conversations in a quiet environment, where distractions are kept to a minimum. Sit facing the patient, at eye level. Use short sentences and keep the focus on key information.

If there is any question as to a patient’s ability to understand the conversation, the dentist should ensure a family member or other responsible adult is present. The patient should have given written permission for the person to have access to his or her clinical information.

Sensory limitations include hearing and vision loss. Be sure any hearing aids are turned on and minimize background noise in the room. Recommend patients fill prescriptions at pharmacies that use large-print labels and provide medication information in large type.

### Document actions in the dental record

The patient’s history and results of any physical examination, including blood pressure, should be kept in the dental record. Also include considerations related to medication prescribing or use, such as dosage adjustments. If unsure about any particular medication the patient is taking, the dentist should contact the patient’s primary care provider and document the consultation results. A review of all medications that a patient is taking with the patient’s primary care provider is critical for excellent care.

Patient education related to medications and post-procedure care should also be documented in the dental record. Dentists should provide education in the patient’s preferred language and verify understanding of the material. If a spouse or another person was given the instructions because of a patient’s cognitive impairment, it is important to note that.

### Aging population

A 2016 report found that 8.5% of people worldwide (617 million) are age 65 and over, and this percentage is projected to be nearly 17% by 2050 (1.6 billion). Dentists need to be prepared to care for this aging population, including engaging in safe prescribing practices, to help avoid adverse effects and legal action related to inappropriate care.



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## Medication considerations for older adults

Here are some key points related to medication safety in older adults. Before prescribing any medication, the dentist should ask about allergies and check for possible interactions with the existing drugs the patient is taking.

### Local anesthetics

- Limit the dose of epinephrine contained in anesthetics to a maximum of 0.04 mg.
- Minimize the use of epinephrine.

### Analgesics

- Base prescribed doses on pain severity and medical history.
- Consider acetaminophen for the otherwise healthy older adult who has mild to moderate pain; use a dose of 500 to 1000 mg every 4 hours to a maximum of 4 g/day. Note: Acetaminophen may potentiate the action of warfarin and cause hepatic toxicity.
- Avoid nonsteroidal anti-inflammatory drugs (NSAIDs). If NSAIDs are needed, prescribe the lowest effective dose for the shortest possible time.
- Avoid opioid analgesics because they are associated with increased and more profound adverse drug reactions and prolonged durations of action. If an opioid analgesic is prescribed, the dose should be lower than that for younger patients.

### Antimicrobials

- Reduce the dose of penicillins and cephalosporins for patients with renal disease.
- Know that clindamycin, broad-spectrum penicillins, and second- and third-generation cephalosporins are most often implicated in pseudomembranous colitis.
- Consider that older adults are more susceptible to adverse drug reactions and drug interactions related to antimicrobial therapy.

Source: Ouanounou A, Haas DA. Pharmacotherapy for the elderly dental patient. *J Can Dent Assoc.* 2015;80:f18.

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## 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.

### 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, in the Resources list).

### 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.

### 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.

#### 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. Download the tools at [www.ada.org/~media/ADA/Member%20Center/Files/topics\\_caries\\_under6.ashx](http://www.ada.org/~media/ADA/Member%20Center/Files/topics_caries_under6.ashx) and [www.ada.org/~media/ADA/Science%20and%20Research/Files/topic\\_caries\\_over6.ashx](http://www.ada.org/~media/ADA/Science%20and%20Research/Files/topic_caries_over6.ashx).
- **Oral Health Risk Assessment.** This tool, developed by the American Academy of Pediatrics, is available in English and Spanish. Access it online at [www.aap.org/en-us/about-the-aap/Committees-Councils-Sections/Oral-Health/Pages/Risk-Assessment-Tool.aspx](http://www.aap.org/en-us/about-the-aap/Committees-Councils-Sections/Oral-Health/Pages/Risk-Assessment-Tool.aspx).

#### 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 that prevent or limit performance of adequate oral health care by themselves or caregivers (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>.

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