



ASTHMA BACKGROUNDERS

Introduction

Asthma is a serious, chronic, immunological disease of the lungs that causes narrowing of the breathing airways during attacks or episodes. During these attacks, breathing becomes difficult and is accompanied by wheezing, coughing, and shortness of breath. Severe asthma attacks can and do cause death.

The number of children with asthma has more than doubled in the past 15 years so that, currently, approximately 1 in 13 school-aged children in the U.S. are affected. For example, in a typical elementary school with an enrollment of 500, close to 40 students can be expected to have asthma.

The exact causes of asthma are unknown, but probably involve the complex interaction of a number of factors. However, we know that asthma attacks are often triggered by airborne allergens and irritants typically found in schools. Common asthma triggers in schools include, but are not limited to:

- ② Dust mites
- ② Pests (body parts, urine and feces from cockroaches and rodents)
- ② Dander (skin scales, fur) from furred and

- feathered animals
- ② Molds
- ② Pollen
- ② Maintenance products (cleaning supplies, pesticides, etc.)
- ② Strong odors (perfumes, cleaning products, art supplies, etc)
- ② Other: exercise, extreme air temperatures, emotional stress, respiratory tract infection, food products

Many of the triggers listed above are components of ordinary dust found in buildings.

Managing Triggers

The manner in which a school is operated and maintained can impact the exposure of asthmatics to these triggers. Many triggers can be controlled through proper cleaning procedures, pest management programs, limiting mold and moisture, and use of efficient air filters. Links to other ***Backgrounders*** that discuss some of these control techniques for specific triggers are summarized in the following table.

Asthma Trigger	Backgrounder(s) that Discuss Appropriate Control Strategies
Dust Mites	<i>Cleaning Management</i> <i>Mold and Moisture</i>
Pests: cockroaches and rodents	<i>Pest Management</i> <i>Cleaning Management</i>
Molds	<i>Mold and Moisture</i> <i>Air Cleaning for Airborne Allergens</i>
Maintenance Products	<i>Cleaning Management</i> <i>Hazardous Materials and Solid Waste Management</i>

Additional information on specific environmental triggers include:

Dust Mites are microscopic animals, related to spiders, that are most often associated with the home environment, where they are found in bedding, in carpets, clothing, and fabric-covered furniture. Dust mites feed on skin flakes from people, animals, and paper dust and thrive in warm, moist environments. Dust mite feces is a strong sensitizing agent and can aggravate allergies or trigger asthma attacks. Because dust mites are found in carpets, clothing, and fabric-covered furniture, schools should use proper cleaning methods (such as vacuums with high efficiency particle filtration), control indoor relative humidity levels to less than 50%, and avoiding the use of upholstered furniture and carpeting to reduce the dust mite allergen.

Animal exhibits in classrooms often feature *furred animals*, whose dander, feces, and urine can act as allergens to some sensitive individuals. Solutions include prohibiting or limiting exhibits, substituting non-furred and non-feathered animals (e.g., reptiles), or requiring frequent and thorough cleaning of the animals cages (when the sensitive individuals are not present). Note that asthmatics can be exposed to dander brought into the school environment on the clothing of students and staff who have pets at home. Students with asthma should not be seated next to students with pets. Dander that is released from their clothing into the carpet and onto surfaces should be removed by following cleaning procedures recommended in the *Cleaning Management Backgrounder*.

Strong odors and fragrances may result from the use of classroom supplies, cleaning and other maintenance products, personal products (perfumes, hair sprays, etc.), repairs and renovations (e.g., roofing), and outdoor sources (local shops and industries). The remedy for odor problems depends on the source. For example, low odor cleaning and maintenance products could be substituted, use of personal fragrances could be limited or prohibited, odorous repairs could be performed after hours or over break periods, and

environmental regulatory agencies may negotiate with originators of outdoor sources - or special outdoor air filters may be considered.

Treatment and Medications

Medications, in the form of pills, liquids, inhalers, or nebulizers, are an important part of any program for managing an individual's asthma. Children and staff with asthma should be under the regular care of a doctor or health care agency/clinic, and school nurses and teachers should be notified of their condition.

Emergency Response

Nurses and staff should be familiar with emergency response procedures for an asthma episode. If a child is having an asthma attack,

1. Sit the child upright and try to calm the child,
2. If the child is thirsty, provide clear liquids -- preferably warm,
3. If permitted by regulations, administer prescribed medications,
4. Contact the appropriate family member or guardian,
5. If symptoms persist, or worsen, immediately call for emergency medical services.

Asthma Education Programs

The Childhood Asthma Awareness Project and the Open Airways for Schools program are educational programs that have been developed by the American Lung Association (ALA) for children with asthma. These excellent programs are probably most appropriate for elementary and middle school audiences, and include materials for children, school staff, and parents on asthma symptoms, triggers, management, and responses. For more information on these programs, contact the nearest ALA office.

This document has been developed for the H.E.L.P. for Kids Project. Contributing to this backgrounder: Bradley Turk, Mountain West Technical Associates; Dr. Richard Shaughnessy, University of Tulsa; Terry Brennan, Camroden Associates.