Air Quality Advisories: Reaching the People Who Need Them Most

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<table>
<thead>
<tr>
<th>Descriptors</th>
<th>Cautionary Statement</th>
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</thead>
<tbody>
<tr>
<td>Good 0 – 50</td>
<td>No message</td>
</tr>
<tr>
<td>Moderate 51 – 100</td>
<td>Unusually sensitive individuals</td>
</tr>
<tr>
<td>Unhealthy for Sensitive Groups 101 - 150</td>
<td>Identifiable groups at risk - different groups for different pollutants</td>
</tr>
<tr>
<td>Unhealthy 151 - 200</td>
<td>General public at risk; sensitive groups at greater risk</td>
</tr>
<tr>
<td>Very Unhealthy 201 - 300</td>
<td>General public at greater risk; sensitive groups at greatest risk</td>
</tr>
</tbody>
</table>
Public Awareness…

Seems to be good

- Roper/ASW “Green Gauge Report”
  - 2,000 people
  - 52% aware
  - Of those, 46% took action to reduce exposure

- Are we reaching at-risk groups?
  - People with heart or lung disease
  - Older adults
  - Children
Methods

• National “Health and Aging” survey
  – Random sample - from all 10 digit phone numbers across US
  – Demographic survey by Web-enabled panel
    • 8,493 adults
  – Ozone survey by interactive TV
    • 6,106 adults
    • 1,042 counties
Methods (cont.)

- Demographic survey: age, race, level of education, employment status, household income, current health status
- Ozone survey: familiarity with ozone ranking system, local conditions, made changes in outdoor activities
- County-level demographic and air quality data collected
  - Count of orange, red and purple ozone days
Results

• 33% respondents had heard of alert system
• 71% respondents lived in counties with at least one day of code orange or worse
• Of those who resided in county with at least one code orange day:
  – 37% were aware of system
  – 54% correctly reported that their counties had a ozone alert day
  – 57% reported spending less time outdoors on ozone alert days
Results - Model 1

- Estimated awareness of ozone ranking system
  - More education, higher income, older age, being female, African-American or white, and living in areas with red or purple ozone days (p-value = 0.05)
  - Good health, full-time employment, orange ozone days (p-value = 0.07)
Results – Model 2

- Estimated ability to correctly report occurrence of ozone alert days in their city
  - Being male, having at least one orange ozone day (p-value = 0.05)
  - Less education, being Asian-American, higher income (p-value = 0.07)
Results – Model 3

- Estimated behavioral change; whether respondent will take averting actions
  - Older age, being female, living area with purple day more likely to take averting actions (p-value = 0.05)
  - Being white, higher income less likely to take averting actions (p-value = 0.05)
  - Fair or poor health status more likely to take averting actions (p-value = 0.07)
Methods

• Four focus groups - June 2003
  – Los Angeles, CA and Charlotte, NC
  – Adults in sensitive groups
  – Parents of children with lung diseases
  – Demographics: income, education, ethnicity

• Questions
  – Current awareness of AQI
  – Current/preferred information sources
  – Message testing
Results of Focus Group Tests

- Awareness ranged from none to deep knowledge of air quality
- Information sources
  - Daily basis – TV, radio, newspaper
  - Internet – many said they would “Google” for the information
  - Newspaper reports – can be found on Internet
  - Credible sources are physicians or health care providers
Participants

- Valued *simple, actionable* health messages
  - *Who* will be affected
  - *When* will they be affected
  - *What* they should do to reduce exposure

- Wanted this information “pushed” out to them
  - TV, radio, newspapers

- Were willing to seek more detailed information
  - Newspaper reports, Internet

- Wanted more detailed information on bad air quality days
Results (cont.)

- Clarity
  - Meaning is most important factor - "particle pollution" is better than "particles"
  - Be specific if it’s necessary for being accurate
Conclusions

• Good general coverage, but
• Need to do a better job getting the message to members of sensitive groups
  – Use health care providers to deliver information
  – Provide range of information from simple to complex
  – Take advantage of unusual, or “teachable” events such as fire/smoke events
Web Page for Health Care Providers
www.airnow.gov/health-prof

Health Care Providers

Help your patients protect their health by reducing their exposure to air pollution. This page includes:

- information for you about the cardiac and respiratory health effects associated with outdoor air pollution exposure
- educational materials for your patients

Asthma and Outdoor Air Pollution factsheet (502KB, Zipp., PDF)
This fact sheet is designed to answer questions about how people with asthma can be affected by air pollution and how they can use the Air Quality Index to reduce their exposure. Print it directly from the Web to give to your patients.

Ozone and Your Patients’ Health Online Training (PDF AIRNOW)
This is a short evidence-based training course for health care providers that explains the physiological effects of ozone and ways people can reduce their exposure to ozone. It includes clinical scenarios and FAQs to help you answer your patients’ questions. [www.epa.gov/03healthtraining](http://www.epa.gov/03healthtraining)

Effects of Common Air Pollutants Medical Poster (439KB, 1p., PDF)
This colorful poster is designed for use in patient waiting areas or exam rooms. Use this poster to educate your patients about the health effects of outdoor air pollution on the respiratory and cardiovascular systems. 18”x24” Printable Version (568KB, 1p., PDF)

(ALL ABOUT PDF FILES)
Ozone and Your Patients’ Health Training for Health Care Providers

Course Overview

During the summer months millions of people in the United States are exposed to the ambient air pollutant ozone at levels that can cause uncomfortable and sometimes damaging respiratory symptoms. Ozone and Your Patients’ Health is a short, evidence-based training course for family practice doctors, pediatricians, and other primary care providers that:

- Describes the physiological mechanisms responsible for the symptoms and lung function changes associated with exposure to ground-level ozone.
- Helps physicians to advise their patients about exposure to ozone.
- Provides practical tools to help patients understand what triggers their symptoms and how to alleviate them.

Physician’s assistants, nurse practitioners, and other medical professionals who counsel patients about asthma and respiratory symptoms may also find the material useful.

Course Objectives

Upon completion of this course, you will be able to:

1. Describe how ozone is formed and where it is found.
2. Identify the effects that exposure to ozone has on the

The Clinical Scenarios section of this course discusses the following scenario and others in detail.

A 12-year-old girl and her mother arrive at your office for an evaluation of the child’s asthma. At soccer practice the girl experienced chest tightness and shortness of breath, and she woke up during the night wheezing. Yesterday was...
Effects of Common Air Pollutants

RESPIRATORY EFFECTS

Symptoms:
- Cough
- Wheezing
- Sore throat
- Increased stiffness and shortness of breath:
- Asthma
- Bronchitis
- Chronic bronchitis
- Emphysema
- Pneumonia

Development of new disease:
- Chronic bronchitis
- Pneumonia:

Airway inflammation:
- Inflammation of the airways
- Abnormal mucus production
- Increased mucus production
- Increased swelling
- Throat and spreading of mucus

Airway Injury:
- Increased thickness of the airways
- Decreased airway flow

Reduced lung function:
- Narrowing of the airways (bronchi) or
- Increased airway resistance

Increased risk of respiratory infection:
- Increased risk of respiratory tract infection

Cardiovascular EFFECTS

Symptoms:
- Chest pain (angina)
- Palpitations
- Shortness of breath
- Dizziness
- Fainting

Increased stiffness and shortness of breath:
- Coronary artery disease
- Abnormal heart rate
- Congestive heart failure

Increased risk:
- Stroke
- Heart attack
- Angina
- Other cardiovascular events

Reduce your risk by using the Air Quality Index (AQI) to plan outdoor activities – www.aimow.gov

<table>
<thead>
<tr>
<th>AQI Levels of Health Concern</th>
<th>AQI Value</th>
<th>What Action Should People Take?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>0-50</td>
<td>Enjoy Activities</td>
</tr>
<tr>
<td>Moderate</td>
<td>51-100</td>
<td>People unusually sensitive to air pollution; Plan indoor activities when air quality is poor.</td>
</tr>
<tr>
<td>Unhealthy for Sensitive Groups</td>
<td>101-150</td>
<td>Sensible groups: Cut back on outdoor activities. Unhealthy for sensitive groups: Avoid outdoor activities.</td>
</tr>
<tr>
<td>Unhealthy</td>
<td>151-200</td>
<td>Everyone: Cut back or avoid outdoor activities. Unhealthy for sensitive groups: Avoid all outdoor activities.</td>
</tr>
<tr>
<td>Very Unhealthy</td>
<td>201-300</td>
<td>Everyone: Avoid all outdoor activities. Unhealthy for sensitive groups: Avoid all outdoor activities.</td>
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Asthma Factsheet

**Asthma and Outdoor Air Pollution**

1. **Air pollution can make asthma symptoms worse and trigger attacks.**
   - If you or your child has asthma, have you ever noticed symptoms get worse when the air is polluted? Air pollution can make it harder to breathe. It can also cause other symptoms, like coughing, wheezing, chest discomfort, and a burning feeling in the lungs.
   - Two key air pollutants can affect asthma. One is ozone (found in smog). The other is particle pollution (found in dust, smoke, and soot). When ozone and particle pollution are in the air, adults and children with asthma are more likely to have symptoms.

2. **You can take steps to help protect your health from air pollution.**
   - **Start to know how sensitive you are to air pollution.**
     - Notice your asthma symptoms when you are physically active. Do they happen more often when the air is more polluted?
     - If so, you may be sensitive to air pollution.
   - **Also notice any asthma symptoms that begin up to a day after you have been outdoors in polluted air.** Air pollution can make you more sensitive to asthma triggers, like mold and dust mites. If you are more sensitive than usual to indoor asthma triggers, it could be due to air pollution outdoors.

   - **Know when and where air pollution may be bad.**
     - Ozone is often worst on hot summer days, especially in the afternoons and early evenings.
     - Particle pollution can be bad any time of the year, even in winter. It can be especially bad when the weather is calm, allowing air pollution to build up.
     - Particle levels can also be high:
       - Near busy roads, during rush hour, and around factories.
       - When there is smoke in the air from wood stoves, fireplaces, or burning vegetation.
Smoke Brochure and Web Page

http://www.airnow.gov/

Smoke from Agricultural and Forest Fires

How Smoke from Fires Can Affect Your Health

Overview

How Smoke from Fires Can Affect Your Health

If you are healthy, you’re usually not at a major risk from smoke. Still, it’s a good idea to avoid breathing smoke if you can help it. Smoke is made up of a complex mixture of gases and fine particles produced when wood and other organic matter burn. The biggest health threat from smoke comes from fine particles. These microscopic particles can get into your eyes and respiratory system, where they can cause health problems such as burning eyes, runny nose, and illnesses such as bronchitis. Fine particles also can aggravate chronic heart and lung diseases — and even are linked to premature deaths in people with these conditions.

How to Protect Your Family from the Health Effects of Smoke

Pay attention to local air quality reports and stay alert to any news coverage of health warnings related to smoke.

Use common sense. If it looks smoky outside, it’s probably not a good time to mow the lawn or go for a run. And it’s probably not a good time for your children to play outdoors.

If you are advised to stay indoors, take steps to keep air clean.

http://www.airnow.gov/
What's Next?

• PM Web course for health care providers
• “Effects of Common Air Pollutants” – pads of tear sheets
• Downloadable fact sheets for people with heart disease, older adults and children
• National exposure and activity pattern survey