

# OZONE:

YOUR  
**2004**  
LUNG PROTECTION  
GUIDE



**ST. LUKE'S**

Episcopal  
Health System

## Ozone affects your lungs: What everyone needs to know

*Ozone: Your Lung Protection Guide* was developed for everyone to learn about physical symptoms that may indicate a reaction to ozone and what to do about it. The Houston/Galveston climate, population and local industries expose residents and visitors to hazardous levels of ozone more often than most of the country. Even perfectly healthy individuals can experience the short-term irritants and long-term damage of ozone exposure. You and your family should pay attention to symptoms you may experience when exposed to increased ozone levels and adopt the precautions described in the chart below.


Parents should pay particular attention to ozone levels because children's lungs can be permanently damaged and asthma may result. Athletes should pay attention to ozone levels because many exercise outdoors where they are exposed to greater ozone levels.

And individuals with a history of lung or heart problems should pay attention to ozone-related issues because research indicates a link between exposure to high levels of ozone and adverse health effects, such as:

- Heart attacks occur more frequently on high ozone days
- Immune system defenses can be impaired, leaving people more susceptible to respiratory infections, including colds, bronchitis and/or pneumonia.

### How and when does ozone affect my health?

Ozone can actually stick to the lining of your lungs, acting as a powerful respiratory irritant. Ozone can also inflame and damage the lining of your lungs. High levels and repeated ozone exposure may cause permanent scarring and damage lung tissue, resulting in permanent loss of lung function and lower quality of life. Therefore, it's important



Ozone Level	Air Quality Conditions Are...	You May Experience These Symptoms
<b>Green</b> 0–50	<b>Good</b>	No symptoms expected for anyone
<b>Yellow</b> 51–100	<b>A moderate health risk</b> (A small number of unusually “ozone-sensitive” individuals may experience symptoms: (see list on back page)	<ul style="list-style-type: none"> <li>• Coughing or wheezing</li> <li>• Throat irritation</li> <li>• Shortness of breath or</li> <li>• Chest pain when inhaling deeply during prolonged outdoor exertion, especially if you have a history of breathing problems</li> </ul>
<b>Orange</b> 101–150	<b>Unhealthy for individuals “at-risk”</b> for adverse ozone health effects (see list on back page)	All of the symptoms described above
<b>Red</b> 151–200	<b>Unhealthy for everyone</b> (Everyone may experience symptoms. Symptoms may be more severe for ozone-sensitive individuals.)	All of the symptoms described above
<b>Purple</b> 201–300	<b>Very unhealthy for everyone</b>	<ul style="list-style-type: none"> <li>• “Ozone-sensitive” individuals will likely experience respiratory symptoms and impaired breathing</li> <li>• People with asthma or other respiratory conditions will be severely affected, leading some to need more medication or seek immediate medical attention</li> <li>• Otherwise healthy people engaging in moderate outdoor activity may experience some of the symptoms described above</li> </ul>
<b>Maroon</b> Greater than 300	<b>Hazardous for everyone</b>	Everyone will likely experience respiratory symptoms described above on a more severe level

for you to identify when ozone is affecting your health so you can take precautions when you experience any of the following symptoms on yellow, orange, red, purple or maroon ozone days: throat irritation, coughing, wheezing, shortness of breath or chest pains when inhaling deeply outdoors.

According to the EPA, over 80% of ozone warning days occur June through October, with the most dangerous time of the day generally during peak sunlight hours (11 a.m. to 6 p.m.)

### What is “good” ozone and “bad” ozone?

“Good” ozone is located in the upper atmosphere where it protects life by absorbing harmful ultraviolet rays from the sun. This is the ozone we want to save. “Bad” ozone forms at ground level and presents a problem for plants and humans. “Bad” ozone forms when winds are light and when sunlight and warm temperatures interact with gasoline vapors, car

exhaust, industrial emissions and chemical solvents. “Bad” ozone is the main component of smog and can harm your heart and/or respiratory system when you breathe it into your body, especially if you engage in physical activity outdoors.

### What can I do to help reduce “bad” ozone?

- Keep your automobile maintained to keep exhaust levels low
- Refuel your vehicle between the hours of 6 p.m. and 3 a.m.
- Don’t top off your tank when you refuel and limit engine idling
- Mow your lawn in the late afternoon or early-mid evening
- Participate in commuter transportation programs

For more information on reducing “bad ozone,” visit [www.stluketexas.com](http://www.stluketexas.com). Minor lifestyle changes can result in major air-quality improvements.

## Take These Protective Actions

None required

If you experience any of these ozone-related symptoms, consider reducing how long you remain outside or how extensively you exert yourself outdoors, especially during peak sunlight hours of 11 a.m. to 6 p.m. This includes moderate activity (gardening, climbing stairs, light jogging or easy cycling) as well as strenuous activity (running, speed cycling, basketball, soccer or heavy manual labor)

In addition to the actions described above, “at-risk” individuals should limit the length and level of outdoor exertion by

- conducting outdoor activities before or after peak sunlight hours of 11 a.m. to 6 p.m.
- avoiding exercise near busy streets or other polluted areas
- remaining in an air-conditioned environment as much as possible

In addition to the actions described above,

- “at-risk” individuals should avoid outdoor exertion
- all others, especially children, should limit prolonged outdoor activities, especially during peak sunlight hours of 11 a.m. to 6 p.m.

In addition to the actions described above,

- “ozone-sensitive” individuals should completely avoid outdoor activity and remain in an air-conditioned environment
- all others, especially children, should avoid outdoor activity if at all possible

Everyone should avoid all outdoor activities and remain in an air-conditioned environment

**Visit [www.stluketexas.com](http://www.stluketexas.com)** to check each day's ozone level for the city of Houston or to find out about our next free seminar on a lung-related topic.

**Call (832) 355-LUNG** to schedule an evaluation with one of our board-certified pulmonologists. Each is experienced at helping patients more effectively manage a full range of lung conditions, including asthma, chronic bronchitis, emphysema, and occupational lung disease.

**Make time to learn the ozone levels** each day and act to minimize your exposure to the outdoors when the ozone alert is orange, red, purple or maroon.



**Tell your friends, family and neighbors** to visit St. Luke's web site ([www.stluketexas.com](http://www.stluketexas.com)) so they too can view *Ozone: Your 2004 Lung Protection Guide*.

## Am I "at-risk" or "ozone-sensitive"?

Approximately 1 out of every 3 people in the United States is at high risk of experiencing ozone-related health effects. The "at-risk" group includes those individuals who might be otherwise healthy, but because they spend time outdoors during peak ozone months, they may be "at-risk" for health effects from ozone.

These "at-risk" individuals include:

- children who are active outdoors
- the elderly
- people who exercise or work outdoors.



Particularly "at-risk" are those individuals referred to as being "ozone-sensitive," who have the following characteristics:

- individuals with pre-existing respiratory diseases, such as asthma, bronchitis, or emphysema
- individuals with heart disease
- otherwise healthy individuals who experience symptoms or respond adversely to ozone are considered unusually "ozone-sensitive"

## For More Information on Ozone

- To sign up for daily ozone e-mail notifications, visit <http://ozone.hcoem.org>
- For air quality conditions, call the Weatherline® Forecast Service at (713) 529-4444 (program into your cell phone for easy updates)
- For improving your lung health, visit [www.stluketexas.com](http://www.stluketexas.com)
- For the previous days ozone reports, read the back page of the City & State section of the *Houston Chronicle*
- For local, statewide and national ozone report, visit [www.tnrcc.state.tx.us/cgi-bin/monops/select\\_curlev?region12\\_cur.gif#map1](http://www.tnrcc.state.tx.us/cgi-bin/monops/select_curlev?region12_cur.gif#map1)



For more information on lung health or managing chronic lung conditions, contact St. Luke's Lung Institute at (832) 355-LUNG. A regional center of excellence for lung care, St. Luke's Lung Institute diagnoses and treats patients (ages 16 years and older) so they can more effectively manage a full range of lung conditions, including asthma, chronic bronchitis, emphysema, occupational lung disease and lung transplants. As regional specialists, St. Luke's Lung Institute's team of physicians and an advanced practice nurse work with primary care physicians to manage a patient's disease on an ongoing basis. St. Luke's Lung Institute is committed to lung health and is working to further understand the effects the environment has on respiratory problems so that new approaches to patient treatment can be developed.