



# Asthma and Environment Fact Sheet for Parents and Schools

Healthy Schools Network, Inc.

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- \* Indoor exposures can be 100-1,000 times more intense than outdoor exposures. Since Americans spend up to 90% of their time indoors, exposure to indoor allergens and irritants may play a significant role in triggering asthma episodes. Asthma “triggers” include dusts, strong odors, fumes from cleaning products, construction dusts and fumes, diesel exhaust, smoke (especially from tobacco), toxic pesticides, molds and mildews, insect and pet dander, airborne chemicals, allergens, and other impurities in the air. (EPA, 2010; IOM, 2011; NHLBI, 2007)
- \* Asthma has reached epidemic proportions in the United States, affecting about 25.5 million people of all ages and races, including about 6.8 million children. (NHIS, 2012)
- \* Nearly 1 in 10 school-aged children has asthma, and the percentage of children with asthma is rising more rapidly in pre-school-aged children than in any other age group. (EPA, 2010)
- \* Asthma accounts for 13 million days of school missed annually and is the leading cause of school absenteeism due to a chronic illness. Nearly 1 in 2 children miss at least one day of school each year due to asthma. (EPA, 2010; CDC, 2012)
- \* Asthma is the third-ranking cause of hospitalization among children. Asthma hospitalizations in children can increase up to 300% upon returning after school vacations. (CDC, 2009; Lin et. al., 2011)
- \* The cost of treating asthma in children and adults is \$56 billion each year. The yearly cost of care for a child with asthma was \$1,039 in 2009. The average length of stay at a hospital due to asthma complications is 3.6 days. (CDC, 2012; CDC, 2010)
- \* Asthma disproportionately affects minority children and children whose family income falls below the poverty line. Black children are twice as likely to be hospitalized and four times as likely to die due to asthma complications. Minority children are less likely to be prescribed or take recommended treatments for their asthma. (EPA, 2012)
- \* Indoor contaminants and the outside environment can aggravate asthma and can cause new cases of asthma. (IOM, 2011)
- \* Schools are the “workplaces” of children; they are required to be there by law. Yet the EPA estimates that roughly a third of schools have poor indoor air quality. (EPA, 2014)
- \* Schools with healthier indoor air have fewer asthma attacks, better attendance, fewer bronchitis and upper respiratory illnesses, and fewer visits to the school nurse with complaints of stomachaches, headaches, and sinus infections. (EPA, 2014)
- \* Federal laws require schools to provide a “free appropriate public education” and accommodations to students—including those with health problems, like serious asthma—that can interfere with learning. (IDEA, ADA)

# Asthma Fact Sheet and Common Asthma Drug Interactions

Parents of children with asthma should be aware that asthma can be seriously aggravated by the environment and that controlling asthma “triggers” can reduce your child’s health and learning problems caused by asthma. As a parent, you should also be aware that medications can have side effects, some of them potentially serious. You should ask your physician about the side effects of prescribed medication. **Always alleviate your child’s asthma through eliminating or reducing environmental triggers in your child’s home and school.**

**Controller Medications** are long-acting medications that help keep asthma under control and reduce the chances of having an attack. They work slower and longer than short-acting relievers by relaxing the airways, increasing blood flow to the lungs, and decreasing airway swelling.

**Reliever Medications** work quickly to open airways and make it easier to breathe by relaxing the muscles that tighten around the airways. They can help stop asthma attacks once they have started.

Commonly prescribed medications and their possible adverse effects are as follows: (CTDPH, 2012)

Controller Medications	Possible Adverse Effects
<b>Long Acting Bronchodilators</b> Salmeterol, Formoterol, Fluticasone Proionate & Salmeterol, Budesonide & Formoterol, Theophylline (oral)	Throat irritation, tachycardia, headache and dizziness, nausea, vomiting, diarrhea, anxiety, nervousness, irritability, insomnia, seizures (Theophylline)
<b>Corticosteroids</b> Beclomethasone, Budesonide, Fluticasone, Triamcinolone, Prednisone (oral)	Dry mouth, sore throat, cough, fungal infection of mouth, temporary delayed growth in children (Prednisone)
<b>Non-Steroid Anti-Inflammatories</b> Cromolyn, Nedocromil	Cough, irritation, skin rash
<b>Leukotriene Modifiers (oral)</b> Montelukast Sodium, Zafirlukast, Zileuton	Headache, dizziness, nausea, vomiting, diarrhea
Reliever Medications	Possible Side Effects
<b>Short Acting Bronchodilators</b> Albuterol Sulfate, Levalbuterol, Terbutaline, Metaproterenol, Bitolterol, Pirbuterol, Ipratropium	Throat irritation, tachycardia, headache, dizziness, nausea, vomiting, diarrhea, anxiety, hives or skin rash, nervousness, tremors

## Resources for this guide follow below:

- Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities, US Environmental Protection Agency, May 2012, [http://www.epa.gov/childrentaskforce/federal\\_asthma\\_disparities\\_action\\_plan.pdf](http://www.epa.gov/childrentaskforce/federal_asthma_disparities_action_plan.pdf)
- Climate Change, the Indoor Environment, and Health, The Institute of Medicine, National Academies Press, 2011, [http://books.nap.edu/catalog.php?record\\_id=13115](http://books.nap.edu/catalog.php?record_id=13115)
- National Asthma Education and Prevention Program, Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma, National Heart, Lung, and Blood Institute, 2007, <http://www.nhlbi.nih.gov/guidelines/asthma/>
- National Health Interview Survey (NHIS) Data, 2012, <http://www.cdc.gov/asthma/nhis/2012/data.htm>
- Managing Asthma in the School Environment, US Environmental Protection Agency, 2010, <http://www.epa.gov/iaq/schools/managingasthma.html#Epidemic>
- Asthma’s Impact on the Nation, Centers for Disease Control and Prevention, 2012, [http://www.cdc.gov/asthma/impacts\\_nation/default.htm](http://www.cdc.gov/asthma/impacts_nation/default.htm)
- America Breathing Easier, National Asthma Control Program, Centers for Disease Control and Prevention, 2009, <http://www.cdc.gov/asthma/nacp.htm>
- Lin, S., et al. "Impact of the return to school on childhood asthma burden in New York State." *International journal of occupational and environmental health* 17.1 (2011): 9.
- National Hospital Discharge Survey, Centers for Disease Control and Prevention, 2010, [http://www.cdc.gov/nchs/nhds/nhds\\_tables.htm](http://www.cdc.gov/nchs/nhds/nhds_tables.htm)
- Vital Signs: Asthma, Centers for Disease Control and Prevention, May 2011, <http://www.cdc.gov/vitalsigns/asthma/>
- Creating Healthy Indoor Environments in Schools, US Environmental Protection Agency, 2014, <http://www.epa.gov/iaq/schools/>
- Individuals with Disabilities Education Act, 2004, <http://www.gpo.gov/fdsys/pkg/PLAW-108publ446/html/PLAW-108publ446.htm>
- Common Asthma Medications, Connecticut Department of Public Health, 2012, [http://www.ct.gov/dph/lib/dph/bems/asthma/pdf/pt.\\_med\\_ed.\\_sheet.pdf](http://www.ct.gov/dph/lib/dph/bems/asthma/pdf/pt._med_ed._sheet.pdf)