

Oral Health Fact Sheet for Dental Professionals

Children with Respiratory Disorders: Asthma and Allergies

Asthma is a chronic respiratory disease associated with airway obstruction, with recurrent attacks of paroxysmal dyspnea, and wheezing due to spasmodic contraction of the bronchi. (ICD 9 code 493.2)

Allergy is a hypersensitivity to an agent caused by an immunologic response to an initial exposure. (ICD 9 code 995.3)

Prevalence

- Asthma affects 9.3% of the population, higher in females and African-Americans

Manifestations

Clinical

- Constriction of bronchi, coughing, wheezing, chest tightness, and shortness of breath

Oral

- Increased caries risk, enamel defects
- Increased gingivitis and periodontal disease risk; and more calculus
- Higher rates of malocclusion and increased: overjet, overbite, posterior crossbite; high palatal vault
- Oral candidiasis, xerostomia, decreased salivary flow rate and salivary pH

Other Potential Disorders/Concerns

- none

Management

Medication

| SYMPTOM | MEDICATION | SIDE EFFECTS |
|------------------------|----------------------------------|---|
| Breathing difficulties | A. Bronchodilators (B2-agonists) | A. Oral candidiasis, xerostomia, decreased salivary flow rate |
| | B. Corticosteroids | B. Oral candidiasis, dental caries |
| | C. Antihistamines | C. Xerostomia |
| | D. Decongestants | D. Xerostomia |

Sedation

- Hydroxyzine and benzodiazepines recommended; avoid narcotics and barbiturates due to their histamine releasing properties → bronchospasm and potentiated allergic response.

Intravenous sedation

- Use extreme caution due to limited control of the airway.

Avoid

- Aspirin, other salicylates and NSAIDS (due to allergies) may provoke a severe exacerbation of bronchoconstriction; use acetaminophen.

Behavioral

Stress-management techniques; may use nitrous oxide in mild to moderate asthmatics after medical consultation. Anxiety can cause acute exacerbation.

Dental Treatment and Prevention

- Assess child's risk of acute exacerbation/anaphylaxis during dental treatment prior to examination. Ask detailed questions about asthma frequency (>2/week indicates poor control) and severity (previous hospitalization or emergency room visit), triggering agents, and management/medications (more medication indicates poorer control).
- Confirm that the child has taken most recent dose of medication.
- Administration of a bronchodilator as premedication before dental treatment may be useful. Verify bronchodilator and EpiPen are readily accessible.
- Reschedule symptomatic children (coughing, wheezing, etc.) if appropriate.
- Stimulating procedures (e.g. surgery, extractions, etc.) may provoke attack.
- Use of Nitrous Oxide analgesia is appropriate for patients with mild to moderate asthma, but is contraindicated during episodes of wheezing. Caution is advised for patients with severe asthma. Medical consult may be indicated.
- Some reports indicate that dental materials may exacerbate asthma including dentifrices, fissure sealants, tooth enamel dust, methyl methacrylate, fluoride trays, and cotton rolls.
- Have supplemental oxygen available during treatment in case of acute asthmatic exacerbation.
- Monitor breathing and avoid obstructing airway. Rubber dam will decrease chance of particulate inhalation.
- Consider prescribing fluoride rinses to use at home to reduce caries incidence especially for children using β_2 agonists.
- Assess orthodontic needs for malocclusion early.

Allergy

- **Severe latex allergy:** Consider all sources of latex including gloves, rubber dams, prophylaxis cups, and orthodontic elastics. Latent allergens in air may cause anaphylactic symptoms.
- Be aware that sinus pressure on maxillary nerves can cause referred tooth pain in children with allergies.

Emergency Management – Discontinue dental procedure, follow standard protocols:

Asthma

- Administer β_2 agonist via inhaler or nebulizer, and administer oxygen via face mask or nasal hood.
- If symptoms worsen or do not improve, administer epinephrine (1:1000 solution, 0.01 mg/kg body weight) subcutaneously and alert emergency medical services.
- In cases of anaphylaxis: epinephrine 0.01 mg/kg body weight (max 0.5 ml) may repeat q 15 minutes x 2 doses.

Allergy

- In cases of milder allergic reaction: Diphenhydramine 1–2 mg/kg (max. 50 mg).
- If symptoms worsen or do not improve, administer epinephrine (1:1000 solution, 0.01 mg/kg body weight) subcutaneously and alert emergency medical services.
- Children with severe allergy may carry an EpiPen for immediate administration of epinephrine.
- In cases of anaphylaxis: Epinephrine 0.01 mg/kg body weight (max 0.5 ml) may repeat q 15 minutes x 2 doses.

Look for signs of physical abuse during the examination. Note findings in chart and report any suspected abuse to Child Protective Services, as required by law. Abuse is more common in children with developmental disabilities and often manifests in oral trauma.

Additional information: [Special Needs Fact Sheets for Providers and Caregivers](#)

Children with Respiratory Disorders: Asthma and Allergies continued

References

- Steinbacher, DM., Glick, M. (2001) The dental patient with asthma. An update and oral health considerations. *Journal of American Dental Association*, 132: 1229-1239.
- Ersin, NK., Gulen, F., Erondat, N., Cogulu, D., Demir, E., Tanac, R., Aydemir, S. (2006) Oral and dental manifestations of young asthmatics related to medication, severity and duration of condition. *Pediatrics International*, 48: 549-554.
- Faria, VCM., de Oliveira, MA., Santos, LA., Santoro, IL., Fernandes, ALG. (2006) The effects of asthma on dental and facial deformities. *Journal of Asthma*, 43: 307-309.

Additional Resources

- [NIH Institute for Asthma and Allergies](#)
- [Special Care: an Oral Health Professionals Guide to Serving Young Children with Special Health Care Needs](#)
- [Bright Futures Oral Health Pocket Guide](#)
- [American Academy of Pediatric Dentistry: 2011–2012 Definitions, Oral Health Policies and Clinical Guidelines](#)
- [MCH Resource Center](#)
- [ASTDD-Special Needs](#)
- [NOHIC-NIDCR publications](#)
- Free of charge CDE courses: [MCH Oral Health CDE](#) (4 CDE hours); [NIDCR CDE](#) (2 CDE hours)



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