

Breathing is Not Optional

Asthma is the most common chronic illness affecting children



Create healthy breathing zones:

Most asthma attacks are triggered by environmental factors

Outdoor allergens

☞ **Pollen.** Bermuda grass lawns should be cut every 4-5 days, sprinkled daily during the growing period (April to November), and fertilized the summer, since it is a bad allergen. Eliminate plants known to produce allergenic pollen. <http://allergy.peds.arizona.edu/southwest/>

Indoor allergens

☞ **Cockroaches.** Use Integrated Pest Management (IPM) to prevent cockroach, mouse, and other pest problems.. www.epa.gov/pestic

☞ **Mold.** Fix leaks and moisture problems and thoroughly dry wet areas within 24-48 hours to prevent mold growth. Clean hard, moldy surfaces thoroughly. http://www.epa.gov/mold/mold_remediation.html

☞ **Pets.** Remove classroom animals from the school, if possible. If not, locate animals away from sensitive students and ventilation systems.

☞ **Dust mites.** Make sure schools are dusted and vacuumed thoroughly and regularly, and keep classrooms free of clutter. If stuffed toys are present, ensure they are washable and wash them regularly in hot water and thoroughly dried. <http://lancaster.unl.edu/pest/resources/DustMites311.shtml>

Outdoor irritants

☞ **Outdoor air pollution.** Air pollutants in Arizona cities are principally nitrogen oxides, ozone, carbon monoxide and particulates. Local sources of air pollution are traffic (greater than 40%), vehicle-generated paved road dust (12%), and dust from unpaved roads (8-10%). Pollution from automobile emissions (mainly nitrogen dioxide) increases in the winter, particularly on days with temperature inversion. As in other cities, use of oxygenated motor fuels contributes to aldehyde and other volatile organic compound pollution.

Detailed daily information on air quality in Arizona can be found on the web sites for Tucson <http://www.airinfo.org/>, Green Valley <http://www.deq.co.pima.az.us/empact/default.htm>, Maricopa County <http://www.maricopa.gov/AQ/> and Pinal County <http://co.pinal.az.us/AirQual/monitoring.asp>.

Less detailed information on a number of cities in the Southwest is given by Weather.com <http://www.weather.com/activities/health/airquality/?from=ll&state=AZ>. On days when your State calls an Ozone Action Day or Pollution Advisory, people with asthma should limit prolonged physical activity outdoors. Consider adjusting outdoor activities to early in the morning or later in the evening. <http://www.azdeq.gov/environ/air/monitoring/links.html>

☞ **Pest management.** Use non-chemical methods of pest management when ever possible. When using pesticides, follow the manufacturer's directions. Mix or dilute outdoors in a well ventilated area, that is no where near any air intake areas. Do not store unneeded pesticides inside buildings; dispose of unwanted containers appropriately. Since pesticides can be found far from the site of their original application, it is prudent to reduce the use of chemical pesticides outdoors as well as indoors. By appropriately fertilizing, watering, and aerating lawns, the need for chemical pesticide treatments of lawns can be dramatically reduced. <http://www.epa.gov/pesticides/ipm/index.htm>

Indoor irritants

☞ **Pest management.** Pesticides can both cause and trigger asthma, reduce pesticide use and use only reduced-risk pesticide options as part of an IPM program.

<http://www.calhealthyschools.org/PDFs/pesticidesandasthma.pdf> Do not use or store fabrics with moth repellents (moth balls).

<http://npic.orst.edu/hottopic/MothBalls.pdf>

☞ **Cleaning and maintenance practices.** Vacuum cleaners should be fitted with a HEPA filter system. Wet mop or wet dust cloth, never use a dry broom, dry dust cloth, or dry mop. General good housekeeping, and maintenance of heating and air conditioning equipment, are very important. Adequate ventilation and good air distribution also help. The key to mold control is moisture control. If mold is a problem, get rid of excess water or moisture and clean up the mold. Maintaining the relative humidity between 30 and 60 % will help control mold, dust mites, and cockroaches. Consider damp dusting and high efficiency vacuum cleaners. Upgrade filters in ventilation systems to medium efficiency when possible and change frequently. Exhaust combustion appliances to the outside and clean and maintain flues and chimneys. When construction or remodeling is underway, special precautions should be used to separate work areas from occupied areas. Reduce or eliminate carpeted flooring. Air cleaning units can help and include: mechanical, electronic, or ionic systems. Maintain HVAC systems on a scheduled inspection and cleaning program. <http://www.epa.gov/iaq/schooldesign/hvac.html>

☞ **Fragrances.** Perfumes, air fresheners, candles, incense, etc. all irritate respiratory conditions and should be avoided. <http://www.noattacks.org/triggers.html>

☞ **Fumes entering from outside.** Effective technologies to reduce PM_{2.5} include particulate filters and catalysts that can be installed on buses. An easy, no-cost, and effective way to control fine particulate matter is to minimize idling by buses <http://www.azdeq.gov/function/about/bus.html>, trucks, and other vehicles. Clearly mark air-intake areas so workers can avoid generating fumes nearby.

Technical Environmental Health Help:

☞ Tools for schools. <http://www.epa.gov/iaq/schools/>

☞ HealthSEAT. <http://www.epa.gov/schools/healthyseat/index.html>

☞ IAQ Building Education and Assessment Model (I-BEAM). http://www.epa.gov/iaq/largebldgs/i-beam_html/ibeam.htm

☞ School Advanced Ventilation Engineering Software (SAVES). <http://www.epa.gov/iaq/schooldesign/saves.html>

Thank You for Caring for Our Children

