Disease/Medical Condition

ASTHMA
(also known as “reactive airway disease” and “bronchial asthma”)

Date of Publication: May 19, 2015

Is the initiation of non-invasive dental hygiene procedures* contra-indicated?  No

- Is medical consult advised? No, assuming asthma is well controlled and there are no potential acute triggers.

Is the initiation of invasive dental hygiene procedures contra-indicated?** No

- Is medical consult advised? ................................ See above.
- Is medical clearance required? ................................ No, not typically. However, if asthma is suspected to be severe and unstable, medical clearance should be obtained. Similarly, prolonged use and/or high doses of systemic (oral) steroids may predispose to infection, and medical clearance should be sought in these circumstances. Furthermore, if prednisone is being taken on an ongoing basis for chronic asthma, the patient/client’s physician may wish to increase the regular dose to prevent an adrenal crisis during a particularly stressful appointment.
- Is antibiotic prophylaxis required?................................. No, not typically. However, antibiotic prophylaxis should be considered for patients/clients at risk of immunosuppression (e.g., prolonged use and/or high doses of systemic steroids).
- Is postponing treatment advised? ................................. No, if asthma is well controlled. Yes, if asthma is severe and unstable (as evidenced by wheezing, coughing, etc.); routine dental hygiene treatment should be postponed until better control is achieved. If status asthmaticus is suspected, emergency protocol should be initiated and prompt transfer to an emergency department is indicated. An acute asthma attack requires immediate therapy.

Oral management implications

- In order to avoid an acute asthmatic attack in the office setting, the dental hygienist should determine the severity and stability of the patient/client’s asthma via good history taking. Questions should be asked regarding precipitating factors, frequency and severity of attacks, the times of day when attacks usually occur, whether this is a current or past problem, and whether the patient/client has ever received emergency treatment for an attack.
- Use of air polishers, power-driven polishers, and ultrasonic scalers should be avoided or minimized, because their use may precipitate or worsen breathing problems, or result in pathogen aspiration into the lungs. Tooth enamel dust and aerosol creation should be minimized. Prolonged supine positioning should be avoided.
- Because stress is a precipitating factor in some asthma attacks, the dental hygienist and other staff members should endeavour to provide a stress-free environment.
- Status asthmaticus is the most serious manifestation of asthma. Signs of this severe and prolonged attack of asthma (one lasting more than 24 hours, and refractory to usual therapy) include progressive dyspnea, jugular venous pulsation, cyanosis, and pulsus paradoxus (a fall in systolic pressure with inspiration). Status asthmaticus, which is often triggered by a respiratory infection, can lead to exhaustion, severe dehydration, peripheral vascular collapse, and death.
- Dental hygienists should recognize the signs and symptoms of a severe/worsening attack: inability to finish sentences with one breath; tachypnea with respiratory rate of 25 breaths/minute or more; tachycardia with heart rate of 110 beats/minute or more; diaphoresis (sweating); accessory muscle usage (e.g., sternocleidomastoid and scalene neck muscle assistance with breathing); pulsus paradoxus (which entails large decrease in systolic blood pressure during inspiration); ineffectiveness of bronchodilators to relieve dyspnea; and recent drop in forced expiratory volume in one second (FEV1) by spirometry.
- Nitrous oxide is contraindicated for patients/clients with severe asthma.
- The analgesic of choice for asthmatic patients/clients post-treatment is acetaminophen (and not ASA or nonsteroidal anti-inflammatory drugs; see below).
Disease/Medical Condition

ASTHMA

(also known as “reactive airway disease” and “bronchial asthma”)

**Oral management implications (cont’d)**

- Patients/clients using asthma medications should receive prophylactic attention. This includes instruction on rinsing their mouth after using a steroid inhaler to reduce the incidence of oral candidiasis. Occurrence can also be reduced if a “spacer” (aerosol-holding chamber) is attached to the metered-dose inhaler.
- Immediate brushing of the teeth after using an inhaler should be avoided, because it may damage enamel already weakened due to acidic pH.
- Antimicrobial mouth rinses (e.g., chlorhexidine) should be considered for patient/clients on inhalation therapy.
- Sulfite preservatives (found in local anaesthetic solutions that contain epinephrine or levonordefrin) can cause allergic-type reactions in susceptible persons. Although rare, acute asthma attacks can be triggered. Therefore, local anaesthetics without vasoconstrictor should be considered in at-risk patients/clients.

**Oral manifestations**

- Nasal symptoms, allergic rhinitis, and mouth breathing are common in environmental allergy-induced asthma.
- Patients/clients with asthma who are mouth breathers may have higher palatal vault, greater overjet, and an increased prevalence of posterior crossbite. Malocclusion is common in mouth breathing asthmatic children.
- Medications used to manage asthma — principally bronchodilators, corticosteroids, and anticholinergics — can contribute to oral disease. $\beta_2$ (beta2) agonist inhalers (bronchodilators) and anticholinergics reduce salivary flow, resulting in xerostomia. In addition, $\beta_2$ agonist inhalers also lower plaque pH, cause unpleasant taste sensation, and are associated with increased prevalence of dental caries and gingivitis in patients/clients with moderate to severe asthma. Oral candidiasis, gingivitis, and/or periodontitis occur in some patients/clients who use inhaled corticosteroids for long periods of time or at high dose. The use of steroid inhalers can also result in throat irritation, voice impairment, cough, dry mouth, and, rarely, tongue enlargement. Patients/clients using inhaled asthma medications are also at increased risk of dental erosion and periodontal disease.
- Gastroesophageal reflux, which may be exacerbated by the use of $\beta_2$-agonists and theophylline, is common in persons with asthma. This reflux can lead to erosion of enamel.
- Persons with asthma are at increased risk of calculus formation.

**Related signs and symptoms**

- Asthma affects approximately 3 million people in Canada. Its prevalence has greatly increased worldwide since the 1960s. It is predominately a disease of children, with nearly 16% of Canadian children between the ages of 4 and 11 years having been diagnosed. Symptoms and signs tend to improve in adulthood, and the disease affects about 6% of older adults. In many children, asthma resolves spontaneously after puberty.
- Asthma is a chronic inflammatory respiratory disease characterized by reversible episodes of airway reactivity manifesting as bronchial smooth muscle spasm, inflammation of bronchial mucosa, mucus hypersecretion, and sputum plugging. This results in recurrent episodes of wheezing, coughing, and dyspnea (shortness of breath). There are two types of asthma: allergic (extrinsic) and non-allergic (intrinsic). Attacks may be provoked by environmental allergens (e.g., pollen, ragweed, molds, foods, cockroaches, and dust mites), environmental pollutants and irritants (e.g., smoke and chemicals such scent and house sprays), respiratory tract infections, cold air, exercise, certain medications (ASA, nonsteroidal anti-inflammatory drugs, cholinergic drugs, and $\beta$-adrenergic blocking drugs), and highly emotional states (i.e., anxiety, stress, and excitement).
### Disease/Medical Condition

**ASTHMA**

(also known as “reactive airway disease” and “bronchial asthma”)

### Related signs and symptoms  *(cont’d)*

- Typical signs and symptoms of asthma include cough that is worse at night and chest tightness. Onset is usually sudden, with peak signs/symptoms occurring within 10 to 15 minutes. Respirations become difficult and are accompanied by expiratory wheezing. Tachypnea (fast breathing) and prolonged expiration (due to narrowing of airways) are characteristic. Episodes are usually self-limiting, but severe attacks necessitate medical assistance.
- Rhinosinusitis and obesity are common comorbid conditions.
- Asthma deaths occur most often in persons aged more than 45 years of age and largely preventable, often being associated with delays in delivery of appropriate medical care.
- Exposure by oral healthcare personnel to methacrylates found in dental restorative and sealant materials has been linked to occupational asthma.

### References and sources of more detailed information

- Asthma Society of Canada  [www.asthma.ca/adults/about/asthma_facts_and_statistics.pdf](http://www.asthma.ca/adults/about/asthma_facts_and_statistics.pdf)

* Includes oral hygiene instruction, fitting a mouth guard, taking an impression, etc.

** Ontario Regulation 501/07 made under the Dental Hygiene Act, 1991. Invasive dental hygiene procedures are scaling teeth and root planing, including curetting surrounding tissue.

**Date**: November 11, 2014