

Protecting Young Lungs at Work

A Primer for Day Care Providers on the Asthma and Air Quality Connection

Today about 63,000 Dane County residents, including 11% of the children in the County, suffer from asthma that is aggravated by air pollution.¹

Childcare providers need to stay aware of outdoor air quality on a daily basis, as well as know the full medical history of children in their care. Children with respiratory illnesses or asthma can become ill when they are exposed to unhealthy air pollution levels. And even healthy children can experience symptoms when air pollution concentrations rise.

Simple Steps You Can Take to Reduce Ozone and Fine Particle Pollution and Protect the Health of Children in Your Care

Actions Specific To Day Care Providers:

- Know what the daily air quality levels are in your area (See “Resources” listed below for how to get this information.)
- Understand the Air Quality Index (AQI): The AQI is an index for reporting daily air quality and tells how clean or polluted the air is and its possible effects. The EPA has established [six colors](#) in association with the AQI.
- Day care centers should be prepared to adjust outdoor activities to protect children’s health on days when ozone, fine particle pollution or both exceed federal standards.
- Work with parents and bus drivers to reduce vehicle idling during drop-off and pick-up times.

General Actions We All Can Take:

Reduces Both Pollutants:

- Join a car/vanpool or locate convenient biking or walking routes near you with the help of Rideshare: See <http://www.ci.madison.wi.us/rideshare/>
- NOTE: On those days that are *already* at high pollution levels, walking or biking might not be advisable for asthma sufferers.
- Ride the Metro Transit bus to work or other destinations: See <http://www.cityofmadison.com/metro/> or call 266-4466 for trip planning assistance.
- Combine errands and reduce trips.
- Don’t let engines idle -- It gets 0 MPG!
- Conserve energy at home and work by turning off unnecessary lighting, computers and other electrical devices when not in use. Set your thermostat lower in the winter and higher in the summer.

Reduces Ozone Specifically:

- Refuel your vehicle after dusk, if possible.
- Use low emission gas cans.
- Reschedule or delay yard work using gas-powered equipment until after 6 p.m.

Reduces Fine Particles Specifically:

- Open burning and use of burn barrels should be avoided.
- Avoid use of outdoor wood burning boilers and fireplaces.
- If you use a wood burning stove, make sure it is an efficient model; burn small hot fires with dry, seasoned wood.

Two of the major air pollutants that aggravate asthma are *ground-level ozone* and *fine particle pollution*.

What is Ozone (O³)?

Ozone in the upper atmosphere is a good thing, protecting the earth from the sun's harmful ultraviolet rays. But ozone found close to the earth's surface, or ground-level ozone, is a key component of smog and a harmful pollutant (i.e., ozone is "good up high, but bad nearby").

Unhealthy levels of ozone occur on hot days with lots of sun and little or no wind when pollutants (volatile organic compounds (VOCs) and nitrogen oxides (NOx)) "cook" in the hot sunlight to form ground-level ozone. The major sources of emissions (VOCs and NOx) that form ozone include: Cars, trucks and buses; gasoline storage, transfer and refueling; large utility and industrial facilities; industrial solvents and degreasing agents; and off-road engines such as construction equipment, aircraft, locomotives, boats and lawn & garden equipment.

What is Fine Particle Pollution (PM 2.5)?

Fine particles are very small particles with diameters less than 2.5 microns (a human hair is about 30 times larger in diameter!). Due to their small size, fine particles are easily inhaled and are deeply deposited into the lungs, which can aggravate and even cause serious health problems such as heart and lung disease.

Fine particles come directly from sources such as diesel engines, wood burning activities, and other industrial and commercial combustion processes. They also are formed by reactions of gases in the air that are produced by power plants, automobiles, industrial facilities, and agricultural operations. Unlike ozone, which increases in the summer months, unhealthy levels of fine particle pollution can occur year-round and in Dane County we usually see our highest levels in the winter months.

Resources:

About the Dane County Clean Air Coalition:

The Dane County Clean Air Coalition is made up of businesses, schools, government agencies and citizens whose goal is healthy air. Since 2003, we have worked together to enhance Dane County's quality of life by reducing air pollution through voluntary programs and partnerships that help the county continue to meet federal air quality standards. The Coalition offers residents, businesses, institutions and local governments information, assistance and tools to help them take daily action for healthier air. Visit www.healthyardane.org to learn more about how you can *do your share for healthier air*.

There are several ways to get daily updates on air quality in your area to stay informed and help you plan for emission-reducing activities and appropriate outdoor activity:

Sign up for: The DNR listserv and receive air quality advisories by e-mail or text message. Go to <http://dnr.wi.gov/org/aw/air/health/listserv.html>. You also can sign up to receive daily air quality forecasts for the Madison/Dane County area from AIRNow by subscribing at <http://www.enviroflash.info/>.

Visit the AIRNow website for Madison air quality forecasts at http://www.airnow.gov/index.cfm?action=airnow.local_city&cityid=200

Call the Air Quality Hotline at 1-866-DAILY AIR (1-866-324-5924) for updates when air advisories are issued.

Updated October 2011, Lisa MacKinnon, Clean Air Coalition Coordinator

¹ Source: Lifetime Asthma Prevalence. 2006-2008 Wisconsin Behavioral Risk Factor Surveillance System, Bureau of Health Information and Policy, Division of Public Health, Wisconsin Department of Health Services.