

◆ **Recommended Component: Manage Students' Exposure on High Outdoor Air Pollution Days**

Information about daily, localized outdoor air pollution is readily available through the EPA's Air Quality Index (AQI), which is a standardized system that state and local air pollution control programs use to notify the public about levels of air pollution. The color-coded AQI delivers specific information about steps to protect yourself on high pollution days. (See the AQI Fact Sheet included with this hand-out.)

When ozone or particle pollution levels reach Orange or Red on the AQI, people with asthma should limit or avoid prolonged outdoor physical exertion. On Red days, everyone (including those without health problems) should avoid outside exertion. When ozone or particle pollution levels reach yellow on the AQI, unusually sensitive individuals should consider reducing prolonged or heavy exertion; this may include some people with asthma.

Schools should understand the relationship between particle pollution and ozone and health and be prepared to take specific action. Complete information about the AQI and accessing local air quality information is available through EPA's Airnow project. The Airnow homepage (<http://www.epa.gov/airnow>) provides information about particle pollution, smog, air quality levels, and a student curriculum on the AQI (<http://www.epa.gov/airnow/aqikids/index/html>).

Manage Students' Exposure on High Outdoor Air Pollution Days Checklist

- Establish school policies to manage exposure on high pollution days
- Raise awareness of air pollution effects and symptoms among school personnel, parents, and students
- Prepare to respond to local situations other than smog and particle pollution that may affect air quality
- Implement individual management of exposure to outdoor air pollution for sensitive students

► **Establish school policies to manage exposure on high pollution days.**

Schools policies that manage students' exposure on high pollution days should be based on recommendations included in the AQI, which reports localized particle pollution and ozone (smog) levels. (See the sample School Policy for Managing Students' Exposure to Outdoor Air Pollution and Important Information on Ozone and Your Child's Health included with this hand-out.)

Specifically, when particle pollution and/or ozone levels reach the "Orange" level, all children and exercising adults are at risk for health problems from ozone exposure. Schools should limit outdoor exertion for all children and exercising adults (including high school athletes). When pollution levels reach the "Red" level, all children and adults should avoid prolonged outdoor exertion.

Consider three basic principles to protect children on high pollution days:

- Plan to make changes in athletic practices and/or games/meets when AQI levels reach Orange and/or Red levels, according to information reported by EPA on its outdoor air pollution page, www.epa.gov/airnow.

- Schedule activities during “off-peak” times of year when high air pollution episodes are not anticipated; this is pertinent for outdoor physical education activities or other “intramural” outdoor activities.
- Provide lower-impact activities for children with asthma who are sensitive to particle or ozone pollution.

See the resource, Solutions for Physical Education and Recess on High Ozone Days, included with this hand-out.

► **Raise awareness of air pollution effects and symptoms among school personnel, parents, and students.**

Include information about the relationship between outdoor air pollutants and asthma during staff in-services, student asthma education programs, and parents’ group and individual meetings. Distribute the EPA publications *Smog: Who Does It Hurt?* and *Particle Pollution and Your Health* (available online at <http://www.epa.gov/airnow>).

► **Prepare to respond to local situations other than smog and particle pollution that may affect air quality.**

Situations other than a high ozone or particle pollution day may result in students and staff being exposed to other harmful pollutants other than ozone. Schools should set policies based on information provided by local health departments or air pollution control agencies. Exposures may include (but are not limited to):

- sulfur dioxide from nearby factories and power plants
- diesel exhaust
- agricultural burning
- forest fires and pesticide spraying/pesticide drift

► **Implement individual management of exposure to outdoor air pollution for sensitive students.**

Consider basing this on three key items:

- Asthma Action Plans should include information on air pollutants, such as any known outdoor pollutants that are triggers for individuals
- Modify activities and exposure for students with respiratory symptoms on high pollution days
- Establish a referral process for students with symptoms, to confirm outdoor air pollution as a trigger; this would involve communication between schools, parents, and primary care physician or medical home

REFERENCE MATERIALS

- ❖ Air Quality Index Fact Sheet
- ❖ Sample School Policy for Managing Students’ Exposure to Outdoor Air Pollution
- ❖ Important Information on Ozone and Your Child’s Health
- ❖ Solutions for Physical Education and Recess on High Ozone Days



THE AIR QUALITY INDEX FACT SHEET

Using Air Quality Information to Protect Yourself From Ozone Air Pollution

The Air Quality Index, or AQI, is the standardized system that state and local air pollution control programs use to notify the public about levels of air pollution. Keeping track of the current air quality information can help you plan your activities during the ozone season so as to minimize your exposure to unhealthy levels of air pollution. This is especially important for people who are sensitive to air pollution, including young children, and people with asthma and other lung diseases. The American Lung Association also recommends that the elderly take precautions on high ozone and high particle pollution days.

How Does the Air Quality Index Work?

In most cities and suburbs, air pollution levels are measured daily and ranked on a scale of 0 for pristine air all the way up to 500 for air pollution levels that pose immediate danger to the public (fortunately, we do not have pollution levels that high in this country anymore). The AQI further breaks air pollution levels into five categories, each of which has a descriptor (name), color, and advisory statement. The AQI tracks levels of two pollutants: ozone (smog) and particle pollution. The purpose of the AQI is to help you understand what local air quality means to your health. To make it easier to understand, the AQI is divided into six categories. Each category corresponds to a different level of health concern. The six levels of health concern and what they mean are:

- **“Good”** The AQI value for your community is between 0 and 50. Air quality is considered satisfactory, and air pollution poses little or no risk.
- **“Moderate”** The AQI for your community is between 51 and 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.
- **“Unhealthy for Sensitive Groups”** When AQI values are between 101 and 150, members of sensitive groups may experience health effects. This means they are likely to be affected at lower levels than the general public. For example, people with lung disease are at greater risk from exposure to ozone, while people with either lung disease or heart disease are at greater risk from exposure to particle pollution. The general public is not likely to be affected when the AQI is in this range.
- **“Unhealthy”** Everyone may begin to experience health effects when AQI values are between 151 and 200. Members of sensitive groups may experience more serious health effects.
- **“Very Unhealthy”** AQI values between 201 and 300 trigger a health alert, meaning everyone may experience more serious health effects.
- **“Hazardous”** AQI values over 300 trigger health warnings of emergency conditions. The entire population is more likely to be affected.

Air Quality Index Fact Sheet (cont.)

EPA has assigned a specific color to each AQI category to make it easier for people to understand quickly whether air pollution is reaching unhealthy levels in their communities. For example, the color orange means that conditions are “unhealthy for sensitive groups,” while red means that conditions may be “unhealthy for everyone,” and so on.

| Air Quality Index Levels of Health Concern | Numerical Value | Meaning |
|---|------------------------|--|
| Good | 0-50 | Air quality is considered satisfactory, and air pollution poses little or no risk. |
| Moderate | 51-100 | Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution. |
| Unhealthy for Sensitive Groups | 101-150 | Members of sensitive groups may experience health effects. The general public is not likely to be affected. |
| Unhealthy | 151-200 | Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects. |
| Very Unhealthy | 201-300 | Health alert: everyone may experience more serious health effects. |
| Hazardous | > 300 | Health warnings of emergency conditions. The entire population is more likely to be affected. |



Sample School Policy Managing Student's Exposure to Outdoor Air Pollution

Monitoring Ozone Levels:

The school district is responsible for monitoring and disseminating to the schools the air pollution information/forecast. This information will be gathered daily from (the media, local air pollution control agency, health department, etc.) and, when there is elevated air pollution, disseminated to each school principal via (phone, email, and fax).

Reducing Student Exposure:

Decisions for reducing exposure to air pollution will be based on individual student risk. Students at highest risk (including upper elementary and middle school students, students with respiratory diseases, and sports or activities that require heavy exertion for extended periods of time) will be protected.

On **Orange Days**, the school will be aware and monitor for individual symptoms. Students with a history of reactions to ozone exposure (often 24 hours after exposure) will be encouraged to minimize their exposure, via reduced exertion and/or duration.

On **Red Days**, the school will limit exposure for all students to one hour at heavy exertion levels (this includes sports that require high intensity workouts for long periods: basketball, soccer, running). Potential solutions to limit exposure include (but are not limited to):

- 1) Having practice/games inside
- 2) Having practice/games early in the day before ozone levels rise
- 3) Rotating players often and having breaks
- 4) Lowering exertion during practice (examples include skill building versus endurance training)



Important Information on Ozone and Your Child's Health

Dear Parent:

High levels of ozone in the air we breathe can have serious health effects on any person. In our area, high ozone can occur between the months of _____ and _____. Since that falls partly within the school year, we wanted to notify you of the school's policy on ozone exposure (enclosed) and provide you with information on signs and symptoms of ozone exposure as they can occur more than 24 hours after exposure.

Symptoms may include:

- 1) shortness of breath
- 2) coughing
- 3) pain when taking a deep breath
- 4) wheezing
- 5) eye and nose irritation

Talk to your doctor if your child complains of the symptoms listed above, especially if they occur after high ozone days. Please let us know if your child has been impacted by ozone. This information will allow us to develop an exercise routine that allows your child to get plenty of exercise without feeling unwell. Also, if your child has a history of asthma, please be sure to contact the school nurse with all appropriate health forms.

For more information about ozone and how it affects health, please read the publication, "Smog: Who Does It Hurt?" from the Environmental Protection Agency (EPA). You can access the publication on the EPA's website, at <http://www.epa.gov/airnow/health/>. If you do not have access to the internet, we can provide a copy of the document for you to read.

We look forward to a healthy and active new school year!

Enclosure: School Ozone Policy



Solutions for Physical Education and Recess on High Ozone Days

It is important to remember that ozone affects each child differently. Therefore, the best way to monitor activities during times of elevated exposure to ozone is to have children monitor and report any symptoms that might be related to ozone. If a child is particularly affected by ozone, or has been in the past, take steps to ensure that their exposure or activity level is reduced to decrease the chance of symptoms.

Purple Days:

Move activities inside

On **Red or Orange Days**, it is possible to reduce the risk of breathing problems by reducing exposure (either lowering the intensity of the activity or reduce the time exposed). **Always watch children carefully for signs of distress and ensure ready access to medications for kids with asthma.**

Possible Ways to Reduce Risk:

- 1) Reduce intensity of the activities:
 - a. Switch out players more often during practice and games
 - b. Focus on skill development versus endurance training
 - c. Alternate endurance activities with skills development
 - d. Take frequent rest and water breaks
- 2) Spend part of practice indoors and part outdoors
- 3) Split practice into two parts: one before and one after school
- 4) During weeks or months of high ozone, move practices to before school
- 5) Shorten the length of practices
- 6) Move inside when practical

