STATE OF THE AIR® 2013

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The American Lung Association assumes sole responsibility for the content of the *American Lung Association State of the Air 2013*.

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The State of the Air 2013

State of the Air 2013 shows that

cleaning up air pollution produces healthier air

across the nation.

13 of the most polluted cities had their fewest unhealthy ozone days.

Thanks to the Clean Air Act, the United States continues to make progress providing healthier air. The *State of the Air 2013* shows that the nation's air quality is overall much cleaner, especially compared to just a decade ago. Still, over 131.8 million people—42 percent of the nation—live where pollution levels are too often dangerous to breathe. Despite that risk, some seek to weaken the Clean Air Act, the public health law that has driven the cuts in pollution since 1970.

The *State of the Air 2013* report looks at levels of ozone and particle pollution found in official monitoring sites across the United States in 2009, 2010, and 2011. The report uses the most current quality-assured nationwide data available for these analyses.

The report examines particle pollution ($PM_{2.5}$) in two different ways: averaged year-round (annual average) and over short-term levels (24-hour). For both ozone and short-term particle pollution, the analysis uses a weighted average number of days that allows recognition of places with higher levels of pollution. For the year-round particle pollution rankings, the report uses averages calculated and reported by the U.S. Environmental Protection Agency (EPA). For comparison, the *State of the Air 2012* report covered data from 2008, 2009 and 2010.[1]

Overall Trends

Thanks to stronger standards for pollutants and for the sources of pollution, the United States has seen continued reduction in ozone and particle pollution as well as other pollutants for decades. Figure 1 from the EPA shows that since 1970, the air has gotten cleaner while the population, the economy, energy use and miles driven increased greatly. Even as the economy continues to recover after

1 A complete discussion of the sources of data and the methodology is included in Methodology.

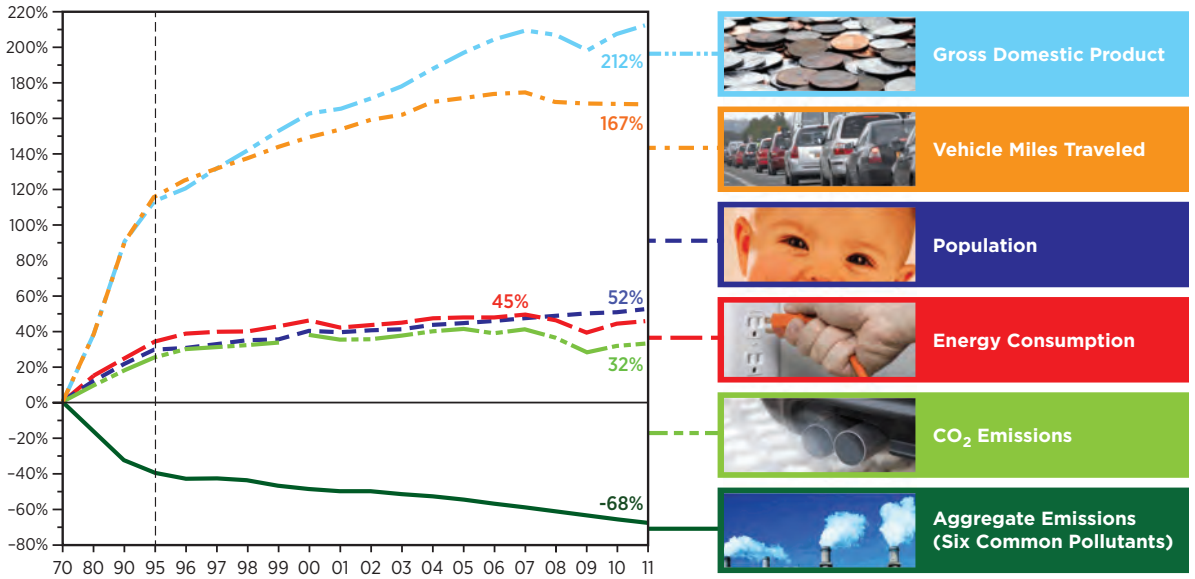


Figure 1 Air emissions have dropped steadily since 1970 thanks to the Clean Air Act. Even as the economy continues to recover from the recession, emissions that contribute to the most widespread pollutants continue to drop. (Source: U.S. EPA, Air Trends, 2012)

the recession, overall air emissions that create the six most widespread pollutants continue to drop.

In 2009-2011, many places made strong progress over 2008-2010, particularly in **lower year-round levels of particle pollution**. Thanks to reductions in emissions from coal-fired power plants and the transition to cleaner diesel fuels and engines, cleaner air shows up repeatedly in the monitoring data, especially in the eastern U.S. Still, the science shows that annual particle levels need to be much lower, as shown in the EPA's decision in December 2012 to strengthen the national air quality standards for fine particles for the first time in fifteen years.

Most cities also continued the **long-term trend for fewer high ozone days**, but not all. Many places recorded slightly more unhealthy days on average than in 2008-2010, which had been the best period to date. Warmer weather may have contributed to the increase. The most common pollutant, ozone has already proven to be one of the hardest to reduce. These findings add to the evidence that the nation needs more aggressive tools to secure continued reductions.

Nearly
24.8 million
people in the US live in counties where the outdoor air failed all three tests.

One disturbing trend is the **increase in the number of days of unhealthy particle levels in many cities**. Although year-round average levels for particles are steadily dropping, the reverse is true for short-term spikes in days with high particle counts. These periods often occur in the winter, as has happened in Fairbanks (AK) and Salt Lake City in recent winters. In some cities, the increase comes from increased burning of wood and other fuels in the winter for heat, often in highly polluting indoor wood stoves or outdoor wood boilers.

Ozone

Fifteen of the 27 cities with the most ozone pollution improved their air quality over the past year's report. Thirteen of the country's most smog-polluted cities experienced their best year yet. Unfortunately, even with the improvements, people living there are still forced to breathe air that reaches dangerously unhealthy levels.

Los Angeles remained the city with the worst ozone pollution problem, but **reported its fewest unhealthy ozone days since the *State of the Air* reports began**. Los Angeles has one-third fewer days of unhealthy air than in the first report. Of the 27 metropolitan areas most polluted by ozone, twelve others also reported their fewest unhealthy ozone days[2]: Visalia (CA); Bakersfield (CA); Fresno; Sacramento; San Diego; Merced (CA); Modesto (CA); New York City; Charlotte; Philadelphia; Phoenix; and Pittsburgh. Two others also improved: Hanford (CA); and San Luis Obispo (CA).

However, twelve cities suffered more unhealthy days, including three that moved for the first time to the most polluted list: Beaumont-Port Arthur (TX); Oklahoma City; and Tulsa (OK). Other cities reporting more or worse days during 2009-2011 included Houston; Dallas; Washington, DC-Baltimore; El Centro (CA); Cincinnati; Birmingham; Las Vegas; Louisville; and St. Louis.

Year-round Particle Pollution

Eighteen cities had lower year-round levels of particle pollution in 2009-2011, including 16 with their lowest levels recorded.

Bakersfield (CA) recorded its lowest levels ever in 2009-2011, but tied with Merced (CA) as cities with the worst year-round levels of particle pollution in the nation. Also on this list are fifteen other cities that reported their lowest levels of year-round particle pollution: Hanford (CA); Los Angeles; Visalia (CA); Pittsburgh; Cincinnati; Philadelphia; St. Louis; Louisville; Canton (OH); Cleveland; Indianapolis; Steubenville

2 Complete names for all these metropolitan areas can be found in the tables showing the most polluted and cleanest cities. The full metropolitan areas often include multiple counties, incorporated cities and counties in adjacent states, as the Office of Management and Budget defines them.

(OH); Wheeling (WV); Birmingham; and Dayton (OH). Fairbanks (AK) and Phoenix improved over the previous levels, but had reported cleaner air in the past.

Unfortunately, seven cities saw their year-round levels increase from previous reports.[3] Top of that list is Merced, where year-round levels of particle pollution increased to their worst reading ever to tie Bakersfield for most polluted city. Other cities with worse annual levels were Fresno, Modesto (CA), El Centro (CA), Macon (GA), Allentown (PA), and Atlanta.

Thanks in part to legal action taken by the American Lung Association, the EPA strengthened the long-outdated limits on year-round particle pollution in December, 2012. That crucial step will drive more protection from deadly particles.

Short-term Particle Pollution

Of the 25 cities with the worst problem with spikes in particle pollution, fourteen had more days or worse problems in 2009-2011 than in the previous report. For six cities, this period held their worst record for short-term days since the data started to be collected: Hanford (CA); Modesto (CA); Merced (CA); Fairbanks (AK); Stockton (CA); and Las Cruces (NM). Other cities with more days of unhealthy particle pollution levels include: Los Angeles, Salt Lake City, Chicago, Seattle, Indianapolis, Phoenix, Allentown (PA), and Portland (OR).

Nine cities on the most polluted list continued to improve in 2009-2011. Five cities reported their best records yet: Fresno; Pittsburgh; Visalia (CA); Eugene (OR); and San Diego. Other cities improving include: Bakersfield (CA); Logan (UT); Provo (UT); and Green Bay (WI). Two cities had the same number of days as in the last report: Harrisburg (PA) and South Bend (IN).

3 These trends are based on prior available data. Not all cities had counties with complete annual averages posted for all prior years.

Cleanest Cities

Four cities ranked on all three lists of the cleanest cities in 2009-2011. That means they had no days in the unhealthy level for ozone or short-term particle pollution and were on the list of the cleanest cities for year-round particle pollution. Listed alphabetically, the four cities are:

- Bismarck (ND)
- Cape Coral-Fort Myers (FL)
- Palm Bay-Melbourne-Titusville (FL)
- Rapid City (SD)

Sixteen cities ranked as the cleanest for both year-round and short-term particle pollution, listed alphabetically:

- Bangor (ME)
- Bismarck (ND)
- Cape Coral-Fort Myers (FL)
- Colorado Springs (CO)
- Farmington (NM)
- Flagstaff (AZ)
- Fort Collins-Loveland (CO)
- Lakeland-Winter Haven (FL)
- Palm Bay-Melbourne-Titusville (FL)
- Prescott (AZ)
- Rapid City (SD)
- Redding (CA)
- Salinas (CA)
- Sarasota (FL)
- St. George (UT)
- Tucson (AZ)

Seven cities were on both the cleanest cities lists for ozone and for year-round particle pollution, listed alphabetically:

- Bismarck (ND)
- Burlington (VT)
- Cape Coral-Fort Myers (FL)
- Duluth (MN)
- Palm Bay-Melbourne-Titusville (FL)
- Rapid City (SD)
- Santa Fe-Espanola (NM)

Ten cities made both the cleanest cities lists for ozone and for short-term particle pollution, listed alphabetically:

- Bismarck (ND)
- Brownsville (TX)
- Cape Coral-Fort Myers (FL)
- Claremont-Lebanon (NH)
- Gainesville (FL)
- McAllen-Edinburg-Pharr (TX)
- Monroe (LA)
- Muscle Shoals (AL)
- Palm Bay-Melbourne-Titusville (FL)
- Rapid City (SD)

People At Risk

Looking at the nation as a whole, the ***American Lung Association State of the Air 2013*** finds—

- **More than 4 in 10 people (42%) in the United States live in counties that have unhealthful levels of either ozone or particle pollution.**
  Over 131.8 million Americans live in the 254 counties where they are exposed to unhealthful levels of air pollution in the form of either ozone or short-term or year-round levels of particles.
- **Nearly 4 in 10 people in the United States (38%) live in areas with unhealthful levels of ozone.**
  Counties that were graded F for ozone levels have a combined population of over 119.3 million. These people live in the 191 counties where the monitored air quality places them at risk for premature death, aggravated asthma, difficulty breathing, cardiovascular harm and lower birth weight. The actual number who breathe unhealthy levels of ozone is likely much larger, since this number does not include people who live in adjacent counties in metropolitan areas where no monitors exist.
- **Fifteen percent (15%) of people in the United States live in an area with too many days of unhealthful levels of particle pollution.**
  Over 47.7 million Americans live in 58 counties that experienced too many days with unhealthy spikes in particle pollution, a decrease from the last report. Short-term spikes in particle pollution can last from hours to several days and can increase the risk of heart attacks, strokes and emergency room visits for asthma and cardiovascular disease, and most importantly, can increase the risk of early death.
- **Over 44.3 million people (14%) in the United States live in an area with unhealthful year-round levels of particle pollution.**
  These people live in areas where chronic levels are regularly a threat to their health. Even when levels are fairly low, exposure to particles over time can increase risk of hospitalization for asthma, damage to the lungs and, significantly, increase the risk of premature death.
- **Nearly 24.8 million people (8%) in the United States live in 14 counties with unhealthful levels of all three: ozone and short-term and year-round particle pollution.**

With the risks from airborne pollution so great, the American Lung Association seeks to inform people who may be in danger. Many people are at greater risk because of their age or because they have asthma or other chronic lung disease, cardiovascular disease or diabetes. The following list identifies the numbers of people in each at-risk group.

- **Older and Younger—**Over 15.8 million adults age 65 and over and nearly 32.3 million children under 18 years old live in counties that received an F for at least one pollutant. Over 2.8 million seniors and over 6.2 million children live in counties failing all three tests.
- **People with Asthma—**Nearly 2.7 million children and over 8.7 million adults with asthma live in counties of the United States that received an F for at least one pollutant. Over 460,000 children and over 1.5 million adults with asthma live in counties failing all three tests.
- **Chronic Obstructive Pulmonary Disease (COPD)—**Over 5.8 million people with COPD live in counties that received an F for at least one pollutant. Over 910,000 people with COPD live in counties failing all three tests.
- **Cardiovascular Disease—**Over 32.5 million people with cardiovascular diseases live in counties that received an F for at least one pollutant; over 5.6 million live in counties failing all three tests.
- **Diabetes—**Over 4.2million people with diabetes live in counties that received an F for either short-term or year round particle pollution; over 1.7 million live in counties failing both tests. Having diabetes increases the risk of harm from particle pollution.

- **Poverty—**Over 20.2 million people with incomes meeting the federal poverty definition live in counties that received an F for at least one pollutant. Over 4.5 million people in poverty live in counties failing all three tests. Evidence shows that people who have low incomes may face higher risk from air pollution.

What Needs To Be Done

Many major challenges require the Administration, working through the EPA, and Congress to take steps to protect the health of the public. Here are a few that the American Lung Association calls for to improve the air we all breathe, starting with cleaning up smokestacks and tailpipes.

Clean up harmful emissions from smokestacks

Toxic pollution. Coal-fired power plants remain among the largest contributors to particulate pollution, ozone, mercury, and climate change. Their pollution blows across state lines into states hundreds of miles away. They produce 84 known hazardous air pollutants, including arsenic, mercury, dioxins, formaldehyde and hydrogen chloride, as shown in the Lung Association report *Toxic Air: The Case for Cleaning Up Coal-fired Power Plants*. These smokestacks need cleaning up.

Carbon pollution. Power plants are the largest stationary source of greenhouse gases in the United States. Energy production accounts for 86 percent of total 2009 greenhouse gas emissions, and the electric sector represents 39 percent of all energy-related carbon dioxide (CO_2) emissions.[4] In 2012, the EPA proposed the first ever limits on carbon pollution from new power plants. Now the EPA needs to finish the job and issue strong final standards for carbon pollution from new and existing plants.

4 U.S. Environmental Protection Agency. Inventory of Greenhouse Gas Emissions and Sinks: 1990-2009. Washington, DC: U.S. EPA, 2011. EPA 430-R-11-005.

Transported ozone and particle pollution. In 2011, the EPA set tough new limits on ozone and particle pollution that could blow across state lines and add unhealthy air downwind. That same year the EPA also, for the first time, set national limits on the toxic pollutants these power plants can emit. However, these standards have been blocked in court. The Lung Association has taken legal steps to defend the EPA's efforts. The EPA and the states must move forward with actions to clean these plants up.

Clean up harmful emissions from tailpipes

Gasoline, cars, light trucks and SUVs. The EPA needs to set new pollution standards for cars, light trucks, SUVs and reduced sulfur in gasoline to reduce nitrogen oxides, hydrocarbons, and particle pollution emissions. People who live or work near highways or busy roads bear a disproportionate health burden from air pollution. Cleaner gasoline will reduce pollution from every car on the road, reducing emissions as if we suddenly removed 33 million cars from the road. Cleaner vehicles will help reduce this impact for all, but especially those who live closest to the traffic.

Dirty diesel vehicles and heavy equipment. Rules the EPA put in effect over the past several years mean that new diesel vehicles and equipment must be much cleaner. Still, the vast majority of diesel trucks, buses, and heavy equipment (such as bulldozers) will likely be in use for thousands more miles, spewing dangerous diesel exhaust into communities and neighborhoods. The good news is that affordable technology exists to cut emissions by 90 percent. Congress needs to fund the EPA's diesel cleanup ("retrofit") program. Congress should also require that clean diesel equipment be used in federally-funded construction programs.

Reduce emissions of wood smoke

Residential wood-burning devices, including outdoor wood boilers and stoves, are the largest residential source of particle pollution. Emissions of harmful air pollutants from wood-

burning devices have worsened air quality and public health in many cities, such as Fairbanks and Salt Lake City. These devices could have significant impacts on their owners and immediate neighbors. The U.S. Census reports that nearly two percent of all U.S. households use wood as a primary heat source.[5] In 2006, one study estimated that approximately 14 to 17 million such devices were then in use in the United States.[6]

- Besides particle pollution, wood burning also produces carbon monoxide, nitrogen oxides, sulfur dioxide, and even toxic air pollution. Studies have found that wood smoke leads to coughing and shortness of breath, decreases in lung function, and aggravated asthma and may even cause cancer.[7]
- The EPA has not updated national standards for these devices since 1988. Improved technologies in use today can limit harmful emissions from wood-burning devices. The EPA needs to update the standards to reflect this new technology. All wood-burning devices can burn cleaner to reduce impacts on public health.
- Emissions from outdoor wood boilers used to heat residences also need to be cleaned up. As their use increases, the EPA is considering its options to regulate outdoor wood boiler emissions. However, the agency has yet to issue a proposal, originally scheduled for summer 2011 with final rules set for summer 2012. The EPA needs to adopt a standard to limit emissions from these devices to avoid the patchwork of state regulations currently in place.

5 U.S. Census Bureau. American Housing Survey for the United States. 2011. Available at www.census.gov/housing/ahs11/national2011.xls

6 Johnson PRS. In-Field Ambient Fine Particle Monitoring of an Outdoor Wood Boiler: Public Health Concerns. *Human and Ecological Risk Assessment.* 2006; 12: 1153-1170.

7 Naeher LP, Brauer M, Lipsett M, Zelikoff JT, Simpson CD, Koenig JQ, Smith KR. Woodsmoke Health Effects: A Review. *Inhalation Toxicology*. 2007; 19:67-106. Bølling AK, Pagels J, Yttri KE, Barregard L, Sallsten G, Schwarze PE, Boman C. Health effects of residential wood smoke particles: the importance of combustion conditions and physicochemical particle properties. *Particle and Fibre Toxicology.* 2009; 6:29.

Improve the air pollution monitoring network.

The grades in this report come from information from the nationwide air pollution monitoring network. That network forms the public health infrastructure for air pollution. States and local governments use monitors to accurately measure the amount of air pollution in the community.

- Less than one-third of all counties have ozone or particle pollution monitors, seriously limiting the ability to adequately detect and track the levels of harmful air pollution.
- Coverage is especially limited near major highways, where people likely breathe higher levels of air pollution. The EPA needs to expand the monitoring network to include comprehensive coverage in areas near major roads and highways. These monitors are needed to measure the highest levels of exposures to air pollution related to traffic.
- Unfortunately, funds for existing air pollution monitors have been cut across the nation. These resources may be cut further unless Congress and the White House resolve to protect the health of the nation from air pollution.

Adopt an ozone standard that follows the law and protects health

- National air quality standards are the official limits that drive the cleanup of air pollution around the nation. The Clean Air Act requires that the EPA set national air quality standards based on the need to protect public health "with an adequate margin of safety." In 2001, the Supreme Court unanimously ruled that protecting health was the only basis for the standards. The Clean Air Act also requires that the EPA review the standards every five years to make sure that the standards are based on the most current science.
- A federal court ruled in March, 2013 that the existing standards for ozone, set in 2008, are out-of-date and fail to adequately protect public health. The American Lung

Association filed an action challenging the standards set by the Bush Administration in 2008, and resumed the legal battle following the Obama Administration's decision in 2011 to ignore the overwhelming scientific research and the opinions of experts that much stronger standards were needed. Now, the EPA has a second chance in December 2013, when it must propose a new standard under the regular review cycle.

- The EPA estimated that setting the standard for ozone to 60 ppb would save 4,000 to 12,000 lives and prevent 21,000 hospitalizations, 58,000 asthma attacks, 5,300 heart attacks, and result in 2.5 million fewer school and work days lost each year. The lower ozone levels would yield $35 billion to $100 billion in health and economic benefits by 2020.[8]

Protect the Clean Air Act

The continued improvement shown in the *State of the Air* report is possible because of the Clean Air Act, the nation's strong public health law that the U.S. Congress passed over 40 years ago. The Act requires that the EPA and each state take steps to clean up the air. Some members of Congress are proposing changes to the Clean Air Act that could dismantle progress made in the last 40 years. We must keep that law strong to continue to protect public health.

What You Can Do

Individual citizens can do a great deal to help reduce air pollution outdoors as well. Simple but effective ways include—

- **Send a message to Congress.** Urge them to support cleaner, healthier air and oppose measures to block or delay the cleanup of air pollution. They should support and protect the Clean Air Act.
- **Tell the EPA to set tighter standards** for gasoline and stricter tailpipe pollution standards for cars, trucks and SUVs. The EPA also needs to set tighter standards for ozone.
- **Share your story.** Do you or any member of your family have a personal reason to want healthier, cleaner air? Go to www.Fightingforair.org to let us know how healthy air affects you.
- **Drive less.** Combine trips, walk, bike, carpool or vanpool, and use buses, subways or other alternatives to driving. Vehicle emissions are a major source of air pollution. Support community plans that provide ways to get around that don't require a car, such as more sidewalks, bike trails and transit systems.
- **Use less electricity.** Turn out the lights and use energy-efficient appliances. Generating electricity is one of the biggest sources of pollution, particularly in the eastern United States.
- **Don't burn wood or trash.** Burning firewood and trash are among the largest sources of particles in many parts of the country. If you must use a fireplace or stove for heat, convert your woodstoves to natural gas, which has far fewer polluting emissions. Compost and recycle as much as possible and dispose of other waste properly; don't burn it. Support efforts in your community to ban outdoor burning of construction and yard wastes. Avoid the use of outdoor hydronic heaters, also called outdoor wood boilers, which are frequently much more polluting than woodstoves.
- **Make sure your local school system requires clean school buses**, which includes replacing or retrofitting old school buses with filters and other equipment to reduce emissions. Make sure your local schools don't idle their buses, a step that can immediately reduce emissions.
- **Get involved.** Participate in your community's review of its air pollution plans and support state and local efforts to clean up air pollution. To find your local air pollution control agency, go to www.4cleanair.org.

8 U.S. EPA. 2010. Summary of the updated Regulatory Impact Analysis (RIA) for the Reconsideration of the 2008 Ozone National Ambient Air Quality Standard (NAAQS). Available at http://www.epa.gov/ttn/ecas/regdata/RIAs/s1-supplemental_analysis_summary11-5-09.pdf .

People at Risk from Short-term Particle Pollution (24-Hour $PM_{2.5}$)

	Chronic Diseases						Age Groups			
In Counties where the Grades were:	**Adult Asthma**	**Pediatric Asthma**	**COPD**	**CV Disease**	**Diabetes**	**Poverty**	**Under 18**	**65 and Over**	**Total Population**	**Number of Counties**
Grade A	4,271,383	1,324,082	3,168,182	16,749,582	4,753,083	9,600,406	15,065,427	8,331,612	63,537,368	267
Grade B	3,949,841	1,198,390	2,881,297	15,128,605	4,361,373	9,028,395	13,667,408	7,292,889	58,495,022	157
Grade C	2,142,208	631,485	1,468,960	7,787,328	2,177,131	4,854,753	6,975,980	4,000,052	30,461,550	80
Grade D	884,316	268,886	582,075	3,234,039	875,069	2,099,432	3,146,380	1,650,498	13,236,246	24
Grade F	3,105,828	907,767	1,779,500	10,884,831	2,984,165	8,023,636	11,988,163	5,558,535	47,738,436	58
National Population in Counties with $PM_{2.5}$ Monitors	14,741,185	4,451,110	10,167,066	55,355,985	15,600,324	34,495,754	52,281,912	27,671,082	219,488,047	646

People at Risk from Year-Round Particle Pollution (Annual $PM_{2.5}$)

	Chronic Diseases						Age Groups			
In Counties where the Grades were:	**Adult Asthma**	**Pediatric Asthma**	**COPD**	**CV Disease**	**Diabetes**	**Poverty**	**Under 18**	**65 and Over**	**Total Population**	**Number of Counties**
Pass	10,708,057	3,224,435	7,370,266	40,101,181	11,332,003	24,020,903	37,279,392	20,137,572	158,279,511	454
Fail	2,892,959	887,896	1,968,049	10,827,051	3,008,200	7,949,646	10,992,232	5,243,648	44,356,304	66
National Population in Counties with $PM_{2.5}$ Monitors	14,741,185	4,451,087	10,167,066	55,355,985	15,600,324	34,495,754	52,281,912	27,671,082	219,488,047	646

People at Risk from Ozone

	Chronic Diseases					Age Groups			
In Counties where the Grades were:	**Adult Asthma**	**Pediatric Asthma**	**COPD**	**CV Disease**	**Poverty**	**Under 18**	**65 and Over**	**Total Population**	**Number of Counties**
Grade A	1,674,517	473,870	1,210,271	6,627,736	4,056,386	5,765,125	3,621,817	25,246,204	165
Grade B	1,534,021	450,751	1,161,667	6,068,321	3,271,922	5,373,524	3,254,787	22,996,964	120
Grade C	2,398,118	707,232	1,751,640	8,918,128	5,008,249	7,733,240	4,550,085	33,740,902	162
Grade D	1,716,079	538,739	1,240,685	6,456,945	4,028,544	5,871,258	3,096,380	24,947,995	87
Grade F	7,835,299	2,435,810	5,228,948	29,397,912	18,270,182	29,247,851	14,241,694	119,364,365	191
National Population in Counties with Ozone Monitors	15,474,129	4,696,454	10,842,162	58,756,136	35,305,333	55,032,330	29,469,590	230,948,107	811

Note: The State of the Air 2013 covers the period 2009-2011. The Appendix provides a full discussion of the methodology.

People at Risk In 25 U.S. Cities Most Polluted by Short-term Particle Pollution (24-hour $PM_{2.5}$)

2013 Rank[1]	Metropolitan Statistical Areas	Total Population[2]	Under 18[3]	65 and Over[3]	Pediatric Asthma[4,6]	Adult Asthma[5,6]	COPD[7]	CV Disease[8]	Diabetes[9]	Poverty[10]
1	Bakersfield-Delano, CA	851,710	254,658	77,793	18,232	50,187	25,296	167,656	44,022	200,571
2	Fresno-Madera, CA	1,095,829	321,487	114,718	23,016	65,120	33,800	224,505	59,435	272,942
3	Hanford-Corcoran, CA	153,765	42,382	12,366	3,034	9,354	4,504	29,646	7,656	27,949
4	Los Angeles-Long Beach-Riverside, CA	18,081,569	4,542,151	2,021,451	325,187	1,139,030	597,808	3,983,369	1,059,886	3,038,607
5	Modesto, CA	518,522	146,498	56,563	10,488	31,303	16,547	110,394	29,447	119,325
6	Salt Lake City-Ogden-Clearfield, UT	1,776,528	540,098	159,329	36,476	108,788	50,041	317,657	84,494	222,300
7	Pittsburgh-New Castle, PA	2,450,281	487,427	424,058	48,891	175,676	134,681	705,328	194,442	304,860
8	Merced, CA	259,898	80,991	25,034	5,798	15,039	7,658	50,722	13,340	68,371
9	Fairbanks, AK	99,192	25,056	6,759	2,143	6,027	3,659	22,166	5,466	9,045
10	Logan, UT-ID	127,549	39,974	10,727	2,780	7,751	3,467	21,185	5,592	19,977
11	Provo-Orem, UT	540,834	188,312	36,206	12,718	31,034	13,052	78,928	20,237	75,340
12	Stockton, CA	696,214	201,446	73,891	14,422	41,628	21,911	146,134	38,937	124,573
13	Las Cruces, NM	213,598	56,503	26,936	5,681	15,816	9,408	47,038	15,117	61,023
14	Eugene-Springfield, OR	353,416	68,420	54,567	6,475	29,763	16,874	91,147	26,384	73,046
14	Visalia-Porterville, CA	449,253	145,232	43,101	10,398	25,559	13,075	86,663	22,830	113,766
16	Chicago-Naperville-Michigan City, IL-IN-WI	9,729,825	2,409,527	1,137,848	178,564	606,154	450,627	2,427,061	695,509	1,406,443
17	Green Bay, WI	309,469	75,014	39,345	5,720	21,574	12,487	72,064	19,336	32,227
17	Seattle-Tacoma-Olympia, WA	4,269,349	956,101	505,469	67,682	322,196	133,881	1,058,057	289,663	506,278
19	Harrisburg-Carlisle-Lebanon, PA	687,222	150,880	104,875	15,134	48,425	35,784	186,263	50,760	70,738
19	Indianapolis-Anderson-Columbus, IN	2,103,574	538,477	245,760	50,965	150,174	127,524	543,297	156,272	304,431
21	Phoenix-Mesa-Glendale, AZ	4,263,236	1,107,303	540,544	93,175	302,805	166,853	963,671	297,791	727,056
22	Allentown-Bethlehem-Easton, PA-NJ	824,916	184,267	127,180	18,156	57,703	41,844	223,884	60,999	93,243
23	San Diego-Carlsbad-San Marcos, CA	3,140,069	726,602	362,928	52,020	203,011	106,254	707,051	187,806	462,997
24	Portland-Vancouver-Hillsboro, OR-WA	2,262,605	528,336	264,695	47,250	179,204	91,968	529,364	150,599	330,960
25	South Bend-Elkhart-Mishawaka, IN-MI	564,679	145,837	75,670	13,868	40,240	34,946	150,972	43,341	98,292

Notes:
1. Cities are ranked using the highest weighted average for any county within that Combined or Metropolitan Statistical Area.
2. **Total Population** represents the at-risk populations for all counties within the respective Combined or Metropolitan Statistical Area.
3. Those **under 18** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. Pediatric asthma estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
9. **Diabetes** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
10. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

People at Risk In 25 U.S. Cities Most Polluted by Year-Round Particle Pollution (Annual $PM_{2.5}$)

2013 Rank[1]	Metropolitan Statistical Areas	Total Population[2]	Under 18[3]	65 and Over[3]	Pediatric Asthma[4,6]	Adult Asthma[5,6]	COPD[7]	CV Disease[8]	Diabetes[9]	Poverty[10]
1	Bakersfield-Delano, CA	851,710	254,658	77,793	18,232	50,187	25,296	167,656	44,022	200,571
1	Merced, CA	259,898	80,991	25,034	5,798	15,039	7,658	50,722	13,340	68,371
3	Fresno-Madera, CA	1,095,829	321,487	114,718	23,016	65,120	33,800	224,505	59,435	272,942
4	Hanford-Corcoran, CA	153,765	42,382	12,366	3,034	9,354	4,504	29,646	7,656	27,949
4	Los Angeles-Long Beach-Riverside, CA	18,081,569	4,542,151	2,021,451	325,187	1,139,030	597,808	3,983,369	1,059,886	3,038,607
6	Modesto, CA	518,522	146,498	56,563	10,488	31,303	16,547	110,394	29,447	119,325
7	Visalia-Porterville, CA	449,253	145,232	43,101	10,398	25,559	13,075	86,663	22,830	113,766
8	Pittsburgh-New Castle, PA	2,450,281	487,427	424,058	48,891	175,676	134,681	705,328	194,442	304,860
9	El Centro, CA	177,057	50,986	18,749	3,650	10,603	5,513	36,633	9,705	43,259
10	Cincinnati-Middletown-Wilmington, OH-KY-IN	2,179,965	537,575	270,708	52,080	163,904	132,373	590,680	164,231	307,286
11	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	6,562,287	1,513,270	886,837	145,153	461,724	305,296	1,699,047	454,024	867,174
12	Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN	1,440,607	343,686	185,720	29,991	113,046	105,848	438,810	118,056	215,950
12	St. Louis-St. Charles-Farmington, MO-IL	2,907,732	682,579	395,222	52,616	198,808	171,525	814,289	227,989	394,418
14	Allentown-Bethlehem-Easton, PA-NJ	824,916	184,267	127,180	18,156	57,703	41,844	223,884	60,999	93,243
14	Canton-Massillon, OH	403,869	91,028	66,842	9,105	30,467	25,305	117,992	33,758	64,237
14	Fairbanks, AK	99,192	25,056	6,759	2,143	6,027	3,659	22,166	5,466	9,045
14	Macon-Warner Robins-Fort Valley, GA	404,668	102,123	49,198	8,733	28,926	21,949	109,457	32,710	77,932
18	Atlanta-Sandy Springs-Gainesville, GA-AL	5,712,148	1,493,455	544,561	127,857	404,213	290,752	1,437,977	419,154	943,886
18	Phoenix-Mesa-Glendale, AZ	4,263,236	1,107,303	540,544	93,175	302,805	166,853	963,671	297,791	727,056
20	Cleveland-Akron-Elyria, OH	2,871,084	647,740	435,316	64,789	217,731	176,025	816,118	232,415	455,857
20	Indianapolis-Anderson-Columbus, IN	2,103,574	538,477	245,760	50,965	150,174	127,524	543,297	156,272	304,431
22	Steubenville-Weirton, OH-WV	123,243	24,279	22,932	2,179	9,359	8,650	40,374	11,831	19,643
22	Wheeling, WV-OH	147,197	28,860	26,232	2,530	11,164	10,287	47,863	14,016	22,359
24	Birmingham-Hoover-Cullman, AL	1,212,800	287,870	162,832	30,184	73,803	89,406	393,595	108,720	200,725
24	Dayton-Springfield-Greenville, OH	1,075,683	245,833	167,819	24,589	81,195	65,402	303,924	86,413	176,793

Notes:
1. Cities are ranked using the highest weighted average for any county within that Combined or Metropolitan Statistical Area.
2. **Total Population** represents the at-risk populations for all counties within the respective Combined or Metropolitan Statistical Area.
3. Those **under 18** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. Pediatric asthma estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
9. **Diabetes** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
10. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

People at Risk In 25 Most Ozone-Polluted Cities

2013 Rank[1]	Metropolitan Statistical Areas	Total Population[2]	Under 18[3]	65 and Over[3]	Pediatric Asthma[4,6]	Adult Asthma[5,6]	COPD[7]	CV Disease[8]	Poverty[9]
1	Los Angeles-Long Beach-Riverside, CA	18,081,569	4,542,151	2,021,451	325,187	1,139,030	597,808	3,983,369	3,038,607
2	Visalia-Porterville, CA	449,253	145,232	43,101	10,398	25,559	13,075	86,663	113,766
3	Bakersfield-Delano, CA	851,710	254,658	77,793	18,232	50,187	25,296	167,656	200,571
4	Fresno-Madera, CA	1,095,829	321,487	114,718	23,016	65,120	33,800	224,505	272,942
5	Hanford-Corcoran, CA	153,765	42,382	12,366	3,034	9,354	4,504	29,646	27,949
6	Sacramento—Arden-Arcade—Yuba City, CA-NV	2,489,230	606,325	319,042	43,295	158,254	88,544	586,151	386,342
7	Houston-Baytown-Huntsville, TX	6,191,434	1,708,164	552,120	137,217	333,104	237,213	1,462,793	1,056,710
8	Dallas-Fort Worth, TX	6,853,425	1,881,791	648,640	151,163	369,858	266,821	1,640,113	1,052,759
9	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	8,670,607	2,025,927	964,445	191,397	577,502	385,948	2,191,845	808,337
10	El Centro, CA	177,057	50,986	18,749	3,650	10,603	5,513	36,633	43,259
11	Merced, CA	259,898	80,991	25,034	5,798	15,039	7,658	50,722	68,371
11	San Diego-Carlsbad-San Marcos, CA	3,140,069	726,602	362,928	52,020	203,011	106,254	707,051	462,997
13	Modesto, CA	518,522	146,498	56,563	10,488	31,303	16,547	110,394	119,325
14	Birmingham-Hoover-Cullman, AL	1,212,800	287,870	162,832	30,184	73,803	89,406	393,595	200,725
14	Cincinnati-Middletown-Wilmington, OH-KY-IN	2,179,965	537,575	270,708	52,080	163,904	132,373	590,680	307,286
16	Las Vegas-Paradise-Pahrump, NV	2,013,326	497,829	241,449	29,400	122,240	109,798	497,456	333,690
17	Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN	1,440,607	343,686	185,720	29,991	113,046	105,848	438,810	215,950
17	New York-Newark-Bridgeport, NY-NJ-CT-PA	22,214,083	5,027,088	2,963,886	472,117	1,634,531	973,420	5,601,883	3,056,701
19	Charlotte-Gastonia-Salisbury, NC-SC	2,442,564	614,338	280,468	52,534	160,312	124,668	630,498	388,999
20	Beaumont-Port Arthur, TX	390,535	95,311	51,293	7,656	22,226	17,372	105,287	67,523
20	Oklahoma City-Shawnee, OK	1,348,333	335,791	162,124	31,610	97,487	84,284	374,335	216,926
20	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	6,562,287	1,513,270	886,837	145,153	461,724	305,296	1,699,047	867,174
23	Phoenix-Mesa-Glendale, AZ	4,263,236	1,107,303	540,544	93,175	302,805	166,853	963,671	727,056
24	Pittsburgh-New Castle, PA	2,450,281	487,427	424,058	48,891	175,676	134,681	705,328	304,860
25	San Luis Obispo-Paso Robles, CA	271,969	49,943	42,541	3,576	18,706	10,595	71,152	38,626
25	St. Louis-St. Charles-Farmington, MO-IL	2,907,732	682,579	395,222	52,616	198,808	171,525	814,289	394,418
25	Tulsa-Bartlesville, OK	998,438	251,983	133,087	23,720	71,733	64,452	286,681	147,999

Notes:

1. Cities are ranked using the highest weighted average for any county within that Combined or Metropolitan Statistical Area.
2. **Total Population** represents the at-risk populations for all counties within the respective Combined or Metropolitan Statistical Area.
3. Those **under 18** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. Pediatric asthma estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
9. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

People at Risk in 25 Counties Most Polluted by Short-term Particle Pollution (24-hour $PM_{2.5}$)

2013 Rank[1]	County	ST	Total Population[2]	At-Risk Groups: Under 18[3]	65 and Over[3]	Pediatric Asthma[4,6]	Adult Asthma[5,6]	COPD[7]	CV Disease[8]	Diabetes[9]	Poverty[10]	High $PM_{2.5}$ Days in Unhealthy Ranges, 2009–2011: Weighted Avg.[11]	Grade[12]
1	Kern	CA	851,710	254,658	77,793	18,232	50,187	25,296	167,656	44,022	200,571	46.5	F
2	Fresno	CA	942,904	278,349	96,955	19,928	55,881	28,859	191,544	50,623	238,977	40.3	F
3	Kings	CA	153,765	42,382	12,366	3,034	9,354	4,504	29,646	7,656	27,949	40.2	F
4	Riverside	CA	2,239,620	623,094	268,723	44,609	136,046	73,244	488,747	130,878	371,930	36.8	F
5	Stanislaus	CA	518,522	146,498	56,563	10,488	31,303	16,547	110,394	29,447	119,325	33.5	F
6	Los Angeles	CA	9,889,056	2,378,370	1,099,904	170,275	631,724	328,847	2,187,906	580,411	1,788,681	25.0	F
7	Salt Lake	UT	1,048,985	303,918	92,845	20,525	65,553	29,865	188,795	50,044	149,852	21.0	F
8	Allegheny	PA	1,227,066	239,182	203,896	23,991	89,052	66,386	346,036	94,750	159,663	20.7	F
9	Merced	CA	259,898	80,991	25,034	5,798	15,039	7,658	50,722	13,340	68,371	16.0	F
10	Shoshone	ID	12,672	2,619	2,555	224	934	633	3,786	1,153	2,449	15.7	F
11	Fairbanks North Star Borough	AK	99,192	25,056	6,759	2,143	6,027	3,659	22,166	5,466	9,045	14.7	F
12	Cache	UT	114,699	35,495	9,054	2,397	6,974	3,008	18,402	4,770	18,567	14.3	F
13	Hawaii	HI	186,738	42,115	28,273	4,601	13,767	6,663	47,413	12,952	37,428	12.5	F
14	Utah	UT	530,499	184,519	35,144	12,462	30,458	12,772	77,117	19,746	73,997	11.8	F
15	San Joaquin	CA	696,214	201,446	73,891	14,422	41,628	21,911	146,134	38,937	124,573	11.5	F
16	Weber	UT	234,420	70,002	23,991	4,728	14,473	6,835	43,758	11,743	30,614	11.3	F
17	Lemhi	ID	7,967	1,548	1,821	132	598	428	2,545	783	1,484	11.0	F
18	Muscatine	IA	42,815	11,153	5,937	642	2,619	1,621	10,249	2,629	5,644	8.3	F
19	Inyo	CA	18,478	3,890	3,597	278	1,233	782	5,333	1,496	2,304	8.2	F
20	Doña Ana	NM	213,598	56,503	26,936	5,681	15,816	9,408	47,038	15,117	61,023	7.7	F
21	Tulare	CA	449,253	145,232	43,101	10,398	25,559	13,075	86,663	22,830	113,766	7.5	F
21	Lane	OR	353,416	68,420	54,567	6,475	29,763	16,874	91,147	26,384	73,046	7.5	F
23	Orange	CA	3,055,745	737,120	363,752	52,773	195,151	104,466	698,405	187,107	391,460	6.8	F
23	Lewis and Clark	MT	64,318	14,414	9,094	975	4,545	3,014	16,458	4,001	6,781	6.8	F
25	Lake	IN	495,558	125,473	66,423	11,875	35,502	31,331	134,320	38,931	94,261	6.3	F
25	Silver Bow	MT	34,383	7,159	5,630	484	2,470	1,673	9,127	2,238	5,759	6.3	F

Notes:

1. Counties are ranked by weighted average. See note 12 below.
2. **Total Population** represents the at-risk populations in counties with $PM_{2.5}$ monitors.
3. Those **under 18** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
9. **Diabetes** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
10. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.
11. The **Weighted Average** was derived by counting the number of days in each unhealthful range (orange, red, purple, maroon) in each year (2009-2011), multiplying the total in each range by the assigned standard weights (i.e., 1 for orange, 1.5 for red, 2.0 for purple, 2.5 for maroon), and calculating the average.
12. **Grade** is assigned by weighted average as follows: A=0.0, B=0.3-0.9, C=1.0-2.0, D=2.1-3.2, F=3.3+.

People at Risk in 25 Counties Most Polluted by Year-round Particle Pollution (Annual $PM_{2.5}$)

2013 Rank[1]	County	ST	Total Population[2]	At-Risk Groups								$PM_{2.5}$ Annual, 2009–2011	
				Under 18[3]	65 and Over[3]	Pediatric Asthma[4,6]	Adult Asthma[5,6]	COPD[7]	CV Disease[8]	Diabetes[9]	Poverty[10]	Weighted Avg.[11]	Grade[12]
1	Merced	CA	259,898	80,991	25,034	5,798	15,039	7,658	50,722	13,340	68,371	18.2	Fail
1	Kern	CA	851,710	254,658	77,793	18,232	50,187	25,296	167,656	44,022	200,571	18.2	Fail
3	Fresno	CA	942,904	278,349	96,955	19,928	55,881	28,859	191,544	50,623	238,977	17.0	Fail
4	Riverside	CA	2,239,620	623,094	268,723	44,609	136,046	73,244	488,747	130,878	371,930	16.2	Fail
4	Kings	CA	153,765	42,382	12,366	3,034	9,354	4,504	29,646	7,656	27,949	16.2	Fail
6	Hawaii	HI	186,738	42,115	28,273	4,601	13,767	6,663	47,413	12,952	37,428	15.5	Fail
7	Stanislaus	CA	518,522	146,498	56,563	10,488	31,303	16,547	110,394	29,447	119,325	15.3	Fail
8	Tulare	CA	449,253	145,232	43,101	10,398	25,559	13,075	86,663	22,830	113,766	15.2	Fail
9	Allegheny	PA	1,227,066	239,182	203,896	23,991	89,052	66,386	346,036	94,750	159,663	15.0	Fail
10	Imperial	CA	177,057	50,986	18,749	3,650	10,603	5,513	36,633	9,705	43,259	14.0	Fail
11	Los Angeles	CA	9,889,056	2,378,370	1,099,904	170,275	631,724	328,847	2,187,906	580,411	1,788,681	13.9	Fail
12	Hamilton	OH	800,362	187,735	106,776	18,778	60,469	46,564	214,359	60,440	144,388	13.8	Fail
13	San Bernardino	CA	2,065,377	593,206	188,958	42,470	123,780	62,735	416,898	109,855	391,911	13.7	Fail
13	Chester	PA	503,897	122,975	66,195	12,335	34,515	25,021	129,838	35,031	34,765	13.7	Fail
13	Westmoreland	PA	364,471	71,196	69,087	7,141	25,925	20,851	110,034	30,691	37,877	13.7	Fail
16	Clark	IN	111,570	26,371	14,384	2,496	8,176	7,101	30,351	8,771	14,322	13.5	Fail
16	Madison	IL	268,459	60,495	38,869	4,365	16,994	12,964	73,098	21,199	37,085	13.5	Fail
18	Bibb	GA	156,433	40,112	20,072	3,430	11,122	8,486	42,364	12,713	38,253	13.4	Fail
18	Stark	OH	375,087	84,543	61,972	8,456	28,303	23,453	109,350	31,269	59,598	13.4	Fail
18	Northampton	PA	298,476	63,991	47,529	6,419	21,110	15,794	82,380	22,541	28,873	13.4	Fail
18	Fairbanks North Star Borough	AK	99,192	25,056	6,759	2,143	6,027	3,659	22,166	5,466	9,045	13.4	Fail
22	Fulton	GA	949,599	224,779	87,146	19,222	69,694	48,286	238,129	68,614	183,931	13.3	Fail
22	Pinal	AZ	382,992	99,877	56,529	8,404	27,145	15,708	90,026	27,883	61,863	13.3	Fail
24	Cuyahoga	OH	1,270,294	283,168	198,263	28,323	96,576	78,103	362,751	103,256	233,438	13.1	Fail
24	Wilkinson	GA	9,444	2,284	1,525	195	681	566	2,849	880	1,702	13.1	Fail
24	St. Louis City	MO	318,069	67,547	34,548	5,313	22,980	18,693	84,398	22,670	83,819	13.1	Fail
24	Marion	IN	911,296	228,998	97,604	21,673	65,410	53,638	227,597	64,921	189,843	13.1	Fail

Notes:

1. Counties are ranked by weighted average. See note 12 below.
2. **Total Population** represents the at-risk populations in counties with $PM_{2.5}$ monitors.
3. Those **under 18** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
9. **Diabetes** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
10. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.
11. The **Design Value** is the calculated concentration of a pollutant based on the form of the National Ambient Air Quality Standard, and is used by EPA to determine whether the air quality in a meets the standard.
12. **Grade** is assigned by weighted average as follows: A=0.0, B=0.3-0.9, C=1.0-2.0, D=2.1-3.2, F=3.3+.

People at Risk in 25 Most Ozone-Polluted Counties

2013 Rank[1]	County	ST	Total Population[2]	At-Risk Groups							High Ozone Days in Unhealthy Ranges, 2009–2011	
				Under 18[3]	65 and Over[3]	Pediatric Asthma[4,6]	Adult Asthma[5,6]	COPD[7]	CV Disease[8]	Poverty[9]	Weighted Avg.[10]	Grade[11]
1	San Bernardino	CA	2,065,377	593,206	188,958	42,470	123,780	62,735	416,898	391,911	121.5	F
2	Riverside	CA	2,239,620	623,094	268,723	44,609	136,046	73,244	488,747	371,930	102.2	F
3	Tulare	CA	449,253	145,232	43,101	10,398	25,559	13,075	86,663	113,766	87.5	F
4	Los Angeles	CA	9,889,056	2,378,370	1,099,904	170,275	631,724	328,847	2,187,906	1,788,681	81.8	F
5	Kern	CA	851,710	254,658	77,793	18,232	50,187	25,296	167,656	200,571	78.3	F
6	Fresno	CA	942,904	278,349	96,955	19,928	55,881	28,859	191,544	238,977	58.3	F
7	Kings	CA	153,765	42,382	12,366	3,034	9,354	4,504	29,646	27,949	36.2	F
8	Sacramento	CA	1,436,105	362,155	164,643	25,928	90,380	48,063	321,109	250,842	35.3	F
9	Uintah	UT	33,163	11,005	3,021	743	1,950	905	5,755	3,845	27.8	F
10	Harris	TX	4,180,894	1,165,484	350,212	93,623	222,920	155,592	959,756	803,895	27.3	F
11	Tarrant	TX	1,849,815	515,168	169,223	41,383	99,250	71,169	438,244	307,362	23.7	F
12	El Dorado	CA	180,938	40,081	27,785	2,870	11,895	7,173	49,004	18,496	21.0	F
13	Harford	MD	246,489	59,086	31,665	5,444	15,763	11,356	65,860	20,309	20.3	F
14	Placer	CA	357,138	85,632	56,457	6,131	22,901	13,526	91,482	29,985	19.7	F
15	Madera	CA	152,925	43,138	17,763	3,088	9,239	4,941	32,961	33,965	18.0	F
16	Denton	TX	686,406	187,155	50,520	15,034	36,863	25,093	156,026	63,240	17.3	F
17	Imperial	CA	177,057	50,986	18,749	3,650	10,603	5,513	36,633	43,259	16.3	F
18	San Diego	CA	3,140,069	726,602	362,928	52,020	203,011	106,254	707,051	462,997	16.2	F
18	Merced	CA	259,898	80,991	25,034	5,798	15,039	7,658	50,722	68,371	16.2	F
20	Ventura	CA	831,771	210,361	100,114	15,060	52,329	28,516	191,413	94,625	15.3	F
20	Stanislaus	CA	518,522	146,498	56,563	10,488	31,303	16,547	110,394	119,325	15.3	F
20	Brazoria	TX	319,973	88,132	31,569	7,080	17,332	12,720	78,226	37,492	15.3	F
23	Dallas	TX	2,416,014	666,960	215,670	53,577	129,337	91,285	560,864	475,446	13.3	F
24	Jefferson	AL	658,931	154,664	87,341	16,217	40,237	48,459	213,021	120,760	12.8	F
24	Hamilton	OH	800,362	187,735	106,776	18,778	60,469	46,564	214,359	144,388	12.8	F

Notes:

1. Counties are ranked by weighted average. See note 10 below.
2. **Total Population** represents the at-risk populations in counties with $PM_{2.5}$ monitors.
3. Those **under 18** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma in 2011 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **CV disease** is cardiovascular disease and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
9. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.
10. The **Weighted Average** was derived by counting the number of days in each unhealthful range (orange, red, purple) in each year (2009-2011), multiplying the total in each range by the assigned standard weights (i.e., 1 for orange, 1.5 for red, 2.0 for purple), and calculating the average.
11. Grade is assigned by weighted average as follows: A=0.0, B=0.3-0.9, C=1.0-2.0, D=2.1-3.2, F=3.3+.

Cleanest U.S. Cities for Short-term Particle Pollution (24-hour $PM_{2.5}$)[1]

Metropolitan Statistical Area	Population
Asheville-Brevard, NC	461,837
Athens-Clarke County, GA	193,317
Atlantic City-Hammonton, NJ	274,338
Austin-Round Rock-Marble Falls, TX	1,783,519
Bangor, ME	153,786
Beckley-Oak Hill, WV	124,826
Bismarck, ND	110,879
Bloomington, IN	194,193
Bowling Green, KY	127,607
Brownsville-Harlingen-Raymondville, TX	436,218
Cape Coral-Fort Myers, FL	631,330
Casper, WY	76,366
Champaign-Urbana, IL	232,336
Charleston, WV	303,674
Charlotte-Gastonia-Salisbury, NC-SC	2,442,564
Claremont-Lebanon, NH-VT	218,057
Clarksville, TN-KY	277,701
Colorado Springs, CO	660,319
Columbia-Newberry, SC	814,837
Corpus Christi-Kingsville, TX	464,014
Decatur, IL	110,730
Dover, DE	164,834
Eau Claire-Menomonie, WI	206,628
Farmington, NM	128,200
Fayetteville, NC	374,157
Fayetteville-Springdale-Rogers, AR-MO	473,830
Flagstaff, AZ	134,511
Florence, SC	206,161
Florence-Muscle Shoals, AL	147,293
Fort Collins-Loveland, CO	305,525
Fort Smith, AR-OK	300,087
Gainesville, FL	266,369
Goldsboro, NC	123,697
Greenville, NC	192,690
Gulfport-Biloxi-Pascagoula, MS	416,301
Hattiesburg, MS	145,428
Hickory-Lenoir-Morganton, NC	364,567
Hot Springs, AR	97,124
Houma-Bayou Cane-Thibodaux, LA	208,583
Huntsville-Decatur, AL	579,550
Jackson-Humboldt, TN	165,331
Lake Charles-Jennings, LA	232,516
Lakeland-Winter Haven, FL	609,492
Lansing-East Lansing-Owosso, MI	534,979
Lumberton-Laurinburg, NC	171,378
Lynchburg, VA	254,171
McAllen-Edinburg-Pharr, TX	797,810
Mobile-Daphne-Fairhope, AL	599,294
Monroe-Bastrop, LA	205,259
Montgomery-Alexander City, AL	430,944
Morgantown, WV	132,251
Nashville-Davidson—Murfreesboro—Columbia, TN	1,698,651
Niles-Benton Harbor, MI	156,941
Oklahoma City-Shawnee, OK	1,348,333
Owensboro, KY	115,333
Paducah-Mayfield, KY-IL	136,609
Palm Bay-Melbourne-Titusville, FL	543,566
Pensacola-Ferry Pass-Brent, FL	453,218
Peoria-Canton, IL	416,518
Prescott, AZ	211,888
Pueblo, CO	160,545
Rapid City, SD	128,361
Redding, CA	177,774
Richmond, VA	1,269,380
Roanoke, VA	308,861
Rocky Mount, NC	152,157
Salinas, CA	421,898
San Antonio-New Braunfels, TX	2,194,927
Santa Barbara-Santa Maria-Goleta, CA	426,878
Sarasota-Bradenton-Punta Gorda, FL	869,866
Shreveport-Bossier City-Minden, LA	444,883
Springfield, IL	211,547
St. George, UT	141,666
Syracuse-Auburn, NY	742,291
Tampa-St. Petersburg-Clearwater, FL	2,824,724
Texarkana, TX-Texarkana, AR	136,552
Tucson, AZ	989,569
Tulsa-Bartlesville, OK	998,438
Wichita-Winfield, KS	661,798
Yuma, AZ	200,870

Note:
1. This list represents cities with the lowest levels of short term $PM_{2.5}$ air pollution. Monitors in these cities reported no days with unhealthful $PM_{2.5}$ levels.

Top 25 Cleanest U.S. Cities for Year-round Particle Pollution (Annual $PM_{2.5}$)[1]

Rank[2]	Design Value[3]	Metropolitan Statistical Area	Population
1	4.1	Cheyenne, WY	92,680
2	4.2	Santa Fe-Espanola, NM	186,094
2	4.2	St. George, UT	141,666
4	4.3	Prescott, AZ	211,888
5	4.5	Farmington, NM	128,200
6	5.2	Pocatello, ID	91,457
7	5.3	Redding, CA	177,774
8	5.4	Tucson, AZ	989,569
9	5.9	Albuquerque, NM	898,642
9	5.9	Colorado Springs, CO	660,319
9	5.9	Flagstaff, AZ	134,511
9	5.9	Rapid City, SD	128,361
13	6.1	Salinas, CA	421,898
14	6.2	Anchorage, AK	387,516
15	6.3	Fort Collins-Loveland, CO	305,525
16	6.6	Duluth, MN-WI	279,815
16	6.6	Palm Bay-Melbourne-Titusville, FL	543,566
18	6.8	Reno-Sparks-Fernley, NV	481,477
18	6.8	Sarasota-Bradenton-Punta Gorda, FL	869,866
20	6.9	Bismarck, ND	110,879
20	6.9	Cape Coral-Fort Myers, FL	631,330
22	7.3	Bangor, ME	153,786
22	7.3	Burlington-South Burlington, VT	212,535
24	7.4	Boise City-Nampa, ID	627,664
25	7.5	Lakeland-Winter Haven, FL	609,492
25	7.5	Miami-Fort Lauderdale-Pompano Beach, FL	5,670,125
25	7.5	Orlando-Deltona-Daytona Beach, FL	2,861,296

Notes:
1. This list represents cities with the lowest levels of annual $PM_{2.5}$ air pollution.
2. Cities are ranked by using the highest design value for any within that metropolitan area.
3. The **Design Value** is the calculated concentration of a pollutant based on the form of the National Ambient Air Quality Standard, and is used by the EPA to determine whether the air quality in a county meets the standard.

Cleanest U.S. Cities for Ozone Air Pollution[1]

Metropolitan Statistical Area	Population
Ames-Boone, IA	115,918
Bellingham, WA	203,663
Bend-Prineville, OR	181,177
Bismarck, ND	110,879
Brownsville-Harlingen-Raymondville, TX	436,218
Brunswick, GA	112,923
Burlington-South Burlington, VT	212,535
Cape Coral-Fort Myers, FL	631,330
Cedar Rapids, IA	260,575
Charleston-North Charleston-Summerville, SC	682,121
Claremont-Lebanon, NH-VT	218,057
Coeur d'Alene, ID	141,132
Columbia, MO	175,831
Davenport-Moline-Rock Island, IA-IL	381,342
Des Moines-Newton-Pella, IA	650,137
Dothan-Enterprise-Ozark, AL	247,132
Duluth, MN-WI	279,815
Eugene-Springfield, OR	353,416
Fargo-Wahpeton, ND-MN	235,008
Florence-Muscle Shoals, AL	147,293
Gadsden, AL	104,303
Gainesville, FL	266,369
Grand Junction, CO	147,083
Honolulu, HI	963,607
Janesville, WI	160,092
La Crosse, WI-MN	134,488
Laredo, TX	256,496
Lincoln, NE	306,503
Logan, UT-ID	127,549
Madison-Baraboo, WI	638,757
McAllen-Edinburg-Pharr, TX	797,810
Medford, OR	204,822
Monroe-Bastrop, LA	205,259
Muncie, IN	117,660
Naples-Marco Island, FL	328,134
Palm Bay-Melbourne-Titusville, FL	543,566
Port St. Lucie-Sebastian-Vero Beach, FL	566,768
Rapid City, SD	128,361
Rochester, MN	187,612
Rochester-Batavia-Seneca Falls, NY	1,150,469
Rockford-Freeport-Rochelle, IL	449,038
Santa Fe-Espanola, NM	186,094
Savannah-Hinesville-Fort Stewart, GA	436,163
Sioux City-Vermillion, IA-NE-SD	158,113
Sioux Falls, SD	232,433
Spokane, WA	473,761
Tuscaloosa, AL	221,553
Utica-Rome, NY	298,447
Waterloo-Cedar Falls, IA	168,289
Wausau-Merrill, WI	163,002

Note:
1. This list represents cities with no monitored ozone air pollution in unhealthful ranges using the Air Quality Index based on the 2008 ozone NAAQS.

Cleanest Counties for Short-term Particle Pollution (24-hour $PM_{2.5}$)[1]

County	State	MSAs and Respective CSA[2]
Anchorage Municipality	AK	Anchorage, AK
Baldwin	AL	Mobile-Daphne-Fairhope, AL
Clay	AL	
Colbert	AL	Florence-Muscle Shoals, AL
DeKalb	AL	
Madison	AL	Huntsville-Decatur, AL
Mobile	AL	Mobile-Daphne-Fairhope, AL
Montgomery	AL	Montgomery-Alexander City, AL
Morgan	AL	Huntsville-Decatur, AL
Russell	AL	Columbus-Auburn-Opelika, GA-AL
Shelby	AL	Birmingham-Hoover-Cullman, AL
Talladega	AL	
Walker	AL	Birmingham-Hoover-Cullman, AL
Arkansas	AR	
Ashley	AR	
Crittenden	AR	Memphis, TN-MS-AR
Faulkner	AR	Little Rock-North Little Rock-Pine Bluff, AR
Garland	AR	Hot Springs, AR
Jackson	AR	
Phillips	AR	
Polk	AR	
Pope	AR	
Sebastian	AR	Fort Smith, AR-OK
Union	AR	
Washington	AR	Fayetteville-Springdale-Rogers, AR-MO
White	AR	Little Rock-North Little Rock-Pine Bluff, AR
Apache	AZ	
Cochise	AZ	
Coconino	AZ	Flagstaff, AZ
Pima	AZ	Tucson, AZ
Yavapai	AZ	Prescott, AZ
Yuma	AZ	Yuma, AZ
Calaveras	CA	
Colusa	CA	
Humboldt	CA	
Lake	CA	
Mendocino	CA	
Monterey	CA	Salinas, CA
Nevada	CA	Sacramento—Arden-Arcade—Yuba City, CA-NV
San Benito	CA	San Jose-San Francisco-Oakland, CA
Santa Barbara	CA	Santa Barbara-Santa Maria-Goleta, CA
Santa Cruz	CA	San Jose-San Francisco-Oakland, CA
Shasta	CA	Redding, CA
Siskiyou	CA	
Sonoma	CA	San Jose-San Francisco-Oakland, CA
Ventura	CA	Los Angeles-Long Beach-Riverside, CA
Arapahoe	CO	Denver-Aurora-Boulder, CO
Denver	CO	Denver-Aurora-Boulder, CO
Douglas	CO	Denver-Aurora-Boulder, CO
El Paso	CO	Colorado Springs, CO
Elbert	CO	Denver-Aurora-Boulder, CO
La Plata	CO	
Larimer	CO	Fort Collins-Loveland, CO
Montezuma	CO	
Pueblo	CO	Pueblo, CO
Litchfield	CT	New York-Newark-Bridgeport, NY-NJ-CT-PA
Kent	DE	Dover, DE
Sussex	DE	
Alachua	FL	Gainesville, FL
Brevard	FL	Palm Bay-Melbourne-Titusville, FL
Citrus	FL	
Escambia	FL	Pensacola-Ferry Pass-Brent, FL
Hillsborough	FL	Tampa-St. Petersburg-Clearwater, FL
Lee	FL	Cape Coral-Fort Myers, FL
Orange	FL	Orlando-Deltona-Daytona Beach, FL
Pinellas	FL	Tampa-St. Petersburg-Clearwater, FL
Polk	FL	Lakeland-Winter Haven, FL
Sarasota	FL	Sarasota-Bradenton-Punta Gorda, FL
Seminole	FL	Orlando-Deltona-Daytona Beach, FL
Clarke	GA	Athens-Clarke County, GA
Clayton	GA	Atlanta-Sandy Springs-Gainesville, GA-AL
Gwinnett	GA	Atlanta-Sandy Springs-Gainesville, GA-AL

Notes:

1. This list represents counties with the lowest levels of short term $PM_{2.5}$ air pollution. Monitors in these counties reported no days with unhealthful $PM_{2.5}$ levels using the AQI adopted December 14, 2012.
2. MSA and CSA are terms used by the U.S. Office of Management and Budget for statistical purposes. MSA stands for Metropolitan Statistical Area. CSA stands for Combined Statistical Area, which may include multiples and individual counties.

Cleanest Counties for Short-term Particle Pollution (24-hour $PM_{2.5}$)[1] (cont.)

County	State	MSAs and Respective CSA[2]
Hall	GA	Atlanta-Sandy Springs-Gainesville, GA-AL
Houston	GA	Macon-Warner Robins-Fort Valley, GA
Paulding	GA	Atlanta-Sandy Springs-Gainesville, GA-AL
Walker	GA	Chattanooga-Cleveland-Athens, TN-GA
Maui	HI	
Adams	IL	
Champaign	IL	Champaign-Urbana, IL
DuPage	IL	Chicago-Naperville-Michigan City, IL-IN-WI
Hamilton	IL	
Jersey	IL	St. Louis-St. Charles-Farmington, MO-IL
Kane	IL	Chicago-Naperville-Michigan City, IL-IN-WI
Macon	IL	Decatur, IL
McHenry	IL	Chicago-Naperville-Michigan City, IL-IN-WI
Peoria	IL	Peoria-Canton, IL
Randolph	IL	
Rock Island	IL	Davenport-Moline-Rock Island, IA-IL
Sangamon	IL	Springfield, IL
Gibson	IN	Evansville, IN-KY
Knox	IN	
LaPorte	IN	Chicago-Naperville-Michigan City, IL-IN-WI
Monroe	IN	Bloomington, IN
Spencer	IN	
Johnson	KS	Kansas City-Overland Park-Kansas City, MO-KS
Linn	KS	Kansas City-Overland Park-Kansas City, MO-KS
Sedgwick	KS	Wichita-Winfield, KS
Sumner	KS	Wichita-Winfield, KS
Wyandotte	KS	Kansas City-Overland Park-Kansas City, MO-KS
Boyd	KY	Huntington-Ashland, WV-KY-OH
Campbell	KY	Cincinnati-Middletown-Wilmington, OH-KY-IN
Carter	KY	
Christian	KY	Clarksville, TN-KY
Daviess	KY	Owensboro, KY
Franklin	KY	Lexington-Fayette—Frankfort—Richmond, KY
Hardin	KY	Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN
Henderson	KY	Evansville, IN-KY
Madison	KY	Lexington-Fayette—Frankfort—Richmond, KY
McCracken	KY	Paducah-Mayfield, KY-IL
Warren	KY	Bowling Green, KY
Caddo Parish	LA	Shreveport-Bossier City-Minden, LA
Calcasieu Parish	LA	Lake Charles-Jennings, LA
Iberville Parish	LA	Baton Rouge-Pierre Part, LA
Ouachita Parish	LA	Monroe-Bastrop, LA
Tangipahoa Parish	LA	
Terrebonne Parish	LA	Houma-Bayou Cane-Thibodaux, LA
Bristol	MA	Boston-Worcester-Manchester, MA-RI-NH
Essex	MA	Boston-Worcester-Manchester, MA-RI-NH
Middlesex	MA	Boston-Worcester-Manchester, MA-RI-NH
Plymouth	MA	Boston-Worcester-Manchester, MA-RI-NH
Worcester	MA	Boston-Worcester-Manchester, MA-RI-NH
Harford	MD	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV
Hancock	ME	
Kennebec	ME	
Penobscot	ME	Bangor, ME
Allegan	MI	Grand Rapids-Muskegon-Holland, MI
Berrien	MI	Niles-Benton Harbor, MI
Genesee	MI	Detroit-Warren-Flint, MI
Ingham	MI	Lansing-East Lansing-Owosso, MI
Lenawee	MI	
Macomb	MI	Detroit-Warren-Flint, MI
Manistee	MI	
Missaukee	MI	
Muskegon	MI	Grand Rapids-Muskegon-Holland, MI
Oakland	MI	Detroit-Warren-Flint, MI
Ottawa	MI	Grand Rapids-Muskegon-Holland, MI
Washtenaw	MI	Detroit-Warren-Flint, MI
Cedar	MO	
DeSoto	MS	Memphis, TN-MS-AR
Forrest	MS	Hattiesburg, MS

Notes:

1. This list represents counties with the lowest levels of short term $PM_{2.5}$ air pollution. Monitors in these counties reported no days with unhealthful $PM_{2.5}$ levels using the AQI adopted December 14, 2012.
2. MSA and CSA are terms used by the U.S. Office of Management and Budget for statistical purposes. MSA stands for Metropolitan Statistical Area. CSA stands for Combined Statistical Area, which may include multiples and individual counties.

Cleanest Counties for Short-term Particle Pollution (24-hour $PM_{2.5}$)[1] (cont.)

County	State	MSAs and Respective CSA[2]
Grenada	MS	
Hancock	MS	Gulfport-Biloxi-Pascagoula, MS
Harrison	MS	Gulfport-Biloxi-Pascagoula, MS
Jackson	MS	Gulfport-Biloxi-Pascagoula, MS
Jones	MS	
Lauderdale	MS	
Lee	MS	
Flathead	MT	
Richland	MT	
Sanders	MT	
Buncombe	NC	Asheville-Brevard, NC
Caswell	NC	
Catawba	NC	Hickory-Lenoir-Morganton, NC
Chatham	NC	Raleigh-Durham-Cary, NC
Cumberland	NC	Fayetteville, NC
Davidson	NC	Greensboro—Winston-Salem—High Point, NC
Durham	NC	Raleigh-Durham-Cary, NC
Edgecombe	NC	Rocky Mount, NC
Forsyth	NC	Greensboro—Winston-Salem—High Point, NC
Gaston	NC	Charlotte-Gastonia-Salisbury, NC-SC
Guilford	NC	Greensboro—Winston-Salem—High Point, NC
Haywood	NC	Asheville-Brevard, NC
Jackson	NC	
Martin	NC	
McDowell	NC	
Mecklenburg	NC	Charlotte-Gastonia-Salisbury, NC-SC
Mitchell	NC	
Montgomery	NC	
Pitt	NC	Greenville, NC
Robeson	NC	Lumberton-Laurinburg, NC
Rowan	NC	Charlotte-Gastonia-Salisbury, NC-SC
Swain	NC	
Watauga	NC	
Wayne	NC	Goldsboro, NC
Billings	ND	
Burleigh	ND	Bismarck, ND
Mercer	ND	
Hall	NE	
Scotts Bluff	NE	
Belknap	NH	Boston-Worcester-Manchester, MA-RI-NH
Grafton	NH	Claremont-Lebanon, NH-VT
Hillsborough	NH	Boston-Worcester-Manchester, MA-RI-NH
Atlantic	NJ	Atlantic City-Hammonton, NJ
Camden	NJ	Philadelphia-Camden-Vineland, PA-NJ-DE-MD
Essex	NJ	New York-Newark-Bridgeport, NY-NJ-CT-PA
Gloucester	NJ	Philadelphia-Camden-Vineland, PA-NJ-DE-MD
Middlesex	NJ	New York-Newark-Bridgeport, NY-NJ-CT-PA
Ocean	NJ	New York-Newark-Bridgeport, NY-NJ-CT-PA
Chaves	NM	
Grant	NM	
San Juan	NM	Farmington, NM
Chautauqua	NY	
Essex	NY	
Nassau	NY	New York-Newark-Bridgeport, NY-NJ-CT-PA
Niagara	NY	Buffalo-Niagara-Cattaraugus, NY
Onondaga	NY	Syracuse-Auburn, NY
Steuben	NY	
Suffolk	NY	New York-Newark-Bridgeport, NY-NJ-CT-PA
Athens	OH	
Clermont	OH	Cincinnati-Middletown-Wilmington, OH-KY-IN
Greene	OH	Dayton-Springfield-Greenville, OH
Lake	OH	Cleveland-Akron-Elyria, OH
Lawrence	OH	Huntington-Ashland, WV-KY-OH
Medina	OH	Cleveland-Akron-Elyria, OH
Portage	OH	Cleveland-Akron-Elyria, OH
Scioto	OH	
Caddo	OK	
Mayes	OK	
Muskogee	OK	
Oklahoma	OK	Oklahoma City-Shawnee, OK

Notes:

1. This list represents counties with the lowest levels of short term $PM_{2.5}$ air pollution. Monitors in these counties reported no days with unhealthful $PM_{2.5}$ levels using the AQI adopted December 14, 2012.
2. MSA and CSA are terms used by the U.S. Office of Management and Budget for statistical purposes. MSA stands for Metropolitan Statistical Area. CSA stands for Combined Statistical Area, which may include multiples and individual counties.

Cleanest Counties for Short-term Particle Pollution (24-hour $PM_{2.5}$)[1] (cont.)

County	State	MSAs and Respective CSA[2]
Sequoyah	OK	Fort Smith, AR-OK
Tulsa	OK	Tulsa-Bartlesville, OK
Umatilla	OR	
Kent	RI	Boston-Worcester-Manchester, MA-RI-NH
Chesterfield	SC	
Florence	SC	Florence, SC
Lexington	SC	Columbia-Newberry, SC
Richland	SC	Columbia-Newberry, SC
Spartanburg	SC	Greenville-Spartanburg-Anderson, SC
Brown	SD	
Jackson	SD	
Pennington	SD	Rapid City, SD
Blount	TN	Knoxville-Sevierville-La Follette, TN
Davidson	TN	Nashville-Davidson—Murfreesboro—Columbia, TN
Lawrence	TN	
Madison	TN	Jackson-Humboldt, TN
Maury	TN	Nashville-Davidson—Murfreesboro—Columbia, TN
McMinn	TN	Chattanooga-Cleveland-Athens, TN-GA
Montgomery	TN	Clarksville, TN-KY
Putnam	TN	
Sumner	TN	Nashville-Davidson—Murfreesboro—Columbia, TN
Bexar	TX	San Antonio-New Braunfels, TX
Bowie	TX	Texarkana, TX-Texarkana, AR
Cameron	TX	Brownsville-Harlingen-Raymondville, TX
Ellis	TX	Dallas-Fort Worth, TX
Hidalgo	TX	McAllen-Edinburg-Pharr, TX
Nueces	TX	Corpus Christi-Kingsville, TX
Tarrant	TX	Dallas-Fort Worth, TX
Travis	TX	Austin-Round Rock-Marble Falls, TX
Washington	UT	St. George, UT
Bristol city	VA	Johnson City-Kingsport-Bristol (Tri-Cities), TN-VA
Charles City	VA	Richmond, VA
Chesterfield	VA	Richmond, VA
Frederick	VA	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV
Henrico	VA	Richmond, VA
Lynchburg city	VA	Lynchburg, VA
Page	VA	
Roanoke city	VA	Roanoke, VA
Salem city	VA	Roanoke, VA
Bennington	VT	
King	WA	Seattle-Tacoma-Olympia, WA
Ashland	WI	
Eau Claire	WI	Eau Claire-Menomonie, WI
Forest	WI	
Vilas	WI	
Hancock	WV	Steubenville-Weirton, OH-WV
Kanawha	WV	Charleston, WV
Marion	WV	Fairmont-Clarksburg, WV
Monongalia	WV	Morgantown, WV
Ohio	WV	Wheeling, WV-OH
Raleigh	WV	Beckley-Oak Hill, WV
Albany	WY	
Converse	WY	
Natrona	WY	Casper, WY
Park	WY	
Sublette	WY	
Teton	WY	

Notes:

1. This list represents counties with the lowest levels of short term $PM_{2.5}$ air pollution. Monitors in these counties reported no days with unhealthful $PM_{2.5}$ levels using the AQI adopted December 14, 2012.
2. MSA and CSA are terms used by the U.S. Office of Management and Budget for statistical purposes. MSA stands for Metropolitan Statistical Area. CSA stands for Combined Statistical Area, which may include multiples and individual counties.

Top 25 Cleanest Counties for Year-round Particle Pollution (Annual $PM_{2.5}$)[1]

2013 Rank[2]	County	ST	Design Value[3]
1	Lake	CA	3.3
2	Jackson	SD	3.8
3	Laramie	WY	4.1
4	Washington	UT	4.2
4	Santa Fe	NM	4.2
6	Billings	ND	4.3
6	Yavapai	AZ	4.3
8	Essex	NY	4.4
8	Park	WY	4.4
10	Teton	WY	4.5
10	San Juan	NM	4.5
10	Hancock	ME	4.5
10	Custer	SD	4.5
14	Maui	HI	4.9
15	Siskiyou	CA	5.1
16	Bannock	ID	5.2
17	Shasta	CA	5.3
18	Pima	AZ	5.4
19	Ashland	WI	5.5
20	San Benito	CA	5.6
20	Sweetwater	WY	5.6
22	Litchfield	CT	5.7
22	Douglas	CO	5.7
24	Belknap	NH	5.8
25	Coconino	AZ	5.9
25	El Paso	CO	5.9
25	Pennington	SD	5.9
25	Bernalillo	NM	5.9

Notes:
1. This list represents counties with the lowest levels of monitored long term $PM_{2.5}$ air pollution.
2. Counties are ranked by design value.
3. The Design Value is the calculated concentration of a pollutant based on the form of the National Ambient Air Quality Standard, and is used by the EPA to determine whether the air quality in a county meets the standard.

Cleanest Counties for Ozone Air Pollution[1]

County	State	Metropolitan Statistical Area
Yukon-Koyukuk Census Area	AK	
Colbert	AL	Florence-Muscle Shoals, AL
Elmore	AL	Montgomery-Alexander City, AL
Etowah	AL	Gadsden, AL
Houston	AL	Dothan-Enterprise-Ozark, AL
Morgan	AL	Huntsville-Decatur, AL
Tuscaloosa	AL	Tuscaloosa, AL
Newton	AR	
Navajo	AZ	
Glenn	CA	
Humboldt	CA	
Lake	CA	
Marin	CA	San Jose-San Francisco-Oakland, CA
Mendocino	CA	
San Francisco	CA	San Jose-San Francisco-Oakland, CA
Santa Cruz	CA	San Jose-San Francisco-Oakland, CA
Siskiyou	CA	
Sonoma	CA	San Jose-San Francisco-Oakland, CA
Garfield	CO	
Mesa	CO	Grand Junction, CO
Alachua	FL	Gainesville, FL
Baker	FL	Jacksonville, FL
Brevard	FL	Palm Bay-Melbourne-Titusville, FL
Broward	FL	Miami-Fort Lauderdale-Pompano Beach, FL
Collier	FL	Naples-Marco Island, FL
Columbia	FL	
Highlands	FL	
Holmes	FL	
Lee	FL	Cape Coral-Fort Myers, FL
Leon	FL	Tallahassee, FL
Pasco	FL	Tampa-St. Petersburg-Clearwater, FL
St. Lucie	FL	Port St. Lucie-Sebastian-Vero Beach, FL
Volusia	FL	Orlando-Deltona-Daytona Beach, FL
Chatham	GA	Savannah-Hinesville-Fort Stewart, GA
Chattooga	GA	
Coweta	GA	Atlanta-Sandy Springs-Gainesville, GA-AL
Glynn	GA	Brunswick, GA
Sumter	GA	
Honolulu	HI	Honolulu, HI
Bremer	IA	Waterloo-Cedar Falls, IA
Clinton	IA	
Linn	IA	Cedar Rapids, IA
Montgomery	IA	
Palo Alto	IA	
Polk	IA	Des Moines-Newton-Pella, IA
Scott	IA	Davenport-Moline-Rock Island, IA-IL
Story	IA	Ames-Boone, IA
Van Buren	IA	
Warren	IA	Des Moines-Newton-Pella, IA
Butte	ID	
Kootenai	ID	Coeur d'Alene, ID
Clark	IL	
Effingham	IL	
Randolph	IL	
Rock Island	IL	Davenport-Moline-Rock Island, IA-IL
Winnebago	IL	Rockford-Freeport-Rochelle, IL
Delaware	IN	Muncie, IN
Huntington	IN	Fort Wayne-Huntington-Auburn, IN
Madison	IN	Indianapolis-Anderson-Columbus, IN
Wyandotte	KS	Kansas City-Overland Park-Kansas City, MO-KS
Bell	KY	
Carter	KY	
Hardin	KY	Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN
Perry	KY	
Pike	KY	
Pulaski	KY	
Warren	KY	Bowling Green, KY
Ouachita Parish	LA	Monroe-Bastrop, LA
Androscoggin	ME	Portland-Lewiston-South Portland, ME
Aroostook	ME	
Oxford	ME	
Sagadahoc	ME	Portland-Lewiston-South Portland, ME
Becker	MN	
Carlton	MN	Duluth, MN-WI
Goodhue	MN	Minneapolis-St. Paul-St. Cloud, MN-WI
Lake	MN	
Lyon	MN	
Mille Lacs	MN	
Olmsted	MN	Rochester, MN
Scott	MN	Minneapolis-St. Paul-St. Cloud, MN-WI
St. Louis	MN	Duluth, MN-WI

Note:
1. This list represents counties with no monitored ozone air pollution in unhealthful ranges using the Air Quality Index based on 2008 NAAQS.

Cleanest Counties for Ozone Air Pollution[1] (cont.)

County	State	Metropolitan Statistical Area
Stearns	MN	Minneapolis-St. Paul-St. Cloud, MN-WI
Wright	MN	Minneapolis-St. Paul-St. Cloud, MN-WI
Boone	MO	Columbia, MO
Lauderdale	MS	
Lee	MS	
Flathead	MT	
Richland	MT	
Avery	NC	
Chatham	NC	Raleigh-Durham-Cary, NC
Swain	NC	
Billings	ND	
Burke	ND	
Burleigh	ND	Bismarck, ND
Cass	ND	Fargo-Wahpeton, ND-MN
Dunn	ND	
McKenzie	ND	
Mercer	ND	
Oliver	ND	
Douglas	NE	Omaha-Council Bluffs-Fremont, NE-IA
Lancaster	NE	Lincoln, NE
Cheshire	NH	
Grafton	NH	Claremont-Lebanon, NH-VT
Lea	NM	
Luna	NM	
Sandoval	NM	Albuquerque, NM
Santa Fe	NM	Santa Fe-Espanola, NM
Churchill	NV	
Hamilton	NY	
Herkimer	NY	Utica-Rome, NY
Monroe	NY	Rochester-Batavia-Seneca Falls, NY
Oneida	NY	Utica-Rome, NY
Steuben	NY	
Wayne	NY	Rochester-Batavia-Seneca Falls, NY
Columbia	OR	Portland-Vancouver-Hillsboro, OR-WA
Deschutes	OR	Bend-Prineville, OR
Jackson	OR	Medford, OR
Lane	OR	Eugene-Springfield, OR
Umatilla	OR	
Washington	OR	Portland-Vancouver-Hillsboro, OR-WA
Abbeville	SC	
Aiken	SC	Augusta-Richmond County, GA-SC
Berkeley	SC	Charleston-North Charleston-Summerville, SC
Charleston	SC	Charleston-North Charleston-Summerville, SC
Colleton	SC	
Edgefield	SC	Augusta-Richmond County, GA-SC
York	SC	Charlotte-Gastonia-Salisbury, NC-SC
Brookings	SD	
Custer	SD	
Jackson	SD	
Meade	SD	Rapid City, SD
Minnehaha	SD	Sioux Falls, SD
Union	SD	Sioux City-Vermillion, IA-NE-SD
Cameron	TX	Brownsville-Harlingen-Raymondville, TX
Hidalgo	TX	McAllen-Edinburg-Pharr, TX
Webb	TX	Laredo, TX
Cache	UT	Logan, UT-ID
Fauquier	VA	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV
Page	VA	
Rockbridge	VA	
Wythe	VA	
Chittenden	VT	Burlington-South Burlington, VT
Clallam	WA	
Pierce	WA	Seattle-Tacoma-Olympia, WA
Skagit	WA	Seattle-Tacoma-Olympia, WA
Spokane	WA	Spokane, WA
Whatcom	WA	Bellingham, WA
Ashland	WI	
Columbia	WI	Madison-Baraboo, WI
Dane	WI	Madison-Baraboo, WI
Dodge	WI	Fond du Lac-Beaver Dam, WI
Forest	WI	
Jefferson	WI	
La Crosse	WI	La Crosse, WI-MN
Marathon	WI	Wausau-Merrill, WI
Oneida	WI	
Rock	WI	Janesville, WI
Sauk	WI	Madison-Baraboo, WI
Vilas	WI	
Waukesha	WI	Milwaukee-Racine-Waukesha, WI
Greenbrier	WV	
Campbell	WY	
Carbon	WY	
Crook	WY	
Sweetwater	WY	
Uinta	WY	

Note:
1. This list represents counties with no monitored ozone air pollution in unhealthful ranges using the Air Quality Index based on 2008 NAAQS.

Health Effects of Ozone and Particle Pollution

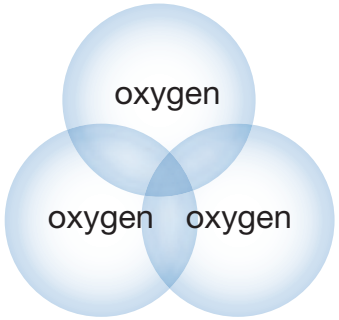
Two types of air pollution dominate in the U.S.: ozone and particle pollution.[1] These two pollutants threaten the health and the lives of millions of Americans. Thanks to the Clean Air Act, the U.S. has far less of both pollutants now than in the past. Still, nearly 132 million people live in counties where monitors show unhealthy levels of one or both.

So what are ozone and particle pollution?

Ozone Pollution

It may be hard to imagine that pollution could be invisible, but ozone is. The most widespread pollutant in the U.S. is also one of the most dangerous.

Scientists have studied the effects of ozone on health for decades. Hundreds of research studies have confirmed that ozone harms people at levels currently found in the United States. In the last few years, we've learned that it can also be deadly.



What Is Ozone?

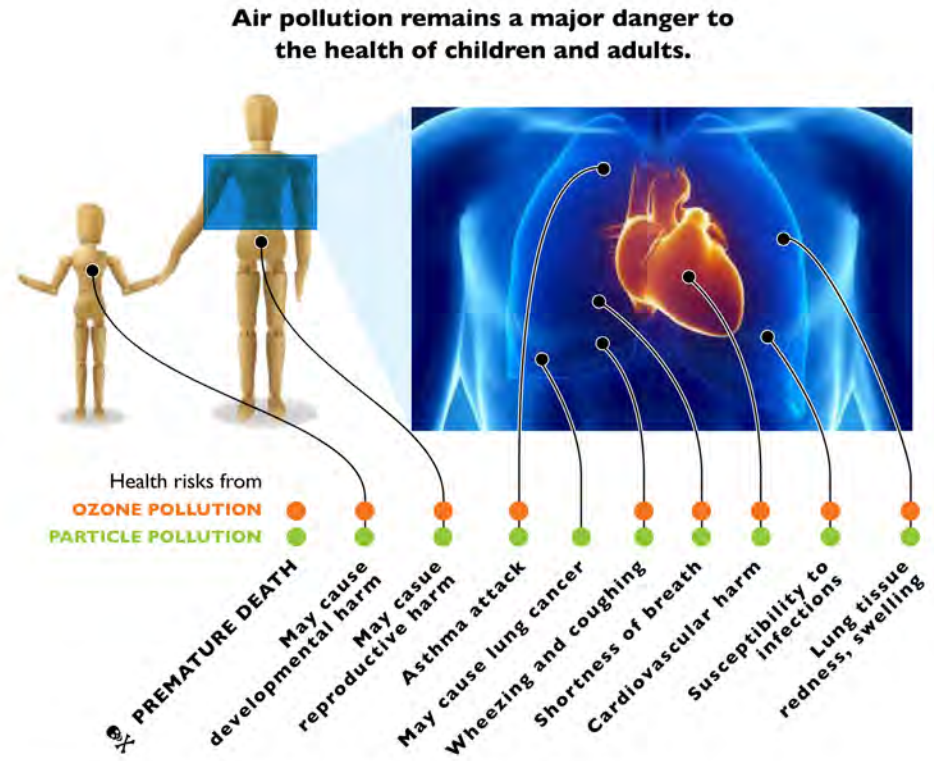
Ozone (O_3) is a gas molecule composed of three oxygen atoms. Often called "smog," ozone is harmful to breathe. Ozone aggressively attacks lung tissue by reacting chemically with it.

The ozone layer found high in the upper atmosphere (the stratosphere) shields us from much of the sun's ultraviolet radiation. However, ozone air pollution at ground level where we can breathe it (in the troposphere) causes serious health problems.

Where Does Ozone Come From?

Ozone develops in the atmosphere from gases that come out of tailpipes, smokestacks and many other sources. When these gases come in contact with sunlight, they react and form ozone smog.

The essential raw ingredients for ozone come from nitrogen oxides (NO_X), hydrocarbons, also called volatile organic compounds (VOCs) and carbon monoxide (CO). They are produced primarily when fossil fuels like gasoline, oil or coal are burned or when some chemicals, like solvents, evaporate. NO_X is emitted from power plants, motor vehicles and other sources of high-heat combustion. VOCs are emitted from motor vehicles, chemical plants, refineries, factories, gas stations,



paint and other sources. CO is also primarily emitted from motor vehicles.[2]

If the ingredients are present under the right conditions, they react to form ozone. And because the reaction takes place in the atmosphere, the ozone often shows up downwind of the sources of the original gases. In addition, winds can carry ozone far from where it began.

You may have wondered why "ozone action day" warnings are sometimes followed by recommendations to avoid activities such as mowing your lawn or driving your car. Lawn mower exhaust and gasoline vapors are VOCs that could turn into ozone in the heat and sun.

Who is at risk from breathing ozone?

Anyone who spends time outdoors where ozone pollution levels are high may be at risk. Five groups of people are especially vulnerable to the effects of breathing ozone:

- children and teens;[3]
- anyone 65 and older;[4]
- people who work or exercise outdoors;[5]
- people with existing lung diseases, such as asthma and chronic obstructive pulmonary disease (also known as COPD, which includes emphysema and chronic bronchitis);[6] and
- people with cardiovascular disease.[7]

In addition, newer evidence suggests that other groups—including women, people who suffer from obesity and people with low incomes—may also face higher risk from ozone.[8] More research is needed to confirm these findings.

The impact on your health can depend on many factors, however. For example, the risks would be greater if ozone levels are higher, if you are breathing faster because you're working outdoors or if you spend more time outdoors.

Lifeguards in Galveston, Texas, provided evidence of the impact of even short-term exposure to ozone on healthy, active adults in a study published in 2008. Testing the breathing capacity of these outdoor workers several times a day, researchers found that many lifeguards had greater obstruction in their airways when ozone levels were high. Because of this research, Galveston became the first city in the nation to install an air quality warning flag system on the beach.[9]

How Ozone Pollution Harms Your Health

Premature death. Breathing ozone can shorten your life. Strong evidence exists of the deadly impact of ozone in large studies conducted in cities across the U.S., in Europe and in Asia. Researchers repeatedly found that the risk of premature death increased with higher levels of ozone.[10,11,12] Newer research has confirmed that ozone increased the risk of premature death even when other pollutants also exist.[13]

Even low levels of ozone may be deadly. A large study of 48 U.S. cities looked at the association between ozone and all-cause mortality during the summer months. Ozone concentrations by city in the summer months ranged from 16 percent to 80 percent lower than the U.S. Environmental Protection Agency (EPA) currently considers safe. Researchers found that ozone at those lower levels was associated with deaths from cardiovascular disease, strokes, and respiratory causes.[14]

Immediate breathing problems. Many areas in the United States produce enough ozone during the summer months to cause health problems that can be felt right away. Immediate problems—in addition to increased risk of premature death—include:

- shortness of breath, wheezing and coughing;
- asthma attacks;

- increased risk of respiratory infections;
- increased susceptibility to pulmonary inflammation; and
- increased need for people with lung diseases, like asthma or chronic obstructive pulmonary disease (COPD), to receive medical treatment and to go to the hospital.[15]

Cardiovascular effects. Inhaling ozone may affect the heart as well as the lungs. A 2006 study linked exposures to high ozone levels for as little as one hour to a particular type of cardiac arrhythmia that itself increases the risk of premature death and stroke.[16] A French study found that exposure to elevated ozone levels for one to two days increased the risk of heart attacks for middle-aged adults without heart disease.[17] Several studies around the world have found increased risk of hospital admissions or emergency department visits for cardiovascular disease.[18]

Long-term exposure risks. New studies warn of serious effects from breathing ozone over longer periods. With more long-term data, scientists are finding that long-term exposure—that is, for periods longer than eight hours, including days, months or years—may increase the risk of early death.

- Examining the records from a long-term national database, researchers found a higher risk of death from respiratory diseases associated with increases in ozone.[19]
- New York researchers looking at hospital records for children's asthma found that the risk of admission to hospitals for asthma increased with chronic exposure to ozone. Younger children and children from low-income families were more likely to need hospital admissions even during the same time periods than other children.[20]
- California researchers analyzing data from their long-term Southern California Children's Health Study found that some children with certain genes were more likely to develop asthma as adolescents in response to the variations in ozone levels in their communities.[21]
- Studies link lower birth weight and decreased lung function in newborns to ozone levels in their community.[22] This research provides increasing evidence that ozone may harm newborns.

Breathing other pollutants in the air may make your lungs more responsive to ozone—and breathing ozone may increase your body's response to other pollutants. For example, research warns that breathing sulfur dioxide and nitrogen oxide—two pollutants common in the eastern U.S.—can make the lungs react more strongly than to just breathing ozone alone. Breathing ozone may also increase the response to allergens in people with allergies. A large study published in 2009 found that children were more likely to suffer from hay fever and respiratory allergies when ozone and $PM_{2.5}$ levels were high.[23]

EPA finds ozone causes harm. The EPA released their most recent review of the current research on ozone pollution in February 2013.[24] The EPA had engaged a panel of expert scientists, the Clean Air Scientific Advisory Committee, to help them assess the evidence, in particular research published between 2006 and 2012. The EPA concluded that ozone pollution posed multiple, serious threats to health. Their findings are highlighted in the box below.

EPA Concludes Ozone Pollution Poses Serious Health Threats

- Causes respiratory harm (e.g. worsened asthma, worsened COPD, inflammation)
- Likely to cause early death (both short-term and long-term exposure)
- Likely to cause cardiovascular harm (e.g. heart attacks, strokes, heart disease, congestive heart failure)
- May cause harm to the central nervous system
- May cause reproductive and developmental harm

—U.S. Environmental Protection Agency, *Integrated Science Assessment for Ozone and Related Photochemical Oxidants*, 2013. EPA/600/R-10/076F.

Particle Pollution

Ever look at dirty truck exhaust?

The dirty, smoky part of that stream of exhaust is made of particle pollution. Overwhelming evidence shows that particle pollution—like that coming from that exhaust smoke—can kill. Particle pollution can increase the risk of heart disease, lung cancer and asthma attacks and can interfere with the growth and work of the lungs.

What Is Particle Pollution?

Particle pollution refers to a mix of very tiny solid and liquid particles that are in the air we breathe. But nothing about particle pollution is simple. And it is so dangerous it can shorten your life.

Size matters. Particles themselves are different sizes. Some are one-tenth the diameter of a strand of hair. Many are even tinier; some are so small they can only be seen with an electron microscope. Because of their size, you can't see the individual particles. You can only see the haze that forms when millions of particles blur the spread of sunlight.

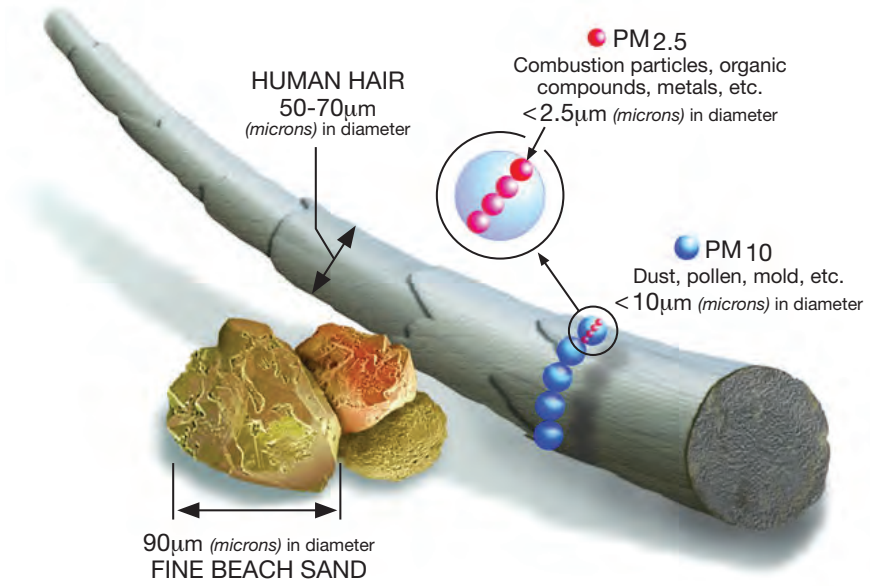


Image courtesy of the U.S. EPA

The differences in size make a big difference in how they affect us. Our natural defenses help us to cough or sneeze larger particles out of our bodies. But those defenses don't keep out smaller particles, those that are smaller than 10 microns (or micrometers) in diameter, or about one-seventh the diameter of a single human hair. These particles get trapped in the lungs, while the smallest are so minute that they can pass through the lungs into the blood stream, just like the essential oxygen molecules we need to survive.

Researchers categorize particles according to size, grouping them as coarse, fine and ultrafine. Coarse particles fall between 2.5 microns and 10 microns in diameter and are called $PM_{10\text{-}2.5}$. Fine particles are 2.5 microns in diameter or smaller and are called $PM_{2.5}$. Ultrafine particles are smaller than 0.1 micron in diameter[25] and are small enough to pass through the lung tissue into the blood stream, circulating like the oxygen molecules themselves. No matter what the size, particles can harm your health.

"A mixture of mixtures." Because particles are formed in so many different ways, they can be composed of many different compounds. Although we often think of particles as solids, not all are. Some are completely liquid; some are solids suspended in liquids. As the EPA puts it, particles are really "a mixture of mixtures."[26]

The mixtures differ between the eastern and western United States and in different times of the year. For example, the Midwest, Southeast and Northeast states have more sulfate particles than the West on average, largely due to the high levels of sulfur dioxide emitted by large, coal-fired power plants. By contrast, nitrate particles from motor vehicle exhaust form a larger proportion of the unhealthful mix in the winter in the Northeast, Southern California, the Northwest, and North Central U.S.[27]

Who Is at Risk?

Anyone who lives where particle pollution levels are high is at risk. Some people face higher risk, however. People at the greatest risk from particle pollution exposure include:

- Infants, children and teens;
- People over 65 years of age;
- People with lung disease such as asthma and chronic obstructive pulmonary disease (COPD), which includes chronic bronchitis and emphysema;
- People with heart disease or diabetes;[28]
- People with low incomes; and
- People who work or are active outdoors.[29]

Diabetics face increased risk at least in part because of their higher risk for cardiovascular disease. A 2010 study examined prevalence of diagnosed diabetes in relation to fine particle pollution in 2004-2005. The evidence suggested that air pollution is a risk factor for diabetes.[30]

What Can Particles Do to Your Health?

Particle pollution can be very dangerous to breathe. Breathing particle pollution may trigger illness, hospitalization and premature death, risks showing up in new studies that validate earlier research.

Thanks to steps taken to reduce particle pollution, good news is growing from researchers who study the drop in year-round levels of particle pollution.

- Looking at air quality in 545 counties in the U.S. between 2000 and 2007, researchers found that people had approximately four months added to their life expectancy on average due to cleaner air. Women and people who lived in urban and densely populated counties benefited the most.[31]
- Another long-term study of six U.S. cities tracked from 1974 to 2009 added more evidence of the benefits. Their findings suggest that cleaning up particle pollution had almost immediate health benefits. They estimated that the U.S. could prevent approximately 34,000 premature deaths a year if the nation could lower annual levels of particle pollution by 1 $\mu g/m^3$.[32]

These studies add to the growing research that cleaning up air pollution improves life and health.[33] Other researchers estimated that reductions in air pollution can be expected to produce rapid improvements in public health, with fewer deaths occurring within the first two years after reductions.[34]

Researchers are exploring possible differences in health effects of the three sizes of particles and particles from different sources, such as diesel particles from trucks and buses or sulfates from coal-fired power plants. So far, the evidence remains clear that particles of all sizes from all sources can be dangerous.[35]

Short-Term Exposure Can Be Deadly

First and foremost, short-term exposure to particle pollution can kill. Peaks or spikes in particle pollution can last for hours to days. Deaths can occur on the very day that particle levels are high, or within one to two months afterward. Particle pollution does not just make people die a few days earlier than they might otherwise—these are deaths that would not have occurred if the air were cleaner.[36]

Particle pollution also diminishes lung function, causes greater use of asthma medications and increased rates of school absenteeism, emergency room visits and hospital admissions. Other adverse effects can be coughing, wheezing, cardiac arrhythmias and heart attacks. According to the findings from some of the latest studies, short-term increases in particle pollution have been linked to:

- death from respiratory and cardiovascular causes, including strokes;[37,38,39,40]
- increased mortality in infants and young children;[41]
- increased numbers of heart attacks, especially among the elderly and in people with heart conditions;[42]
- inflammation of lung tissue in young, healthy adults;[43]
- increased hospitalization for cardiovascular disease, including strokes and congestive heart failure;[44,45,46]

- increased emergency room visits for patients suffering from acute respiratory ailments;[47]
- increased hospitalization for asthma among children; [48,49,50] and
- increased severity of asthma attacks in children.[51]

Again, the impact of even short-term exposure to particle pollution on healthy adults showed up in the Galveston lifeguard study, in addition to the harmful effects of ozone pollution. Lifeguards had reduced lung volume at the end of the day when fine particle levels were high. [52]

Year-Round Exposure

Breathing high levels of particle pollution day in and day out also can be deadly, as landmark studies in the 1990s conclusively showed.[53] Chronic exposure to particle pollution can shorten life by one to three years.[54] Other impacts range from premature births to serious respiratory disorders, even when the particle levels are very low.

Year-round exposure to particle pollution has also been linked to:

- increased hospitalization for asthma attacks for children living near roads with heavy truck or trailer traffic;[55,56]
- slowed lung function growth in children and teenagers;[57,58]
- significant damage to the small airways of the lungs;[59]
- increased risk of dying from lung cancer;[60]
- increased risk of death from cardiovascular disease;[61] and
- increased risk of lower birthweight and infant mortality. [62]

Research into the health risks of 65,000 women over age 50 found that those who lived in areas with higher levels of particle pollution faced a much greater risk of dying from heart disease than had been previously estimated. Even women who lived within the same city faced differing risks depending on the annual levels of pollution in their neighborhood.[63]

The EPA released their most recent review of the current research on particle pollution in December 2009.[64] The Agency had engaged a panel of expert scientists, the Clean Air Scientific Advisory Committee, to help them assess the evidence, in particular research published between 2002 and May 2009. The EPA concluded that particle pollution caused multiple, serious threats to health. Their findings are highlighted in the box below.

EPA Concludes Fine Particle Pollution Poses Serious Health Threats

- Causes early death (both short-term and long-term exposure)
- Causes cardiovascular harm (e.g. heart attacks, strokes, heart disease, congestive heart failure)
- Likely to cause respiratory harm (e.g. worsened asthma, worsened COPD, inflammation)
- May cause cancer
- May cause reproductive and developmental harm

—U.S. Environmental Protection Agency, *Integrated Science Assessment for Particulate Matter*, December 2009. EPA 600/R-08/139F.

Where Does Particle Pollution Come From?

Particle pollution is produced through two separate processes—mechanical and chemical.

Mechanical processes break down bigger bits into smaller bits with the material remaining essentially the same, only becoming smaller. Mechanical processes primarily create coarse particles.[65] Dust storms, construction and demolition, mining operations, and agriculture are among the activities that produce coarse particles. Tire, brake pad and road wear can also create coarse particles. Bacteria, pollen, mold, and plant and animal debris are also included as coarse particles.[66]

By contrast, chemical processes in the atmosphere create most of the tiniest fine and ultrafine particles. Combustion sources burn fuels and emit gases. These gases can vaporize and then condense to become a particle of the same chemical compound. Or, they can react with other gases or particles in the atmosphere to form a particle of a different chemical compound. Particles formed by this latter process come from the reaction of elemental carbon

(soot), heavy metals, sulfur dioxide (SO_2), nitrogen oxides (NO_x) and volatile organic compounds with water and other compounds in the atmosphere.[67] Burning fossil fuels in factories, power plants, steel mills, smelters, diesel- and gasoline-powered motor vehicles (cars and trucks) and equipment generate a large part of the raw materials for fine particles. So does burning wood in residential fireplaces and wood stoves or burning agricultural fields or forests.

Focusing on Children's Health

Children face special risks from air pollution because their lungs are growing and because they are so active.

Just like the arms and legs, the largest portion of a child's lungs will grow long after he or she is born. Eighty percent of their tiny air sacs develop after birth. Those sacs, called the alveoli, are where the life-sustaining transfer of oxygen to the blood takes place. The lungs and their alveoli aren't fully grown until children become adults.[68] In addition, the body's defenses that help adults fight off infections are still developing in young bodies.[69] Children have more respiratory infections than adults, which also seems to increase their susceptibility to air pollution.[70]

Furthermore, children don't behave like adults, and their behavior also affects their vulnerability. They are outside for longer periods and are usually more active when outdoors. Consequently, they inhale more polluted outdoor air than adults typically do.[71]

Air Pollution Increases Risk of Underdeveloped Lungs

Another finding from the Southern California Children's Health study looked at the long-term effects of particle pollution on teenagers. Tracking 1,759 children between ages 10 and 18, researchers found that those who grew up in more polluted areas face the increased risk of having underdeveloped lungs, which may never recover to their full capacity. The average drop in lung function was 20 percent below what was expected for the child's age, similar to the impact of growing up in a home with parents who smoked.[72]

Community health studies are pointing to less obvious, but serious effects from year-round exposure to ozone, especially for children. Scientists followed 500 Yale University students and determined that living just four years in a region with high levels of ozone and related co-pollutants was associated with diminished lung function and frequent reports of respiratory symptoms.[73] A much larger study of 3,300 school children in Southern California found reduced lung function in girls with asthma and boys who spent more time outdoors in areas with high levels of ozone.[74]

Cleaning Up Pollution Can Reduce Risk to Children

There is also real-world evidence that reducing air pollution can help protect children.

In Switzerland, particle pollution dropped during a period in the 1990s. Researchers there tracked 9,000 children over a nine-year period, following their respiratory symptoms. After taking other factors such as family characteristics and indoor air pollution into account, the researchers noted that during the years with less pollution, the children had fewer episodes of chronic cough, bronchitis, common cold, and conjunctivitis symptoms.[75]

Disparities in the Impact of Air Pollution

The burden of air pollution is not evenly shared. Poorer people and some racial and ethnic groups are among those who often face higher exposure to pollutants and who may experience greater responses to such pollution. Many studies have explored the differences in harm from air pollution to racial or ethnic groups and people who are in a low socioeconomic position, have less education, or live nearer to major sources,[76] including a workshop the American Lung Association held in 2001 that focused on urban air pollution and health inequities.[77]

Many studies have looked at differences in the impact on premature death. Results have varied widely, particularly for effects between racial groups. Some studies have found no differences among races,[78] while others found greater responsiveness for Whites and Hispanics, but not African Americans,[79] or for African Americans but not other races or ethnic groups.[80] Other researchers have found greater risk for African Americans from air toxics, including those pollutants that also come from traffic sources.[81]

Socioeconomic position has been more consistently associated with greater harm from air pollution. Recent studies show evidence of that link. Low socioeconomic status consistently increased the risk of premature death from fine particle pollution among 13.2 million Medicare recipients studied in the largest examination of particle pollution mortality nationwide.[82] In the 2008 study that found greater risk for premature death for African Americans, researchers also found greater risk for people living in areas with higher unemployment or higher use of public transportation.[83] A 2008 study of Washington, DC found that while poor air quality and worsened asthma went hand-in-hand in areas where Medicaid enrollment was high, the areas with the highest Medicaid enrollment did not always have the strongest association of high air pollution and asthma attacks.[84] However, two other recent studies in France have found no association with lower income and asthma attacks.[85]

Scientists have speculated that there are three broad reasons why disparities may exist. First, groups may face greater exposure to pollution because of factors ranging from racism to class bias to housing market dynamics and land costs. For example, pollution sources may be located near disadvantaged communities, increasing exposure to harmful pollutants. Second, low social position may make some groups more susceptible to health threats because of factors related to their disadvantage. Lack of access to health care, grocery stores and good jobs, poorer job opportunities, dirtier workplaces or higher traffic exposure are among the factors that could handicap groups and increase the risk of harm. Finally, existing health conditions, behaviors, or traits may predispose some groups to greater risk. For example, diabetics are among the groups most at risk from air pollutants, and the elderly, African Americans, Mexican Americans and people living near a central city have higher incidence of diabetes.[86]

Communities of color also may be more likely to live in counties with higher levels of pollution. In a 2011 analysis of the population and air quality reported in the *American Lung Association's State of the Air 2009* report, researchers found that non-Hispanic Blacks and Hispanics were more likely to live in counties that had worse problems with particle pollution. Non-Hispanic Blacks were also more likely to live in counties with worse ozone pollution. Income groups, by contrast, differed little in these exposures. However, since few rural counties have monitors, the primarily older, non-Hispanic white residents of those counties lack information about the air quality in their communities.[87]

Unemployed people, those with low income or low education and non-Hispanic Blacks were found to be more likely to live in areas with higher exposures to particle pollution in a 2012 study. However, the different racial/ethnic and income groups were breathing often very different kinds of particles; the different composition and structure of these particles may have different health impacts.[88]

Highways May Be Especially Dangerous for Breathing

Being in heavy traffic, or living near a road, may be even more dangerous than being in other places in a community. Growing evidence shows that the vehicle emissions coming directly from those highways may be higher than in the community as a whole, increasing the risk of harm to people who live or work near busy roads.

The number of people living "next to a busy road" may include 30 to 45 percent of the population in North America, according to the most recent review of the evidence. In January 2010,

the Health Effects Institute published a major review of the evidence by a panel of expert scientists. The panel looked at over 700 studies from around the world, examining the health effects. They concluded that traffic pollution causes asthma attacks in children, and may cause a wide range of other effects including: the onset of childhood asthma, impaired lung function, premature death and death from cardiovascular diseases, and cardiovascular morbidity. The area most affected, they concluded, was roughly 0.2 mile to 0.3 mile (300 to 500 meters) from the highway.[89]

Children and teenagers are among the most vulnerable—though not the only ones at risk. A Danish study found that long-term exposure to traffic air pollution may increase the risk of developing chronic obstructive pulmonary disease (COPD). They found that those most at risk were people who already had asthma or diabetes.[90] Studies have found increased risk of premature death from living near a major highway or an urban road.[91] Another study found an increase in risk of heart attacks from being in traffic, whether driving or taking public transportation.[92] Urban women in a Boston study experienced decreased lung function associated with traffic-related pollution.[93]

How to Protect Yourself from Ozone and Particle Pollution

To minimize your exposure to ozone and particle pollution:

- Pay attention to forecasts for high air pollution days to know when to take precautions;
- Avoid exercising near high-traffic areas;
- Avoid exercising outdoors when pollution levels are high, or substitute an activity that requires less exertion;
- Do not let anyone smoke indoors and support measures to make all places smokefree; and
- Reduce the use of fireplaces and wood-burning stoves.

Bottom line: Help yourself and everyone else breathe easier. Support national, state and local efforts to clean up sources of pollution. Your life and the life of someone you love may depend on it.

1 Ozone and particle pollution are the most widespread, but they aren't the only serious air pollutants. Others include carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide, as well as scores of toxins such as mercury, arsenic, benzene, formaldehyde, and acid gases. However, the monitoring networks are not as widespread nationwide for the other pollutants.

2 U.S. Environmental Protection Agency. *Integrated Science Assessment of Ozone and Related Photochemical Oxidants (Final Report)*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/076F, 2013.

3 Mar TF, Koenig JQ. Relationship between visits to emergency departments for asthma and ozone exposure in greater Seattle, Washington. *Ann Allergy Asthma Immunol*. 2009; 103: 474-479. Villeneuve PJ, Chen L, Rowe BH, Coates F. Outdoor air pollution and emergency department visits for asthma among children and adults: A case-crossover study in northern Alberta, Canada. *Environ Health Global Access Sci Source*. 2007; 6: 40.

4 Medina-Ramón M, Schwartz J. Who is more vulnerable to die from ozone air pollution? *Epidemiology*. 2008; 19: 672-679.

5 Thaller EI, Petronell SA, Hochman D, Howard S, Chhikara RS, Brooks EG. Moderate Increases in Ambient $PM_{2.5}$ and Ozone Are Associated With Lung Function Decreases in Beach Lifeguards. *J Occp Environ Med*. 2008; 50: 202-211; Sawyer K, Brown J, Hazucha M, Bennett WD. The effect of exercise on nasal uptake of ozone in healthy human adults. *J Appl Physiol*. 2007;102: 1380-1386; Hu SC, Ben-Jebria A, Ultman JS. Longitudinal distribution of ozone absorption in the lung: Effects of respiratory flow. *J Appl Physiol*. 1994; 77: 574-583.

6 Horstman DH, Ball BA, Brown J, Gerrity T, Folinsbee LJ. Comparison of pulmonary responses of asthmatic and nonasthmatic subjects performing light exercise while exposed to a low level of ozone. *Toxicol Ind Health*. 1995; 11: 369-385; Kreit JW, Gross KB, Moore TB, Lorenzen TJ, D'Arcy J, Eschenbacher WL. Ozone-induced changes in pulmonary function and bronchial responsiveness in asthmatics. *J Appl Physiol*. 1989; 66: 217-222; Medina-Ramón M, Zanobetti A, Schwartz J. The Effect of Ozone and PM_{10} on Hospital Admissions for Pneumonia and Chronic Obstructive Pulmonary Disease: a national multicity study. *Am J Epidemiol*. 2006; 163(6):579-588.

7 Peel JL, Metzger KB, Klein M, Flanders WD, Mulholland JA, Tolbert PE. Ambient air pollution and cardiovascular emergency department visits in potentially sensitive groups. *Am J Epidemiol*. 2007; 165: 625-633; Medina-Ramón and Schwartz, 2008; Medina-Ramón M, Zanobetti A, Schwartz J, 2006.

8 Medina-Ramón and Schwartz, 2008; Stafoggia M, Forastiere F, Faustini A, Biggeri A, Bisanti L, et al. Susceptibility factors to ozone-related mortality: A population-based case-crossover analysis. *Am J Respir Crit Care Med*. 2010; 182: 376-384; Jerrett M, Burnett RT, Pope CA III, Ito K, Thurston G, Krewski D, Shi Y, Calle E, Thun M. Long-term ozone exposure and mortality. *N Engl J Med*. 2009;360: 1085-1095; Alexeeff SE, Litonjua AA, Suh H, Sparrow D, Vokonas PS, Schwartz J. Ozone exposure and lung function: Effect modified by obesity and airways hyperresponsiveness in the VA Normative Aging Study. *Chest*. 2007; 132: 1890-1897; McDonnell WF, Stewart PW, Smith MV. Prediction of ozone-induced lung function responses in humans. *Inhal Toxicol*. 2010; 22: 160-168. Lin S, Liu X, Le LH, Hwang SA. Chronic exposure to ambient ozone and asthma hospital admissions among children. *Environ Health Perspect*. 2008; 116: 1725-1730; Burra TA, Moineddin R, Agha MM, Glazier RH. Social disadvantage, air pollution, and asthma physician visits in Toronto, Canada. *Environ Res*. 2009;109: 567-574.

9 Thaller EI, et al., 2008.

10 Bell ML, McDermott A, Zeger SL, Samet JM, Dominici F. Ozone and short-term mortality in 95 US urban communities, 1987-2000. *JAMA*. 2004; 292:2372-2378.

11 Gryparis A, Forsberg B, Katsouyanni K, et al. Acute Effects of Ozone on Mortality from the "Air Pollution and Health: a European approach" project. *Am J Respir Crit Care Med*. 2004; 170: 1080-1087.

12 Bell ML, Dominici F, and Samet JM. A Meta-Analysis of Time-Series Studies of Ozone and Mortality with Comparison to the National Morbidity, Mortality, and Air Pollution Study. *Epidemiology*. 2005; 16:436-445. Levy JI, Chermerynski SM, Sarnat JA. Ozone Exposure and Mortality: an empiric Bayes metaregression analysis. *Epidemiology*. 2005; 16:458-468. Ito K, De Leon SF, Lippmann M. Associations Between Ozone and Daily Mortality: analysis and meta-analysis. *Epidemiology*. 2005; 16:446-429.

13 Zanobetti A, Schwartz J. Mortality displacement in the association of ozone with mortality: an analysis of 48 cities in the United States. *Am J Respir Crit Care Med.* 2008; 177:184-189; Katsouyanni K, Samet JM, Anderson HR, Atkinson R, Le Tertre A, et al. *Air pollution and health: A European and North American approach (APHENA).* Boston, MA: Health Effects Institute, 2009; Samoli E, Zanobetti A, Schwartz J, Atkinson R, Le Tertre A, et al. The temporal pattern of mortality responses to ambient ozone in the APHEA project. *J Epidemiol Community Health*. 2009; 63: 960-966; Stafoggia M, et al, 2010.

14 Zanobetti A, Schwartz J. Mortality displacement in the association of ozone with mortality: an analysis of 48 cities in the United States. *Am J Respir Crit Care Med*. 2008a; 177:184-189.

15 Gent JF, Triche EW, Holford TR, Belanger K, Bracken MB, Beckett WS, Leaderer BP. Association of Low-Level Ozone and Fine Particles with Respiratory Symptoms in Children with Asthma. *JAMA.* 2003; 290:1859-1867; Desqueyroux H, Pujet JC, Prosper M, Squinazi F, Momas I. Short-Term Effects of Low-Level Air Pollution on Respiratory Health of Adults Suffering from Moderate to Severe Asthma. *Environ Res.* 2002; 89:29-37; Burnett RT, Brook JR, Yung WT, Dales RE, Krewski D. Association between Ozone and Hospitalization for Respiratory Diseases in 16 Canadian Cities. *Environ Res.* 1997; 72:24-31; Medina-Ramón M, Zanobetti A, Schwartz J. The Effect of Ozone and PM_{10} on Hospital Admissions for Pneumonia and Chronic Obstructive Pulmonary Disease: a national multicity study. *Am J Epidemiol*. 2006; 163(6):579-588.

16 Rich DQ, Mittleman MA, Link MS, Schwartz J, Luttmann-Gibson H, Catalano PJ, Speizer FE, Gold DR, Dockery DW. Increased Risk of Paroxysmal Atrial Fibrillation Episodes Associated with Acute Increases in Ambient Air Pollution. *Environ Health Perspect*. 2006; 114:120-123.

17 Ruidavets J-B, Cournot M, Cassadou S, Giroux M, Meybeck M, Ferrières J. Ozone Air Pollution is Associated with Acute Myocardial Infarction. *Circulation.* 2005; 111:563-569.

18 Azevedo JM, Gonçalves FL, de Fátima Andrade M. Long-range ozone transport and its impact on respiratory and cardiovascular health in the north of Portugal. *Int J Biometeorol*. 2011; 55: 187-202; Linares C, Diaz J. Short-term effect of concentrations of fine particulate matter on hospital admissions due to cardiovascular and respiratory causes among the over-75 age group in Madrid, Spain. *Public Health.* 2010; 124: 28-36; Middleton N, Yiallouros P, Kleanthous S, Kolokotroni O, Schwartz J, et al. A 10-year time-series analysis of respiratory and cardiovascular morbidity in Nicosia, Cyprus: The effect of short-term changes in air pollution and dust storms. *Environ Health.* 2008; 7: 39; Lee JT, Kim H, Cho YS, Hong YC, Ha EH, Park H. Air pollution and hospital admissions for ischemic heart diseases among individuals 64+ years of age residing in Seoul, Korea. *Arch Environ Health*. 2003; 58: 617-623; Wong TW, Lau TS, Yu TS, Neller A, Wong SL, Tam W, Pang SW. Air pollution and hospital admissions for respiratory and cardiovascular diseases in Hong Kong. *Occup Environ Med*. 1999; 56: 679-683.

19 Jerrett M, et al., 2009.

20 Lin S, Liu X, Le LH, and Hwang S-A. Chronic exposure to ambient ozone and asthma hospital admissions among children. *Environ Health Perspect*. 2008; 116:1725-1730.

21 Islam T, McConnell R, Gauderman WJ, Avol E, Peters JM, and Gilliland F, Ozone, oxidant defense genes, and risk of asthma during adolescence. *Am J Respir Crit Care Med.* 2009; 177(4):388-395.

22 Salam MT, Millstein J, Li YF, Lurmann FW, Margolis HG, Gilliland FD. Birth outcomes and prenatal exposure to ozone, carbon monoxide, and particulate matter: Results from the Children's Health Study. *Environ Health Perspect*. 2005; 113: 1638-1644; Morello-Frosch R, Jesdale BM, Sadd JL, Pastor M. Ambient air pollution exposure and full-term birth weight in California. *Environ Health.* 2010; 9: 44; Hansen CA, Barnett AG, Pritchard G. The effect of ambient air pollution during early pregnancy on fetal ultrasonic measurements during mid-pregnancy. *Environ Health Perspect*. 2008; 116: 362-369; Mannes T, Jalaludin B, Morgan G, Lincoln D, Sheppeard V, Corbett S. Impact of ambient air pollution

on birth weight in Sydney, Australia. *Occup Environ Med*. 2005; 62: 524-530.

23 Parker JD, Akinbami LJ, Woodruff TJ. Air Pollution and Childhood Respiratory Allergies in the United States. *Environ Health Perspect*. 2009; 117:140-147.

24 U.S. EPA., 2013.

25 U.S. EPA. *Integrated Science Assessment for Particulate Matter*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-08/139F, 2009. Available at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=216546#Download.

26 U.S. EPA. *Air Quality Criteria for Particulate Matter*, October 2004. Available at http://cfpub2.epa.gov/ncea/cfm/recordisplay.cfm?deid=87903.

27 U.S. EPA., 2009.

28 Miller, 2007; O'Neill MS, Veves A, Zanobetti A, Sarnat JA, Gold DR, Economides PA, Horton ES, Schwartz J. Diabetes Enhances Vulnerability to Particulate Air Pollution-Associated Impairment in Vascular Reactivity and Endothelial Function. Circulation. 2005; 111:2913-2920; Zanobetti A, Schwartz J. Are Diabetics More Susceptible to the Health Effects of Airborne Particles? *Am J Respir Crit Care Med*. 2001; 164: 831-833. National Research Council. *Research Priorities for Airborne Particulate Matter: IV. Continuing Research Progress*. Washington, DC: The National Academies Press, 2004.

29 U.S. EPA., 2009.

30 Pearson et al., 2010.

31 Correia AW, Pope CA III, Dockery DW, Wang Y, Ezzati M, Domenici F. Effect of Air Pollution Control on Life Expectancy in the United States: An Analysis of 545 U.S. Counties for the Period from 2000 to 2007. *Epidemiology*. 2013; 24(1): 23-31.

32 Lepeule J, Laden F, Docker D, Schwartz J. Chronic Exposure to Fine Particles and Mortality: An Extended Follow-up of the Harvard Six Cities Study from 1974 to 2009. *Environ Health Perspect*. 2012; 120:965-970.

33 Pope CA III, Dockery DW. Health Effects of Fine Particulate Air Pollution: Lines that Connect. *J Air Waste Mange Assoc*. 2006; 56:709-742.

34 Schwartz J, Coull B, Laden F, Ryan L. The Effect of Dose and Timing of Dose on the Association between Airborne Particles and Survival. *Environ Health Perspect*. 2008; 116:64-69.

35 Pope and Dockery, 2006.

36 Zanobetti A, Schwartz J, Samoli E, Gryparis A, Tuoloumi G, Peacock J, Anderson RH, Le Tertre A, Bobros J, Celko M, Goren A, Forsberg B, Michelozzi P, Rabczenko D, Perez Hoyos S, Wichmann HE, Katsouyanni K. The Temporal Pattern of Respiratory and Heart Disease Mortality in Response to Air Pollution. *Environ Health Perspect*. 2003; 111:1188-1193; Dominici F, McDermott A, Zeger SL, Samet JM. Airborne Particulate Matter and Mortality: Timescale Effects in Four US Cities. *Am J Epidemiol*. 2003; 157:1055-1065.

37 Dominici F, McDermott A, Zeger SL, Samet JM. On the Use of Generalized Additive Models in Time-Series Studies of Air Pollution and Health. *Am J Epidemiol*. 2002; 156:193-203.

38 Hong Y-C, Lee J-T, Kim H, Ha E-H, Schwartz J, Christiani DC. Effects of Air Pollutants on Acute Stroke Mortality. *Environ Health Perspect*. 2002; 110:187-191.

39 Tsai SS, Goggins WB, Chiu HF, Yang CY. Evidence for an Association Between Air Pollution and Daily Stroke Admissions in Kaohsiung, Taiwan. *Stroke*. 2003; 34: 2612-6.

40 Wellenius GA, Schwartz J, Mittleman MA. Air Pollution and Hospital Admissions for Ischemic and Hemorrhagic Stroke Among Medicare Beneficiaries. *Stroke*. 2005; 36:2549-2553.

41 Pope and Dockery, 2006.

42 D'Ippoliti D, Forastiere F, Ancona C, Agabity N, Fusco D, Michelozzi P, Perucci CA. Air Pollution and Myocardial Infarction in Rome: a case-crossover analysis. *Epidemiology*. 2003;14:528-535. Zanobetti A, Schwartz J. The Effect of Particulate Air Pollution on Emergency Admissions for Myocardial Infarction: a multicity case-crossover analysis. *Environ Health Perspect*. 2005; 113:978-982.

43 Ghio AJ, Kim C, Devlin RB. Concentrated Ambient Air Particles Induce Mild Pulmonary Inflammation in Healthy Human Volunteers. *Am J Respir Crit Care Med*. 2000; 162(3 Pt 1):981-988.

44 Metzger KB, Tolbert PE, Klein M, Peel JL, Flanders WD, Todd K, Mulholland JA, Ryan PB, Frumkin H. Ambient Air Pollution and Cardiovascular Emergency Department Visits in Atlanta, Georgia, 1993-2000. *Epidemiology*. 2004; 15: 46-56.

45 Tsai SS, et al., 2003.

46 Wellenius GA, Schwartz J, and Mittleman MA. Particulate Air Pollution and Hospital Admissions for Congestive Heart Failure in Seven United States Cities. *Am J Cardiol*. 2006; 97 (3):404-408; Wellenius GA, Bateson TF, Mittleman MA, Schwartz J. Particulate Air Pollution and the Rate of Hospitalization for Congestive Heart Failure among Medicare Beneficiaries in Pittsburgh, Pennsylvania. *Am J Epidem*. 2005; 161:1030-1036.

47 Van Den Eeden SK, Quesenberry CP Jr, Shan J, Lurmann F. Particulate Air Pollution and Morbidity in the California Central Valley: a high particulate pollution region. Final Report to the California Air Resources Board, 2002.

48 Lin M, Chen Y, Burnett RT, Villeneuve PJ, Kerwski D. The Influence of Ambient Coarse Particulate Matter on Asthma Hospitalization in Children: case-crossover and time-series analyses. *Environ Health Perspect*. 2002; 110:575-581.

49 Norris G, YoungPong SN, Koenig JQ, Larson TV, Sheppard L, Stout JW. An Association Between Fine Particles and Asthma Emergency Department Visits for Children in Seattle. *Environ Health Perspect*. 1999;107:489-493.

50 Tolbert PE, Mulholland JA, MacIntosh DD, Xu F, Daniels D, Devine OJ, Carlin BP, Klein M, Dorley J, Butler AJ, Nordenberg DF, Frumkin H, Ryan PB, White MC. Air Quality and Pediatric Emergency Room Visits for Asthma in Atlanta, Georgia. *Am J Epidemiol*. 2000; 151:798-810.

51 Slaughter JC, Lumley T, Sheppard L, Koenig JQ, Shapiro, GG. Effects of Ambient Air Pollution on Symptom Severity and Medication Use in Children with Asthma. *Ann Allergy Asthma Immunol*. 2003; 91:346-353.

52 Thaller EI, et al., 2008.

53 Dockery DW, Pope CA III, Xu X, Spengler JD, Ware JH, Fay ME, Ferris BG, Speizer FE. An Association Between Air Pollution and Mortality in Six U.S. Cities. *N Engl J Med*. 1993; 329:1753-1759. Pope CA, Thun MJ, Namboodiri MM, Dockery DW, Evans JS, Speizer FE, Heath CW. Particulate Air Pollution as a Predictor of Mortality in a Prospective Study of U.S. Adults. *Am J Respir Crit Care Med*. 1995; 151:669-674.

54 Pope CA III. Epidemiology of Fine Particulate Air Pollution and Human Health: biological mechanisms and who's at risk? *Environ Health Perspect*. 2000;108: 713-723.

55 Lin S, Munsie JP, Hwang SA, Fitzgerald E, Cayo MR. Childhood Asthma Hospitalization and Residential Exposure to State Route Traffic. *Environ Res*. 2002; 88:73-81.

56 Gauderman WJ, Vora H, McConnell R, Berhane K, Gilliland GF, Thomas D, Lurmann F, Avol E, Kűenzli N, Jarrett M, Peters J. Effect of Exposure to Traffic on Lung Development from 10 to 18 Years of Age: a cohort study. *Lancet*. 2007; 369:571-577.

57 Gauderman WJ, Gilliland GF, Vora H, Avol E, Stram D, McConnell R, Thomas D, Lurmann F, Margolis HG, Rappaport EB, Berhane K, Peters JM. Association between Air Pollution and Lung Function Growth in Southern California Children: results from a second cohort. *Am J Respir Crit Care Med*. 2002;166:76-84.

58 Gauderman WJ, Avol E, Gilliland F, Vora H, Thomas D, Berhane K, McConnell R, Kuenzli N, Lurmann F, Rappaport E, Margolis H, Bates D, Peters J. The effect of air pollution on lung development from 10 to 18 years of age. *N Engl J Med*. 2004; 351:1057-1067.

59 Churg, A Brauer, M, Avila-Casado, MdC, Fortoul TI, Wright JL. Chronic Exposure to High Levels of Particulate Air Pollution and Small Airway Remodeling. *Environ Health Perspect*. 2003; 111: 714-718.

60 Lepeule et al, 2012; Pope CA III, Burnett RT, Thun MJ, Calle EE, Krewski D, Ito K, Thurston GD. Lung Cancer, Cardiopulmonary Mortality, and Long-Term

Exposure to Fine Particulate Air Pollution. *JAMA*. 2002; 287(9):1132-1141.

61 Pope CA III, Burnett RT, Thurston GD, Thun MJ, Calle EE, Krewski D, Godleski JJ. Cardiovascular Mortality and Year-round Exposure to Particulate Air Pollution: epidemiological evidence of general pathophysiological pathways of disease. *Circulation*. 2004; 109:71-77.

62 Bell ML, Ebisu K, Belanger K. Ambient Air Pollution and low birth weight in Connecticut and Massachusetts. Environ Health Perspect. 2007; 115: 118-24; Ritz B, Wilhelm M, Zhao Y. Air pollution and infant death in southern California, 2989-2000. *Pediatrics*. 2006; 118: 493-502; Woodruff TJ, parker JD, Schoendorf KC. Fine particulate matter ($PM_{2.5}$) air pollution and selected causes of postneonatal infant mortality in California. *Environ Health Perspect*. 2006; 114: 785-790.

63 Miller KA, Siscovick DS, Shepard L, Shepherd K, Sullivan JH, Anderson GL, Kaufman JD. Long-Term Exposure to Air Pollution and Incidence of Cardiovascular Events in Women. *N Engl J Med*. 2007; 356: 447-458.

64 U.S. EPA., 2009.

65 U.S. EPA., 2009.

66 U.S. EPA., 2009.

67 U.S. EPA., 2009.

68 Dietert RR, Etzel RA, Chen D, et al. Workshop to Identify Critical Windows of Exposure for Children's Health: immune and respiratory systems workgroup summary. *Environ Health Perspect*. 2000; 108 (supp 3); 483-490.

69 World Health Organization: The Effects of Air Pollution on Children's Health and Development: a review of the evidence E86575. 2005. Available at http://www.euro.who.int/document/E86575.pdf.

70 WHO, 2005.

71 American Academy of Pediatrics Committee on Environmental Health, Ambient Air Pollution: health hazards to children. *Pediatrics*. 2004; 114: 1699-1707. Statement was reaffirmed in 2010.

72 Gauderman et al., 2004.

73 Galizia A, Kinney PL. Year-round Residence in Areas of High Ozone: association with respiratory health in a nationwide sample of nonsmoking young adults. *Environ Health Perspect*. 1999; 107:675-679.

74 Peters JM, Avol E, Gauderman WJ, Linn WS, Navidi W, London SJ, Margolis H, Rappaport E, Vora H, Gong H, Thomas DC. A Study of Twelve Southern California Communities with Differing Levels and Types of Air Pollution. II. Effects on Pulmonary Function. *Am J Respir Crit Care Med*. 1999; 159:768-775.

75 Bayer-Oglesby L, Grize L, Gassner M, Takken-Sahli K, Sennhauser FH, Neu U, Schindler C, Braun-Fahrländer C. Decline of Ambient Air Pollution Levels and Improved Respiratory Health in Swiss Children. *Environ Health Perspect*. 2005; 113:1632-1637.

76 Institute of Medicine. *Toward Environmental Justice: Research, Education, and Health Policy Needs*. Washington, DC: National Academy Press, 1999; O'Neill MS, Jerrett M, Kawachi I, Levy JI, Cohen AJ, Gouveia N, Wilkinson P, Fletcher T, Cifuentes L, Schwartz J et al. Health, Wealth, and Air Pollution: Advancing Theory and Methods. *Environ Health Perspect*. 2003: 111: 1861-1870; Finkelstein MM; Jerrett M; DeLuca P; Finkelstein N; Verma DK, Chapman K, Sears MR. Relation Between Income, Air Pollution And Mortality: A Cohort Study. *CMAJ*. 2003; 169: 397-402; Ostro B, Broadwin R, Green S, Feng W, Lipsett M. Fine Particulate Air Pollution and Mortality in Nine California Counties: Results from CALFINE. *Environ Health Perspect*. 2005: 114: 29-33; Zeka A, Zanobetti A, Schwartz J. Short term effects of particulate matter on cause specific mortality: effects of lags and modification by city characteristics. *Occup Environ Med*. 2006: 62: 718-725.

77 American Lung Association. Urban Air Pollution and Health Inequities: A Workshop Report. *Environ Health Perspect*. 2001: 109(suppl 3): 357-374.

78 Zeka A, Zanobetti A, Schwartz J. Individual-Level Modifiers of the Effects of Particulate Matter on Daily Mortality. *Am J Epidemiol*. 2006: 163: 849-859.

79 Ostro B, Broadwin R, Green S, Feng WY, Lipsett M. Fine particulate air pollution and mortality in nine California counties: results from CALFINE. *Environ Health Perspect*. 2006: 114: 29-33; Ostro B, Feng WY, Broadwin R, Malig B, Green S, Lipsett M. The Impact of Components of Fine Particulate Matter on Cardiovascular Mortality in Susceptible Subpopulations. *Occup Environ Med*. 2008; 65(11):750-6.

80 Bell ML, Dominici F. Effect Modification by Community Characteristics on the Short-term Effects of Ozone Exposure and Mortality in 98 US Communities. *Am J Epidemiol*. 2008; 167:986-997.

81 Apelberg BJ, Buckley TJ, White RH. Socioeconomic and Racial Disparities in Cancer Risk from Air Toxics in Maryland. *Environ Health Perspect*. 2005: 113:693-699.

82 Zeger SL, Dominici F, McDermott A, Samet J. Mortality in the Medicare Population and Chronic Exposure to Fine Particulate Air Pollution in Urban Centers (2000-2005). *Environ Health Perspect*. 2008: 116:1614-1619.

83 Bell and Dominici, 2008.

84 Babin S, Burkom H, Holtry R, Tabernero N, Davies-Cole J, Stokes L, Dehaan K, Lee D. Medicaid Patient Asthma-Related Acute Care Visits And Their Associations with Ozone and Particulates in Washington, DC, from 1994-2005. *Int J Environ Health Res*. 2008; 18(3)209-221.

85 Laurent O, Pedrono G, Segala C, Filleul L, Havard S, Deguen S, Schillinger C, Rivière E, Bard D. Air pollution, asthma attacks, and socioeconomic deprivation: a small-area case-crossover study. *Am J Epidemiol*. 2008; 168:58-65; Laurent O, Pedrono G, Filleul L, Segala C, Lefranc A, Schillinger C, Riviere E, Bard D. Influence of Socioeconomic Deprivation on the Relation Between Air Pollution and Beta-Agonist Sales for Asthma. *Chest*. 2009; 135(3):717-716.

86 O'Neill et al., 2003.

87 Miranda ML, Edwards SE, Keating MH, Paul CJ. Making the Environmental Justice Grade: The Relative Burden of Air Pollution Exposure in the United States. *Int J Environ Res Public Health*. 2011; 8: 1755-1771.

88 Bell ML, Ebisu K. Environmental Inequality in Exposures to Airborne Particulate Matter Component in the United States. *Environ Health Perspect*. 2012; 120:1699–1704.

89 Health Effects Institute Panel on the Health Effects of Traffic-Related Air Pollution, Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects. Health Effects Institute: Boston, 2010. Available at www.healtheffects.org.

90 Andersen ZJ, Hvidberg M, Jensen SS, Ketzel M, Loft S, Sørensen M, Tjønneland A, Overvad K, and Raaschou-Nielsen O. Chronic Obstructive Pulmonary Disease and Long-Term Exposure to Traffic-related Air Pollution: A Cohort Study. *Am J Respir Crit Care Med*. 2011: 183:455-461.

91 Finklestein MM, Jerrett M., Sears M.R. Traffic Air Pollution and Mortality Rate Advancement Periods. *Am J Epidemiol*. 2004; 160:173-177; Hoek G, Brunkreef B, Goldbohn S, Fischer P, van den Brandt. Associations between mortality and indicators of traffic-related air pollution in the Netherlands: a cohort study. *Lancet*. 2002; 360:1203-1209.

92 Peters A, von Klot S, Heier M, Trentinaglia I, Cyrys J, Hormann A, Hauptmann M, Wichmann HE, Lowel H. Exposure to Traffic and the Onset of Myocardial Infarction. *N Engl J Med*. 2004; 351:1721-1730.

93 Suglia SF, Gryparis A, Schwartz J, and Wright RJ. Association between Traffic-Related Black Carbon Exposure and Lung Function among Urban Women. *Environ Health Perspect*. 2008; 116(10)1333-1337.

Methodology

Statistical Methodology: The Air Quality Data

Data Sources

The data on air quality throughout the United States were obtained from the U.S. Environmental Protection Agency's Air Quality System (AQS), formerly called Aerometric Information Retrieval System (AIRS) database. The American Lung Association contracted with Dr. Allen S. Lefohn, A.S.L. & Associates, Helena, Montana, to characterize the hourly averaged ozone concentration information and the 24-hour averaged $PM_{2.5}$ concentration information for the 3-year period for 2009-2011 for each monitoring site.

Design values for the annual $PM_{2.5}$ concentrations by county for the period 2009-2011 were downloaded on October 3, 2012 from the EPA's website at http://www.epa.gov/air/airtrends/values.html. They were updated with the revised design values posted on December 14, 2012 at http://www.epa.gov/airquality/particlepollution/2012/20092011table.pdf.

Ozone Data Analysis

The 2009, 2010, and 2011 AQS hourly ozone data were used to calculate the daily 8-hour maximum concentration for each ozone-monitoring site. The hourly averaged ozone data were downloaded on June 29, 2012. The data were considered for a 3-year period for the same reason that the EPA uses three years of data to determine compliance with the ozone standard: to prevent a situation in any single year, where anomalies of weather or other factors create air pollution levels, which inaccurately reflect the normal conditions. The highest 8-hour daily maximum concentration in each county for 2009, 2010, and 2011, based on the EPA-defined ozone season, was identified.

The current national ambient air quality standard for ozone is 0.075 ppm measured over eight hours. The EPA's Air Quality Index reflects the 0.075 ppm standard. A.S.L. & Associates prepared a table by county that summarized, for each of the three years, the number of days the ozone level was within the ranges identified by the EPA based on the EPA Air Quality Index:

8-hour Ozone Concentration	Air Quality Index Levels
0.000 – 0.059 ppm	Good (Green)
0.060 – 0.075 ppm	Moderate (Yellow)
0.076 – 0.095 ppm	Unhealthy for Sensitive Groups (Orange)
0.096 – 0.115 ppm	Unhealthy (Red)
0.116 – 0.374 ppm	Very Unhealthy (Purple)
>0.374 ppm	Hazardous (Maroon)

The goal of this report was to identify the number of days that 8-hour daily maximum concentrations occurred within the defined ranges, not just those days that would fall under the requirements for attaining the national ambient air quality standards. Therefore, no data capture criteria were applied to eliminate monitoring sites or to require a number of valid days for the ozone season. All valid days of data within the ozone season were used in the analysis. However, for computing an 8-hour average, at least 75 percent of the hourly concentrations (i.e., 6-8 hours) had to be available for the 8-hour period. In addition, an 8-hour daily maximum average was identified if valid 8-hour averages were available for at least 75 percent of possible hours in the day (i.e., at least 18 of the possible 24 8-hour averages). Because the EPA includes days with inadequate data if the standard value is exceeded, our data capture methodology may result at times in underestimations of the number of 8-hour averages within the higher concentration

ranges. However, our experience is that underestimates are infrequent.

Following receipt of the above information, the American Lung Association identified the number of days each county, with at least one ozone monitor, experienced air quality designated as orange (Unhealthy for Sensitive Groups), red (Unhealthy), or purple (Very Unhealthy).

Short-term Particle Pollution Data Analysis

A.S.L. & Associates identified the maximum daily 24-hour AQS $PM_{2.5}$ concentration for each county in 2009, 2010, and 2011 with monitoring information. The 24-hour $PM_{2.5}$ data were downloaded on August 13, 2012. In addition, hourly averaged $PM_{2.5}$ concentration data were characterized into 24-hour average $PM_{2.5}$ values by the EPA and provided to A.S.L. & Associates. Using these results, A.S.L. & Associates prepared a table by county that summarized, for each of the 3 years, the number of days the maximum of the daily $PM_{2.5}$ concentration was within the ranges identified by the EPA based on the EPA Air Quality Index, as adopted by the EPA on December14, 2012:

24-hour $PM_{2.5}$ Concentration	**Air Quality Index Levels**
0.0 µg/m³ to 15.4 µg/m³	Good (Green)
15.5 µg/m³ to 35.0 µg/m³	Moderate (Yellow)
35.1 µg/m³ to 65.4 µg/m³	Unhealthy for Sensitive Groups (Orange)
65.5 µg/m³ to 150.4 µg/m³	Unhealthy (Red)
150.5 µg/m³ to 250.4 µg/m³	Very Unhealthy (Purple)
greater than or equal to 250.5 µg/m³	Hazardous (Maroon)

All previous data collected for 24-hour average $PM_{2.5}$ were reassessed using these AQI thresholds, above.

The goal of this report was to identify the number of days that the maximum in each county of the daily $PM_{2.5}$ concentration occurred within the defined ranges, not just those days that would fall under the requirements for attaining the national ambient air quality standards. Therefore, no data capture criteria were used to eliminate monitoring sites. Both 24-hour averaged PM data as well as hourly averaged PM data averaged over 24 hours were used. Included in the analysis are data collected using only FRM and FEM methods, which reported hourly and 24-hour averaged data. As instructed by the Lung Association, A.S.L. & Associates included the exceptional and natural events that were identified in the database and identified for the Lung Association the dates and monitoring sites that experienced such events. Some data have been flagged by the state or local air pollution control agency to indicate that they had raised issues with the EPA about those data.

Following receipt of the above information, the American Lung Association identified the number of days each county, with at least one $PM_{2.5}$ monitor, experienced air quality designated as orange (Unhealthy for Sensitive Groups), red (Unhealthy), purple (Very Unhealthy) or maroon (Hazardous).

Description of County Grading System

Ozone and short-term particle pollution (24-hour $PM_{2.5}$)

The grades for ozone and short-term particle pollution (24-hour $PM_{2.5}$) were based on a weighted average for each county. To determine the weighted average, the Lung Association followed these steps:

1. First, assigned weighting factors to each category of the Air Quality Index. The number of orange days experienced by each county received a factor of 1; red days, a factor of 1.5; purple days, a factor of 2; and maroon days, a factor of 2.5. This allowed days where the air pollution levels were higher to receive greater weight.
2. Next, multiplied the total number of days within each category by their assigned factor, then summed all the categories to calculate a total.

3. Finally, divided the total by three to determine the weighted average, since the monitoring data were collected over a three-year period.

The weighted average determined each county's grades for ozone and 24-hour $PM_{2.5}$.

- All counties with a weighted average of zero (corresponding to no exceedances of the standard over the three-year period) were given a grade of "A."
- For ozone, an "F" grade was set to generally correlate with the number of unhealthy air days that would place a county in nonattainment for the ozone standard.
- For short-term particle pollution, fewer unhealthy air days are required for an F than for nonattainment under the $PM_{2.5}$ standard. The national air quality standard is set to allow two percent of the days during the three years to exceed 35 $\mu g/m^3$ (called a "98th percentile" form) before violating the standard. That would be roughly 21 unhealthy days in three years. The grading used in this report would allow only about one percent of the days to be over 35 $\mu g/m^3$ (called a "99th percentile" form) of the $PM_{2.5}$. The American Lung Association supports using the tighter limits in a 99th percentile form as a more appropriate standard that is intended to protect the public from short-term spikes in pollution.

Grading System		
Grade	Weighted Average	Approximate Number of Allowable Orange/Red/Purple/Maroon days
A	0.0	None
B	0.3 to 0.9	1 to 2 orange days with no red
C	1.0 to 2.0	3 to 6 days over the standard: 3 to 5 orange with no more than 1 red OR 6 orange with no red
D	2.1 to 3.2	7 to 9 days over the standard: 7 total (including up to 2 red) to 9 orange with no red
F	3.3 or higher	9 days or more over the standard: 10 orange days or 9 total including at least 1 or more red, purple or maroon

Weighted averages allow comparisons to be drawn based on severity of air pollution. For example, if one county had nine orange days and no red days, it would earn a weighted average of 3.0 and a D grade. However, another county which had only eight orange days but also two red days, which signify days with more serious air pollution, would receive an F. That second county would have a weighted average of 3.7.

Note that this system differs significantly from the methodology the EPA uses to determine violations of both the ozone and the 24-hour $PM_{2.5}$ standards. The EPA determines whether a county violates the standard based on the 4th maximum daily 8-hour ozone reading each year averaged over three years. Multiple days of unhealthy air beyond the highest four in each year are not considered. By contrast, the system used in this report recognizes when a community's air quality repeatedly results in unhealthy air throughout the three years. Consequently, some counties will receive grades of "F" in this report, showing repeated instances of unhealthy air, while still meeting the EPA's 2008 ozone standard. The American Lung Association's position is that the evidence shows that the 2008 ozone standard fails to protect public health.

Counties were ranked by weighted average. Metropolitan areas were ranked by the highest weighted average among the counties within a given Metropolitan Statistical Area as of 2009 as defined by the White House Office of Management and Budget (OMB).

Year-round particle pollution (Annual $PM_{2.5}$)

Since no comparable Air Quality Index exists for year-round particle pollution (annual $PM_{2.5}$), the grading was based on EPA's determination of the national ambient air quality standard for annual $PM_{2.5}$ of 12 $\mu g/m^3$. Counties that EPA listed as being at or below 12 $\mu g/m^3$ were given grades of "Pass." Counties EPA listed as being at or above 12.1 $\mu g/m^3$ were given grades of "Fail." Where insufficient data existed for EPA to determine a design value, those counties received a grade of "Incomplete."

Design value is the calculated concentration of a pollutant based on the form of the national ambient air quality standard and is used by EPA to determine whether or not the air quality in a county meets the standard. Counties were ranked by design value. Metropolitan areas were ranked by the highest design value among the counties within a given Metropolitan Statistical Area as of 2010 as defined by the OMB.

The Lung Association received critical assistance from members of the National Association of Clean Air Administrators, formerly known as the State and Territorial Air Pollution Control Administrators and the Association of Local Air Pollution Control Administrators. With their assistance, all state and local agencies were provided the opportunity to review and comment on the data in draft tabular form. The Lung Association reviewed all discrepancies with the agencies and, if needed, with Dr. Lefohn at A.S.L. & Associates. Questions about the annual PM design values were referred to Mr. Mark Schmidt of EPA, who reviewed and had final decision on those determinations. The American Lung Association wishes to express its continued appreciation to the state and local air directors for their willingness to assist in ensuring that the characterized data used in this report are correct.

Calculations of Populations-at-Risk

Presently, county-specific measurements of the number of persons with chronic conditions are not generally available. In order to assess the magnitude of chronic conditions at the state and county levels, we have employed a synthetic estimation technique originally developed by the U.S. Census Bureau. This method uses age-specific national and state estimates of self-reported conditions to project disease prevalence to the county level. The exception to this is poverty, for which estimates are available at the county level.

Population Estimates

Total population for each county was obtained from U.S. Census Bureau summary files of the 2011 decennial census data, which included age- and gender-specific breakdowns.

Poverty estimates came from the Census Bureau's Small Area Income and Poverty Estimates (SAIPE) program. The program does not use direct counts or estimates from sample surveys, as these methods would not provide sufficient data for all counties. Instead, a model based on estimates of income or poverty from the Annual Social and Economic Supplement (ASEC) to the Current Population Survey (CPS) is used to develop estimates for all states and counties.

Prevalence Estimates

Chronic Obstructive Pulmonary Disease, Cardiovascular Disease, Asthma and Diabetes. In 2011, the Behavioral Risk Factor Surveillance System (BRFSS) survey found that approximately 20.5 million (8.8 percent) of adults residing in the United States and 8.6 percent of children from thirty-four states and Washington, D.C. reported currently having asthma. Among adults in the United States in 2011, the survey found that 14.7 million (6.4 percent) had ever been diagnosed with chronic obstructive pulmonary disease (COPD), 79.5 million (34.0 percent) had ever been diagnosed with cardiovascular disease, and 22.6 million (9.6 percent) had ever been diagnosed with diabetes.

The prevalence estimate for pediatric asthma is calculated for those younger than 18 years. Local area prevalence of pediatric asthma is estimated by applying 2011 state prevalence rates, or if not available, the national rate from the BRFSS to pediatric county-level resident populations obtained from the U.S. Census Bureau web site. Pediatric asthma data from the 2011 BRFSS were available for thirty-four states and Washington D.C., and national data were used for the sixteen states[1] that

1 Alaska, Arkansas, Colorado, Delaware, Florida, Georgia, Idaho, Kentucky, Maine, Minnesota, New Hampshire, North Carolina, South Carolina, South Dakota, Virginia, and Wyoming.

had no data available. Data from earlier years were not used due to changes in the 2011 survey methodology.

The prevalence estimate for COPD, cardiovascular disease, adult asthma and diabetes is calculated for those aged 18-44 years, 45-64 years and 65 years and older. Local area prevalence for these diseases is estimated by applying age-specific state prevalence rates from the 2011 BRFSS to age-specific county-level resident populations obtained from the U.S. Census Bureau web site. Cardiovascular disease included ever having been diagnosed with a heart attack, angina or coronary heart disease, stroke, or high blood pressure (excluding borderline or pre-hypertensive and women only when pregnant).

Limitations of Estimates. Since the statistics presented by the BRFSS and SAIPE are based on a sample, they will differ (due to random sampling variability) from figures that would be derived from a complete census or case registry of people in the U.S. with these diseases. The results are also subject to reporting, non-response and processing errors. These types of errors are kept to a minimum by methods built into the survey.

Additionally, a major limitation of the BRFSS is that the information collected represents self-reports of medically diagnosed conditions, which may underestimate disease prevalence since not all individuals with these conditions have been properly diagnosed. However, the BRFSS is the best available source for information on the magnitude of chronic disease at the state level. The conditions covered in the survey may vary considerably in the accuracy and completeness with which they are reported.

Local estimates of chronic diseases are scaled in direct proportion to the base population of the county and its age distribution. No adjustments are made for other factors that may affect local prevalence (e.g. local prevalence of cigarette smokers or occupational exposures) since the health surveys that obtain such data are rarely conducted on the county level. Because the estimates do not account for geographic differences in the prevalence of chronic and acute diseases, the sum of the estimates for each of the counties in the United States may not exactly reflect the national or state estimates derived from the BRFSS.

References

Irwin, R. Guide to Local Area Populations. U.S. Bureau of the Census, Technical Paper Number 39 (1972).

Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System, 2011.

Population Estimates Branch, U.S. Census Bureau. Annual Estimates of the Resident Population by Selected Age Groups and Sex for Counties: April 1, 2010 to July 1, 2011.

Office of Management and Budget. Update of Statistical Areas Definitions and Guidance on Their Uses. OMB Bulletin 10-02 December 1, 2009.

U.S. Census Bureau. Small Area Income and Poverty Estimates. State and County Data, 2011.

State Tables

State Table Notes

A full explanation of the sources of data and methodology is in Methodology.

Notes for all state data tables

1. **Total Population** is based on 2011 US Census and represents the at-risk populations in counties with ozone or $PM_{2.5}$ pollution monitors; it does not represent the entire state's sensitive populations.
2. Those **under 18** and **65 & over** are vulnerable to ozone and $PM_{2.5}$. Do not use them as population denominators for disease estimates—that will lead to incorrect estimates.
3. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2011 based on the state rates when available or national rates when not (Behavioral Risk Factor Surveillance System, or BRFSS), applied to county population estimates (U.S. Census).
4. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma during 2011 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
5. **COPD** estimates are for adults 18 and over who had ever been diagnosed with chronic obstructive pulmonary disease, which includes chronic bronchitis and emphysema, based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **Cardiovascular disease** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to county population estimates (U.S. Census). CV disease includes coronary heart disease, hypertension, stroke, and heart attack.
7. **Diabetes** estimates are for adults 18 and over who have been diagnosed within their lifetime based on state rates (BRFSS) applied to county population estimates (U.S. Census).
8. **Poverty** estimates include all ages and come from the U.S. Census Bureau's Small Area Income and Poverty Estimates program. The estimates are derived from a model using estimates of income or poverty from the Annual Social and Economic Supplement and the Current Population Survey, 2011.
9. Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.

Notes for all state grades tables.

1. Not all counties have monitors for either ozone or particle pollution. If a county does not have a monitor, that county's name is not on the list in these tables. The decision about monitors in the county is made by the state and the U.S. Environmental Protection Agency, not by the American Lung Association.
2. **INC** (Incomplete) indicates that monitoring is underway for that pollutant in that county, but that the data are incomplete for all three years. Those counties are not graded or received an Incomplete.
3. **DNC** (Data Not Collected) indicates that data on that particular pollutant is not collected in that county.
4. The **Weighted Average (Wgt. Avg.)** was derived by adding the three years of individual level data (2009-2011), multiplying the sums of each level by the assigned standard weights (i.e. 1=orange, 1.5=red, 2.0=purple and 2.5=maroon) and calculating the average. Grades are assigned based on the weighted averages as follows: A=0.0, B=0.3-0.9, C=1.0-2.0, D=2.1-3.2, F=3.3+.
5. The **Design Value** is the calculated concentration of a pollutant based on the form of the National Ambient Air Quality Standard, and is used by EPA to determine whether the air quality in a county meets the standard. The Design Values are those released with the December 14, 2012 announcement of the revised NAAQS at http://www.epa.gov/pm/2012/20092011table.pdf and incorporates select design values downloaded at http://www.epa.gov/airtrends/pdfs/PM25_DesignValues_20092011_Final_%2007_30_12.xlsx. The numbers refer to micrograms per cubic meter, or $\mu g/m^3$.
6. The annual average National Ambient Air Quality Standard for $PM_{2.5}$ is 12 $\mu g/m^3$ as of December 14, 2012. Counties with design values of 12 $\mu g/m^3$ or lower received a grade of "Pass." Counties with design values of 12.1 $\mu g/m^3$ or higher received a grade of "Fail."

ALABAMA

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AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Baldwin	186,717	42,569	31,877	4,463	11,447	14,583	65,292	18,358	24,728
Clay	13,862	3,087	2,585	324	853	1,105	4,976	1,407	2,545
Colbert	54,512	11,922	9,578	1,250	3,380	4,319	19,360	5,449	10,098
DeKalb	71,375	18,306	10,036	1,919	4,226	5,162	22,823	6,324	14,331
Elmore	80,162	18,472	9,881	1,937	4,932	5,881	25,732	7,065	10,299
Etowah	104,303	23,869	16,551	2,503	6,398	8,014	35,681	9,975	21,426
Houston	102,369	24,914	15,155	2,612	6,166	7,619	33,787	9,400	17,697
Jefferson	658,931	154,664	87,341	16,217	40,237	48,459	213,021	58,715	120,760
Madison	340,111	79,399	42,325	8,325	20,848	25,028	109,666	30,187	45,732
Mobile	412,577	102,542	54,474	10,752	24,739	29,954	131,844	36,411	80,070
Montgomery	232,032	57,530	27,858	6,032	13,924	16,295	71,114	19,388	51,765
Morgan	119,953	28,564	17,209	2,995	7,286	8,980	39,739	11,046	19,790
Russell	54,572	13,525	6,865	1,418	3,276	3,903	17,107	4,696	10,867
Shelby	197,936	49,988	21,940	5,241	11,852	14,039	61,182	16,754	15,743
Sumter	13,478	2,869	2,062	301	844	1,030	4,561	1,264	4,997
Talladega	81,664	18,903	11,755	1,982	5,005	6,176	27,325	7,598	20,569
Tuscaloosa	197,211	41,764	21,539	4,379	12,402	13,843	59,673	15,957	37,718
Walker	66,661	14,897	11,117	1,562	4,115	5,225	23,352	6,558	14,511
Totals	**2,988,426**	**707,784**	**400,148**	**74,212**	**181,930**	**219,615**	**966,235**	**266,552**	**523,646**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Baldwin	5	0	0	1.7	C
Clay	DNC	DNC	DNC	DNC	DNC
Colbert	0	0	0	0.0	A
DeKalb	INC	INC	INC	INC	INC
Elmore	0	0	0	0.0	A
Etowah	0	0	0	0.0	A
Houston	0	0	0	0.0	A
Jefferson	37	1	0	12.8	F
Madison	4	0	0	1.3	C
Mobile	8	0	0	2.7	D
Montgomery	2	0	0	0.7	B
Morgan	0	0	0	0.0	A
Russell	1	0	0	0.3	B
Shelby	7	0	0	2.3	D
Sumter	1	0	0	0.3	B
Talladega	DNC	DNC	DNC	DNC	DNC
Tuscaloosa	0	0	0	0.0	A
Walker	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Baldwin	0	0	0	0.0	A	INC	INC
Clay	0	0	0	0.0	A	10.1	PASS
Colbert	0	0	0	0.0	A	10.0	PASS
DeKalb	0	0	0	0.0	A	10.8	PASS
Elmore	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Etowah	1	0	0	0.3	B	11.1	PASS
Houston	2	0	0	0.7	B	10.0	PASS
Jefferson	2	0	0	0.7	B	12.9	FAIL
Madison	0	0	0	0.0	A	11.0	PASS
Mobile	0	0	0	0.0	A	9.8	PASS
Montgomery	0	0	0	0.0	A	10.9	PASS
Morgan	0	0	0	0.0	A	10.6	PASS
Russell	0	0	0	0.0	A	12.2	FAIL
Shelby	0	0	0	0.0	A	INC	INC
Sumter	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Talladega	0	0	0	0.0	A	INC	INC
Tuscaloosa	2	0	0	0.7	B	10.6	PASS
Walker	0	0	0	0.0	A	10.8	PASS

ALASKA

American Lung Association in Alaska

500 West International Airport Road, #A
Anchorage, AK 99518-1105
(907) 276-5864
www.lung.org/alaska

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Anchorage Municipality	295,570	75,853	22,396	6,487	17,976	11,316	68,446	16,968	24,409
Fairbanks North Star Borough	99,192	25,056	6,759	2,143	6,027	3,659	22,166	5,466	9,045
Juneau City and Borough	32,164	7,456	2,789	638	2,041	1,351	8,203	2,045	2,363
Kenai Peninsula Borough	56,293	13,162	6,630	1,126	3,618	2,601	15,527	3,925	5,812
Matanuska-Susitna Borough	91,946	26,109	7,600	2,233	5,434	3,587	21,695	5,412	10,491
Yukon-Koyukuk Census Area	5,656	1,567	600	134	342	241	1,438	363	1,245
Totals	**580,821**	**149,203**	**46,774**	**12,761**	**35,438**	**22,755**	**137,475**	**34,179**	**53,365**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Anchorage Municipality	INC	INC	INC	INC	INC
Fairbanks North Star Borough	INC	INC	INC	INC	INC
Juneau City and Borough	DNC	DNC	DNC	DNC	DNC
Kenai Peninsula Borough	DNC	DNC	DNC	DNC	DNC
Matanuska-Susitna Borough	DNC	DNC	DNC	DNC	DNC
Yukon-Koyukuk Census Area	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Anchorage Municipality	0	0	0	0.0	A	6.2	PASS
Fairbanks North Star Borough	27	10	1	14.7	F	13.4	FAIL
Juneau City and Borough	3	0	0	1.0	C	7.6	PASS
Kenai Peninsula Borough	INC	INC	INC	INC	INC	INC	INC
Matanuska-Susitna Borough	4	0	0	1.3	C	INC	INC
Yukon-Koyukuk Census Area	DNC	DNC	DNC	DNC	DNC	DNC	DNC

ARIZONA

American Lung Association in Arizona

102 West McDowell Road
Phoenix, AZ 85003-1213
(602) 258-7505
www.lung.org/arizona

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Apache	72,401	22,801	8,663	1,919	4,773	2,712	15,583	4,851	26,096
Cochise	133,289	30,307	23,471	2,550	9,893	6,114	34,687	10,826	24,723
Coconino	134,511	31,038	12,552	2,612	9,929	4,937	29,016	8,899	27,316
Gila	53,144	11,384	12,370	958	4,025	2,845	15,838	5,007	13,374
La Paz	20,419	3,709	6,823	312	1,598	1,272	6,983	2,200	4,861
Maricopa	3,880,244	1,007,426	484,015	84,771	275,660	151,145	873,645	269,908	665,193
Mohave	202,351	40,907	48,514	3,442	15,548	11,002	61,238	19,338	42,986
Navajo	107,398	31,396	14,828	2,642	7,318	4,338	24,757	7,735	34,011
Pima	989,569	224,285	156,935	18,873	73,488	43,462	248,209	77,189	197,078
Pinal	382,992	99,877	56,529	8,404	27,145	15,708	90,026	27,883	61,863
Santa Cruz	47,676	14,319	6,588	1,205	3,212	1,912	10,903	3,407	12,445
Yavapai	211,888	39,261	53,380	3,304	16,634	11,968	66,470	21,025	38,480
Yuma	200,870	55,504	31,847	4,670	13,892	8,132	46,544	14,350	43,109
Totals	**6,436,752**	**1,612,214**	**916,515**	**135,662**	**463,115**	**265,547**	**1,523,899**	**472,618**	**1,191,535**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Apache	DNC	DNC	DNC	DNC	DNC
Cochise	2	0	0	0.7	B
Coconino	4	0	0	1.3	C
Gila	6	0	0	2.0	C
La Paz	2	0	0	0.7	B
Maricopa	31	0	0	10.3	F
Mohave	DNC	DNC	DNC	DNC	DNC
Navajo	0	0	0	0.0	A
Pima	4	0	0	1.3	C
Pinal	10	0	0	3.3	F
Santa Cruz	DNC	DNC	DNC	DNC	DNC
Yavapai	2	0	0	0.7	B
Yuma	9	0	0	3.0	D

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Apache	0	0	0	0.0	A	INC	INC
Cochise	0	0	0	0.0	A	7.0	PASS
Coconino	0	0	0	0.0	A	5.9	PASS
Gila	DNC	DNC	DNC	DNC	DNC	DNC	DNC
La Paz	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Maricopa	7	6	0	5.3	F	9.9	PASS
Mohave	INC	INC	INC	INC	INC	INC	INC
Navajo	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pima	0	0	0	0.0	A	5.4	PASS
Pinal	3	2	0	2.0	C	13.3	FAIL
Santa Cruz	1	1	0	0.8	B	11.1	PASS
Yavapai	0	0	0	0.0	A	4.3	PASS
Yuma	0	0	0	0.0	A	INC	INC

ARKANSAS

American Lung Association in Arkansas

217 W 2nd Street, Suite 105
Little Rock, AR 72201
(501) 975-0758
www.lung.org/arkansas

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Arkansas	18,892	4,419	3,115	378	1,390	1,247	6,008	1,740	3,439
Ashley	21,692	5,268	3,588	450	1,574	1,412	6,807	1,970	4,263
Clark	22,858	4,373	3,455	374	1,736	1,391	6,822	1,948	4,678
Crittenden	50,525	14,415	5,629	1,233	3,469	2,795	13,589	3,913	13,270
Faulkner	116,342	28,074	11,809	2,401	8,362	6,167	30,396	8,661	16,424
Garland	97,124	20,250	20,463	1,732	7,321	7,015	33,712	9,773	19,897
Jackson	17,866	3,698	2,886	316	1,354	1,177	5,693	1,643	3,790
Newton	8,264	1,686	1,766	144	632	619	2,962	862	1,742
Phillips	21,442	5,971	3,271	511	1,483	1,316	6,352	1,838	7,216
Polk	20,610	4,795	4,105	410	1,512	1,446	6,941	2,014	4,514
Pope	62,331	14,288	8,395	1,222	4,567	3,702	18,055	5,182	13,026
Pulaski	386,299	92,522	46,962	7,912	28,141	22,648	110,235	31,709	63,000
Sebastian	127,127	31,961	16,916	2,733	9,109	7,569	36,745	10,586	26,510
Union	41,427	9,874	6,504	844	3,031	2,678	12,915	3,738	8,790
Van Buren	17,083	3,404	3,942	291	1,306	1,303	6,238	1,813	3,719
Washington	207,521	52,573	20,521	4,496	14,635	10,657	52,660	14,976	40,190
White	78,167	18,648	11,179	1,595	5,656	4,695	22,852	6,568	13,484
Totals	**1,315,570**	**316,219**	**174,506**	**27,042**	**95,278**	**77,837**	**378,982**	**108,934**	**247,952**

HIGH OZONE DAYS 2009–2011

HIGH PARTICLE POLLUTION DAYS 2009–2011

						24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Arkansas	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	10.7	PASS
Ashley	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	10.6	PASS
Clark	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Crittenden	16	0	0	5.3	F	0	0	0	0.0	A	11.1	PASS
Faulkner	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	10.8	PASS
Garland	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	10.8	PASS
Jackson	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	10.2	PASS
Newton	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Phillips	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	10.7	PASS
Polk	7	0	0	2.3	D	0	0	0	0.0	A	10.8	PASS
Pope	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	11.3	PASS
Pulaski	15	0	0	5.0	F	1	0	0	0.3	B	12.1	FAIL
Sebastian	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	INC	INC
Union	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	11.1	PASS
Van Buren	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washington	5	0	0	1.7	C	0	0	0	0.0	A	11.0	PASS
White	DNC	DNC	DNC	DNC	DNC	0	0	0	0.0	A	11.3	PASS

CALIFORNIA

American Lung Association in California

424 Pendleton Way
Oakland, CA 94621
(510)638-5864
www.lung.org/california

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Alameda	1,529,875	341,229	175,295	24,430	100,019	52,734	352,165	93,970	198,382
Amador	37,953	6,229	8,170	446	2,682	1,736	11,869	3,347	4,670
Butte	220,266	45,148	34,373	3,232	14,751	8,340	55,875	15,156	48,784
Calaveras	45,052	8,602	9,838	616	3,084	2,054	14,106	4,008	5,563
Colusa	21,549	6,391	2,574	458	1,276	699	4,681	1,262	2,825
Contra Costa	1,066,096	260,264	136,467	18,633	67,901	37,862	255,179	69,371	125,467
El Dorado	180,938	40,081	27,785	2,870	11,895	7,173	49,004	13,655	18,496
Fresno	942,904	278,349	96,955	19,928	55,881	28,859	191,544	50,623	238,977
Glenn	28,128	7,791	3,758	558	1,714	967	6,506	1,770	5,326
Humboldt	134,761	26,432	18,220	1,892	9,123	5,002	33,546	9,054	27,780
Imperial	177,057	50,986	18,749	3,650	10,603	5,513	36,633	9,705	43,259
Inyo	18,478	3,890	3,597	278	1,233	782	5,333	1,496	2,304
Kern	851,710	254,658	77,793	18,232	50,187	25,296	167,656	44,022	200,571
Kings	153,765	42,382	12,366	3,034	9,354	4,504	29,646	7,656	27,949
Lake	64,323	13,341	11,770	955	4,307	2,691	18,361	5,142	14,587
Los Angeles	9,889,056	2,378,370	1,099,904	170,275	631,724	328,847	2,187,906	580,411	1,788,681
Madera	152,925	43,138	17,763	3,088	9,239	4,941	32,961	8,812	33,965
Marin	255,031	52,400	44,293	3,751	17,113	10,509	71,656	19,996	23,236
Mariposa	18,191	3,196	3,922	229	1,268	834	5,718	1,620	2,818
Mendocino	87,553	19,386	13,962	1,388	5,752	3,423	23,234	6,427	17,387
Merced	259,898	80,991	25,034	5,798	15,039	7,658	50,722	13,340	68,371
Monterey	421,898	113,103	45,685	8,097	25,970	13,497	89,699	23,764	69,113
Napa	138,088	31,578	21,147	2,261	8,979	5,198	35,060	9,603	16,093
Nevada	98,612	18,498	19,882	1,324	6,773	4,356	29,809	8,404	11,850
Orange	3,055,745	737,120	363,752	52,773	195,151	104,466	698,405	187,107	391,460

(continued)

		AT-RISK GROUPS							
				Lung Diseases					
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Placer	357,138	85,632	56,457	6,131	22,901	13,526	91,482	25,201	29,985
Plumas	19,765	3,503	4,279	251	1,376	908	6,230	1,767	2,875
Riverside	2,239,620	623,094	268,723	44,609	136,046	73,244	488,747	130,878	371,930
Sacramento	1,436,105	362,155	164,643	25,928	90,380	48,063	321,109	85,864	250,842
San Benito	56,072	15,943	5,632	1,141	3,378	1,789	11,996	3,215	6,909
San Bernardino	2,065,377	593,206	188,958	42,470	123,780	62,735	416,898	109,855	391,911
San Diego	3,140,069	726,602	362,928	52,020	203,011	106,254	707,051	187,806	462,997
San Francisco	812,826	109,429	111,905	7,834	59,153	30,993	205,566	54,461	110,260
San Joaquin	696,214	201,446	73,891	14,422	41,628	21,911	146,134	38,937	124,573
San Luis Obispo	271,969	49,943	42,541	3,576	18,706	10,595	71,152	19,343	38,626
San Mateo	727,209	160,452	99,011	11,487	47,749	26,639	179,196	48,644	56,676
Santa Barbara	426,878	96,736	55,548	6,926	27,772	14,789	98,252	26,154	63,212
Santa Clara	1,809,378	432,358	204,928	30,954	115,861	61,018	407,122	108,526	190,005
Santa Cruz	264,298	54,868	30,640	3,928	17,629	9,373	62,794	16,830	37,962
Shasta	177,774	39,186	30,754	2,805	11,697	7,085	48,053	13,325	34,031
Siskiyou	44,507	9,126	8,942	653	2,991	1,929	13,190	3,718	10,730
Solano	416,471	100,150	48,767	7,170	26,640	14,472	97,309	26,272	54,912
Sonoma	488,116	106,031	70,304	7,591	32,212	18,429	124,505	34,075	58,394
Stanislaus	518,522	146,498	56,563	10,488	31,303	16,547	110,394	29,447	119,325
Sutter	94,919	25,751	12,369	1,844	5,825	3,220	21,561	5,821	14,831
Tehama	63,601	15,860	10,389	1,135	4,028	2,414	16,346	4,518	12,244
Trinity	13,723	2,475	2,832	177	952	622	4,276	1,212	2,881
Tulare	449,253	145,232	43,101	10,398	25,559	13,075	86,663	22,830	113,766
Tuolumne	54,953	9,380	11,606	672	3,851	2,459	16,755	4,703	8,420
Ventura	831,771	210,361	100,114	15,060	52,329	28,516	191,413	51,635	94,625
Yolo	202,054	44,196	20,606	3,164	13,258	6,524	42,884	11,117	41,756
Totals	**37,528,434**	**9,233,166**	**4,379,485**	**661,030**	**2,381,033**	**1,265,070**	**8,444,352**	**2,255,875**	**6,092,592**

CALIFORNIA

American Lung Association in California

424 Pendleton Way
Oakland, CA 94621
(510)638-5864
www.lung.org/california

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Alameda	11	1	0	4.2	F
Amador	6	0	0	2.0	C
Butte	23	0	0	7.7	F
Calaveras	19	0	0	6.3	F
Colusa	1	0	0	0.3	B
Contra Costa	10	0	0	3.3	F
El Dorado	60	2	0	21.0	F
Fresno	136	26	0	58.3	F
Glenn	0	0	0	0.0	A
Humboldt	0	0	0	0.0	A
Imperial	49	0	0	16.3	F
Inyo	6	0	0	2.0	C
Kern	199	24	0	78.3	F
Kings	98	7	0	36.2	F
Lake	0	0	0	0.0	A
Los Angeles	205	23	3	81.8	F
Madera	48	4	0	18.0	F
Marin	0	0	0	0.0	A
Mariposa	25	1	0	8.8	F
Mendocino	0	0	0	0.0	A
Merced	47	1	0	16.2	F
Monterey	1	0	0	0.3	B
Napa	3	0	0	1.0	C
Nevada	36	0	0	12.0	F
Orange	15	1	0	5.5	F
Placer	56	2	0	19.7	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Alameda	7	0	0	2.3	D	9.0	PASS
Amador	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Butte	6	0	0	2.0	C	10.1	PASS
Calaveras	0	0	0	0.0	A	7.3	PASS
Colusa	0	0	0	0.0	A	6.3	PASS
Contra Costa	5	0	0	1.7	C	7.8	PASS
El Dorado	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fresno	79	28	0	40.3	F	17.0	FAIL
Glenn	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Humboldt	0	0	0	0.0	A	6.4	PASS
Imperial	9	1	0	3.5	F	14.0	FAIL
Inyo	12	7	1	8.2	F	7.3	PASS
Kern	74	41	2	46.5	F	18.2	FAIL
Kings	89	21	0	40.2	F	16.2	FAIL
Lake	0	0	0	0.0	A	3.3	PASS
Los Angeles	60	10	0	25.0	F	13.9	FAIL
Madera	INC	INC	INC	INC	INC	INC	INC
Marin	5	0	0	1.7	C	INC	INC
Mariposa	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mendocino	0	0	0	0.0	A	8.6	PASS
Merced	45	2	0	16.0	F	18.2	FAIL
Monterey	0	0	0	0.0	A	6.1	PASS
Napa	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Nevada	0	0	0	0.0	A	6.0	PASS
Orange	19	1	0	6.8	F	11.2	PASS
Placer	1	0	0	0.3	B	7.9	PASS

(continued)

	HIGH OZONE DAYS 2009–2011					HIGH PARTICLE POLLUTION DAYS 2009–2011						
						24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Plumas	DNC	DNC	DNC	DNC	DNC	10	1	0	3.8	F	10.3	PASS
Riverside	233	49	0	102.2	F	103	5	0	36.8	F	16.2	FAIL
Sacramento	85	14	0	35.3	F	11	0	0	3.7	F	10.0	PASS
San Benito	2	0	0	0.7	B	0	0	0	0.0	A	5.6	PASS
San Bernardino	227	85	5	121.5	F	9	1	0	3.5	F	13.7	FAIL
San Diego	47	1	0	16.2	F	8	4	0	4.7	F	11.8	PASS
San Francisco	0	0	0	0.0	A	6	0	0	2.0	C	9.9	PASS
San Joaquin	19	1	0	6.8	F	27	5	0	11.5	F	11.1	PASS
San Luis Obispo	30	0	0	10.0	F	2	0	0	0.7	B	7.7	PASS
San Mateo	1	0	0	0.3	B	2	0	0	0.7	B	INC	INC
Santa Barbara	12	0	0	4.0	F	0	0	0	0.0	A	9.9	PASS
Santa Clara	15	0	0	5.0	F	8	0	0	2.7	D	9.6	PASS
Santa Cruz	0	0	0	0.0	A	0	0	0	0.0	A	6.2	PASS
Shasta	4	0	0	1.3	C	0	0	0	0.0	A	5.3	PASS
Siskiyou	0	0	0	0.0	A	0	0	0	0.0	A	5.1	PASS
Solano	7	0	0	2.3	D	11	0	0	3.7	F	9.1	PASS
Sonoma	0	0	0	0.0	A	0	0	0	0.0	A	8.0	PASS
Stanislaus	43	2	0	15.3	F	75	17	0	33.5	F	15.3	FAIL
Sutter	6	0	0	2.0	C	9	2	0	4.0	F	7.3	PASS
Tehama	17	0	0	5.7	F	INC	INC	INC	INC	INC	INC	INC
Trinity	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC
Tulare	234	19	0	87.5	F	15	5	0	7.5	F	15.2	FAIL
Tuolumne	9	0	0	3.0	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ventura	46	0	0	15.3	F	0	0	0	0.0	A	9.3	PASS
Yolo	4	0	0	1.3	C	1	0	0	0.3	B	6.9	PASS

COLORADO

American Lung Association in Colorado

5600 Greenwood Plaza Blvd., Suite 100
Greenwood Village, CO 80111-2316
(303) 388-4327
www.lung.org/colorado

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Adams	451,443	128,430	38,490	10,983	26,777	13,818	80,280	19,679	71,813
Arapahoe	584,948	147,979	60,557	12,655	36,252	19,800	116,419	28,823	69,436
Boulder	299,378	62,346	31,429	5,332	19,658	10,526	61,573	15,195	40,026
Denver	619,968	134,471	63,780	11,499	40,216	20,832	119,602	29,394	113,713
Douglas	292,167	86,972	22,661	7,437	17,037	9,010	53,630	13,168	12,455
Elbert	23,174	5,632	2,418	482	1,460	860	5,279	1,317	1,826
El Paso	636,963	163,784	64,951	14,006	39,247	21,264	124,614	30,817	81,665
Garfield	56,270	15,130	5,012	1,294	3,414	1,813	10,683	2,629	5,921
Gunnison	15,408	2,754	1,419	236	1,049	532	3,088	754	2,609
Jackson	1,370	242	269	21	94	62	372	95	221
Jefferson	539,884	117,698	70,964	10,065	35,056	20,594	122,459	30,682	47,866
La Plata	51,917	10,379	6,345	888	3,447	1,947	11,495	2,862	5,564
Larimer	305,525	63,773	37,576	5,454	20,046	11,150	65,071	16,186	41,155
Logan	22,619	4,420	3,355	378	1,509	886	5,184	1,302	3,361
Mesa	147,083	34,382	22,369	2,940	9,350	5,667	33,296	8,406	17,521
Moffat	13,451	3,566	1,490	305	821	468	2,784	694	1,593
Montezuma	25,442	5,831	4,348	499	1,629	1,048	6,234	1,586	4,131
Morgan	28,175	7,921	4,060	677	1,680	1,018	5,967	1,507	4,247
Pitkin	17,102	2,937	2,157	251	1,176	675	4,028	1,005	1,274
Pueblo	160,545	38,840	25,008	3,321	10,097	6,197	36,431	9,216	29,674
Rio Blanco	6,782	1,688	849	144	423	245	1,448	362	660
Weld	258,638	71,121	25,670	6,082	15,549	8,366	48,843	12,069	36,331
Totals	**4,558,252**	**1,110,296**	**495,177**	**94,949**	**285,987**	**156,778**	**918,780**	**227,748**	**593,062**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Adams	5	0	0	1.7	C
Arapahoe	14	0	0	4.7	F
Boulder	7	0	0	2.3	D
Denver	2	0	0	0.7	B
Douglas	19	1	0	6.8	F
Elbert	DNC	DNC	DNC	DNC	DNC
El Paso	5	0	0	1.7	C
Garfield	0	0	0	0.0	A
Gunnison	INC	INC	INC	INC	INC
Jackson	INC	INC	INC	INC	INC
Jefferson	23	1	0	8.2	F
La Plata	8	0	0	2.7	D
Larimer	20	0	0	6.7	F
Logan	INC	INC	INC	INC	INC
Mesa	0	0	0	0.0	A
Moffat	INC	INC	INC	INC	INC
Montezuma	2	0	0	0.7	B
Morgan	INC	INC	INC	INC	INC
Pitkin	INC	INC	INC	INC	INC
Pueblo	INC	INC	INC	INC	INC
Rio Blanco	INC	INC	INC	INC	INC
Weld	8	0	0	2.7	D

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Adams	1	0	0	0.3	B	8.1	PASS
Arapahoe	0	0	0	0.0	A	6.3	PASS
Boulder	2	0	0	0.7	B	6.9	PASS
Denver	0	0	0	0.0	A	7.6	PASS
Douglas	0	0	0	0.0	A	5.7	PASS
Elbert	0	0	0	0.0	A	INC	INC
El Paso	0	0	0	0.0	A	5.9	PASS
Garfield	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Gunnison	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jackson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jefferson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
La Plata	0	0	0	0.0	A	INC	INC
Larimer	0	0	0	0.0	A	6.3	PASS
Logan	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mesa	8	1	0	3.2	D	8.6	PASS
Moffat	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Montezuma	0	0	0	0.0	A	6.3	PASS
Morgan	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pitkin	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pueblo	0	0	0	0.0	A	INC	INC
Rio Blanco	INC	INC	INC	INC	INC	INC	INC
Weld	1	0	0	0.3	B	7.5	PASS

CONNECTICUT

American Lung Association in Connecticut

45 Ash Street
East Hartford, CT 06108-3272
(860) 838-4376
www.lung.org/connecticut

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Fairfield	925,899	225,716	126,665	25,414	69,411	42,671	227,024	65,752	85,240
Hartford	894,705	200,785	131,767	22,607	68,676	42,530	227,018	65,929	107,964
Litchfield	188,789	39,682	30,992	4,468	14,475	9,635	52,242	15,389	14,633
Middlesex	166,043	34,414	26,337	3,875	12,884	8,320	44,823	13,127	10,868
New Haven	861,113	188,922	125,555	21,271	66,729	40,838	217,393	62,974	108,038
New London	273,502	58,038	39,876	6,535	21,328	13,191	70,320	20,401	23,554
Tolland	152,507	29,986	18,722	3,376	12,311	7,161	37,466	10,689	10,966
Windham	118,151	25,771	15,545	2,902	9,200	5,549	29,340	8,451	12,021
Totals	**3,580,709**	**803,314**	**515,459**	**90,448**	**275,014**	**169,895**	**905,626**	**262,712**	**373,284**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Fairfield	32	2	0	11.7	F
Hartford	7	0	0	2.3	D
Litchfield	3	0	0	1.0	C
Middlesex	13	0	0	4.3	F
New Haven	14	4	0	6.7	F
New London	13	0	0	4.3	F
Tolland	8	1	0	3.2	D
Windham	INC	INC	INC	INC	INC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Fairfield	2	1	0	1.2	C	9.4	PASS
Hartford	2	0	0	0.7	B	9.0	PASS
Litchfield	0	0	0	0.0	A	5.7	PASS
Middlesex	DNC	DNC	DNC	DNC	DNC	DNC	DNC
New Haven	4	0	0	1.3	C	9.6	PASS
New London	1	0	0	0.3	B	8.4	PASS
Tolland	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Windham	DNC	DNC	DNC	DNC	DNC	DNC	DNC

CONNECTICUT

DELAWARE

American Lung Association in Delaware

630 Churchmans Road, Suite 202
Newark, DE 19702
(302) 737-6414
www.lung.org/delaware

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Kent	164,834	40,343	22,891	3,450	12,260	6,448	45,946	11,889	23,941
New Castle	541,971	123,798	67,849	10,587	41,396	20,963	150,622	38,601	62,874
Sussex	200,330	40,527	42,724	3,466	15,035	9,527	67,267	18,185	24,361
Totals	**907,135**	**204,668**	**133,464**	**17,503**	**68,691**	**36,938**	**263,835**	**68,675**	**111,176**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Kent	8	0	0	2.7	D
New Castle	26	2	0	9.7	F
Sussex	13	2	0	5.3	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Kent	0	0	0	0.0	A	9.4	PASS
New Castle	8	1	0	3.2	D	10.7	PASS
Sussex	0	0	0	0.0	A	9.4	PASS

DELAWARE

DISTRICT OF COLUMBIA

American Lung Association in the District of Columbia

1301 Pennsylvania Ave. NW #800
Washington, DC, DC 20004
1-800-LUNG USA
www.lung.org/districtofcolumbia

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
District of Columbia	617,996	105,334	70,179	19,330	51,553	22,841	156,697	44,516	111,906
Totals	**617,996**	**105,334**	**70,179**	**19,330**	**51,553**	**22,841**	**156,697**	**44,516**	**111,906**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
District of Columbia	30	1	0	10.5	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
District of Columbia	3	1	0	1.5	C	10.6	PASS

DISTRICT OF COLUMBIA

FLORIDA

American Lung Association in Florida

6852 Belfort Oaks Place
Jacksonville, FL 32216
(904) 743-2933
www.lung.org/florida

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Alachua	249,365	43,415	27,739	3,713	15,634	13,939	63,637	16,516	55,679
Baker	27,154	6,971	3,126	596	1,552	1,491	6,930	1,878	4,602
Bay	169,856	36,861	25,198	3,152	10,206	10,309	48,306	13,345	23,927
Brevard	543,566	105,295	113,041	9,004	33,510	37,235	177,047	50,558	75,869
Broward	1,780,172	391,733	254,724	33,499	106,548	106,606	498,711	137,257	263,435
Citrus	140,031	21,639	45,962	1,850	8,892	11,375	54,996	16,283	23,766
Collier	328,134	63,095	89,303	5,396	19,883	23,693	113,389	32,855	52,583
Columbia	67,485	14,965	10,720	1,280	4,024	4,145	19,480	5,418	13,644
Duval	870,709	203,176	99,436	17,375	51,295	48,660	225,557	60,750	150,591
Escambia	299,114	63,998	43,888	5,473	17,989	17,945	83,845	23,011	52,051
Flagler	97,376	18,887	24,589	1,615	5,942	6,988	33,443	9,687	14,216
Highlands	98,630	17,899	32,089	1,531	6,004	7,628	36,775	10,826	18,282
Hillsborough	1,267,775	295,679	150,844	25,285	74,591	71,210	330,350	89,147	219,950
Holmes	19,873	4,256	3,494	364	1,192	1,253	5,903	1,652	4,722
Indian River	138,894	25,791	38,311	2,206	8,523	10,278	49,319	14,370	19,006
Lake	301,019	61,866	74,287	5,291	18,040	20,967	100,086	28,837	41,287
Lee	631,330	122,314	152,376	10,460	38,461	44,156	210,468	60,442	95,422
Leon	277,971	52,412	27,337	4,482	17,174	15,080	68,690	17,725	59,835
Liberty	8,314	1,764	923	151	503	471	2,179	583	1,517
Manatee	327,142	66,723	77,440	5,706	19,710	22,648	108,004	31,048	51,221
Marion	332,529	63,343	87,346	5,417	20,279	23,964	114,646	33,190	57,104
Martin	147,495	25,639	40,864	2,193	9,207	11,113	53,361	15,569	18,261
Miami-Dade	2,554,766	546,359	363,899	46,722	153,411	150,997	703,539	191,847	527,000
Okaloosa	183,482	40,634	26,038	3,475	10,955	10,921	51,049	14,025	24,477
Orange	1,169,107	273,117	116,143	23,356	68,639	62,384	286,609	75,548	210,885

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Osceola	276,163	71,621	31,289	6,125	15,694	14,923	69,177	18,635	43,507
Palm Beach	1,335,187	270,630	290,954	23,143	80,582	89,455	424,353	120,586	207,441
Pasco	466,457	97,354	97,958	8,325	28,042	31,035	147,273	41,877	72,121
Pinellas	917,398	160,781	196,507	13,749	57,784	64,201	305,187	87,102	134,728
Polk	609,492	141,472	111,592	12,098	35,560	37,800	178,224	49,953	114,618
St. Lucie	280,379	61,543	57,210	5,263	16,620	18,272	86,609	24,566	56,387
Santa Rosa	154,104	36,122	20,274	3,089	9,096	9,044	42,309	11,644	16,848
Sarasota	382,213	59,268	121,076	5,068	24,231	30,402	146,572	43,141	44,010
Seminole	425,071	95,175	52,589	8,139	25,409	24,691	115,023	31,343	48,594
Volusia	494,804	91,947	106,503	7,863	30,677	34,084	161,920	46,152	84,021
Wakulla	30,978	6,783	3,500	580	1,871	1,794	8,344	2,266	4,025
Totals	**17,403,535**	**3,660,527**	**3,018,569**	**313,034**	**1,047,730**	**1,091,157**	**5,131,310**	**1,429,632**	**2,905,632**

FLORIDA

American Lung Association in Florida

6852 Belfort Oaks Place
Jacksonville, FL 32216
(904) 743-2933
www.lung.org/florida

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Alachua	0	0	0	0.0	A
Baker	0	0	0	0.0	A
Bay	3	0	0	1.0	C
Brevard	0	0	0	0.0	A
Broward	0	0	0	0.0	A
Citrus	DNC	DNC	DNC	DNC	DNC
Collier	0	0	0	0.0	A
Columbia	0	0	0	0.0	A
Duval	3	0	0	1.0	C
Escambia	7	0	0	2.3	D
Flagler	INC	INC	INC	INC	INC
Highlands	0	0	0	0.0	A
Hillsborough	12	0	0	4.0	F
Holmes	0	0	0	0.0	A
Indian River	INC	INC	INC	INC	INC
Lake	3	0	0	1.0	C
Lee	0	0	0	0.0	A
Leon	0	0	0	0.0	A
Liberty	INC	INC	INC	INC	INC
Manatee	1	0	0	0.3	B
Marion	1	0	0	0.3	B
Martin	INC	INC	INC	INC	INC
Miami-Dade	3	0	0	1.0	C
Okaloosa	3	0	0	1.0	C
Orange	8	0	0	2.7	D
Osceola	1	0	0	0.3	B

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Alachua	0	0	0	0.0	A	7.7	PASS
Baker	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Bay	INC	INC	INC	INC	INC	INC	INC
Brevard	0	0	0	0.0	A	6.6	PASS
Broward	1	0	0	0.3	B	6.8	PASS
Citrus	0	0	0	0.0	A	7.3	PASS
Collier	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Columbia	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Duval	4	2	0	2.3	D	8.4	PASS
Escambia	0	0	0	0.0	A	9.0	PASS
Flagler	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Highlands	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hillsborough	0	0	0	0.0	A	7.8	PASS
Holmes	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Indian River	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lake	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lee	0	0	0	0.0	A	6.9	PASS
Leon	1	0	0	0.3	B	9.9	PASS
Liberty	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Manatee	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Marion	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Martin	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Miami-Dade	1	0	0	0.3	B	7.5	PASS
Okaloosa	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Orange	0	0	0	0.0	A	7.3	PASS
Osceola	DNC	DNC	DNC	DNC	DNC	DNC	DNC

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Palm Beach	2	0	0	0.7	B
Pasco	0	0	0	0.0	A
Pinellas	1	0	0	0.3	B
Polk	2	0	0	0.7	B
St. Lucie	0	0	0	0.0	A
Santa Rosa	8	0	0	2.7	D
Sarasota	5	0	0	1.7	C
Seminole	2	0	0	0.7	B
Volusia	0	0	0	0.0	A
Wakulla	2	0	0	0.7	B

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Palm Beach	2	1	0	1.2	C	6.3	PASS
Pasco	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pinellas	0	0	0	0.0	A	7.7	PASS
Polk	0	0	0	0.0	A	7.5	PASS
St. Lucie	INC	INC	INC	INC	INC	INC	INC
Santa Rosa	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sarasota	0	0	0	0.0	A	6.8	PASS
Seminole	0	0	0	0.0	A	7.5	PASS
Volusia	1	0	0	0.3	B	INC	INC
Wakulla	DNC	DNC	DNC	DNC	DNC	DNC	DNC

GEORGIA

American Lung Association in Georgia

2452 Spring Road
Smyrna, GA 30080-3862
(770) 434-5864
www.lung.org/georgia

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Bibb	156,433	40,112	20,072	3,430	11,122	8,486	42,364	12,713	38,253
Chatham	271,544	61,200	33,887	5,234	20,181	14,734	73,222	21,673	58,354
Chattooga	25,736	5,746	3,850	491	1,907	1,508	7,557	2,298	5,335
Clarke	117,344	20,306	10,304	1,736	9,428	5,694	27,647	7,587	42,387
Clayton	261,532	75,912	18,004	6,492	17,867	12,029	59,053	16,738	64,691
Cobb	697,553	176,284	63,277	15,075	49,992	35,696	176,559	51,317	90,520
Columbia	128,112	34,099	13,435	2,916	8,986	6,754	33,610	9,963	10,397
Coweta	129,629	34,644	13,988	2,963	9,085	6,794	33,801	10,021	17,909
Dawson	22,459	4,916	3,389	420	1,670	1,350	6,782	2,072	2,696
DeKalb	699,893	167,000	65,481	14,281	51,213	35,759	176,514	51,016	135,926
Dougherty	94,788	24,417	11,710	2,088	6,742	5,016	24,978	7,439	28,159
Douglas	133,355	37,071	12,007	3,170	9,232	6,623	32,780	9,550	21,281
Floyd	95,989	23,014	13,877	1,968	6,970	5,437	27,221	8,249	18,998
Fulton	949,599	224,779	87,146	19,222	69,694	48,286	238,129	68,614	183,931
Glynn	80,386	19,194	12,517	1,641	5,829	4,711	23,672	7,254	15,542
Gwinnett	824,941	236,737	59,170	20,245	56,500	39,075	192,399	55,042	128,592
Hall	183,052	50,815	21,021	4,345	12,669	9,378	46,655	13,846	31,931
Henry	207,360	58,769	18,185	5,026	14,242	10,243	50,701	14,769	26,739
Houston	143,925	37,920	15,055	3,243	10,154	7,451	36,997	10,900	20,296
Lowndes	111,885	27,151	10,998	2,322	8,165	5,553	27,352	7,865	28,505
Murray	39,557	10,481	4,519	896	2,782	2,088	10,397	3,093	9,694
Muscogee	194,107	49,113	22,416	4,200	13,908	10,133	50,326	14,858	37,083
Paulding	143,542	42,263	10,890	3,614	9,732	6,732	33,164	9,511	16,870
Pike	17,751	4,676	2,276	400	1,247	978	4,895	1,479	2,440
Richmond	201,217	49,653	23,295	4,246	14,530	10,647	52,900	15,636	48,088

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Rockdale	85,765	22,522	9,568	1,926	6,041	4,593	22,893	6,822	13,150
Sumter	32,511	8,121	4,283	694	2,335	1,762	8,787	2,632	8,793
Walker	68,848	15,823	10,697	1,353	5,053	4,065	20,415	6,245	12,463
Washington	21,111	4,907	2,946	420	1,545	1,219	6,108	1,851	5,004
Wilkinson	9,444	2,284	1,525	195	681	566	2,849	880	1,702
Totals	**6,149,368**	**1,569,929**	**599,788**	**134,252**	**439,502**	**313,360**	**1,550,727**	**451,933**	**1,125,729**

GEORGIA

American Lung Association in Georgia

2452 Spring Road
Smyrna, GA 30080-3862
(770) 434-5864
www.lung.org/georgia

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Bibb	10	0	0	3.3	F
Chatham	0	0	0	0.0	A
Chattooga	0	0	0	0.0	A
Clarke	5	0	0	1.7	C
Clayton	DNC	DNC	DNC	DNC	DNC
Cobb	26	0	0	8.7	F
Columbia	1	0	0	0.3	B
Coweta	0	0	0	0.0	A
Dawson	2	0	0	0.7	B
DeKalb	16	1	0	5.8	F
Dougherty	DNC	DNC	DNC	DNC	DNC
Douglas	11	0	0	3.7	F
Floyd	DNC	DNC	DNC	DNC	DNC
Fulton	29	0	0	9.7	F
Glynn	0	0	0	0.0	A
Gwinnett	12	0	0	4.0	F
Hall	DNC	DNC	DNC	DNC	DNC
Henry	15	0	0	5.0	F
Houston	DNC	DNC	DNC	DNC	DNC
Lowndes	DNC	DNC	DNC	DNC	DNC
Murray	6	0	0	2.0	C
Muscogee	1	0	0	0.3	B
Paulding	5	0	0	1.7	C
Pike	INC	INC	INC	INC	INC
Richmond	4	0	0	1.3	C
Rockdale	22	0	0	7.3	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Bibb	1	1	0	0.8	B	13.4	FAIL
Chatham	5	0	0	1.7	C	10.7	PASS
Chattooga	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clarke	0	0	0	0.0	A	10.8	PASS
Clayton	0	0	0	0.0	A	12.6	FAIL
Cobb	1	0	0	0.3	B	11.3	PASS
Columbia	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Coweta	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dawson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
DeKalb	2	1	0	1.2	C	11.9	PASS
Dougherty	4	1	0	1.8	C	12.1	FAIL
Douglas	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Floyd	2	3	0	2.2	D	12.4	FAIL
Fulton	2	0	0	0.7	B	13.3	FAIL
Glynn	3	0	0	1.0	C	INC	INC
Gwinnett	0	0	0	0.0	A	INC	INC
Hall	0	0	0	0.0	A	10.7	PASS
Henry	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Houston	0	0	0	0.0	A	11.3	PASS
Lowndes	2	1	0	1.2	C	10.4	PASS
Murray	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Muscogee	3	0	1	1.7	C	12.7	FAIL
Paulding	0	0	0	0.0	A	INC	INC
Pike	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Richmond	1	1	0	0.8	B	INC	INC
Rockdale	DNC	DNC	DNC	DNC	DNC	DNC	DNC

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Sumter	0	0	0	0.0	A
Walker	DNC	DNC	DNC	DNC	DNC
Washington	DNC	DNC	DNC	DNC	DNC
Wilkinson	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Sumter	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Walker	0	0	0	0.0	A	10.1	PASS
Washington	2	0	0	0.7	B	INC	INC
Wilkinson	1	1	1	1.5	C	13.1	FAIL

HAWAII

American Lung Association in Hawaii

650 Iwilei Rd., Suite 208
Honolulu, HI 96817
(808) 537 5966
www.lung.org/hawaii

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Hawaii	186,738	42,115	28,273	4,601	13,767	6,663	47,413	12,952	37,428
Honolulu	963,607	211,553	142,830	23,113	71,860	33,084	231,505	63,028	95,769
Kauai	67,701	15,179	10,512	1,658	4,993	2,426	17,290	4,728	8,637
Maui	156,674	35,757	20,902	3,907	11,595	5,408	37,965	10,311	19,773
Totals	**1,374,720**	**304,604**	**202,517**	**33,279**	**102,215**	**47,581**	**334,173**	**91,019**	**161,607**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Hawaii	DNC	DNC	DNC	DNC	DNC
Honolulu	0	0	0	0.0	A
Kauai	DNC	DNC	DNC	DNC	DNC
Maui	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Hawaii	30	5	0	12.5	F	15.5	FAIL
Honolulu	1	1	0	0.8	B	8.6	PASS
Kauai	INC	INC	INC	INC	INC	INC	INC
Maui	0	0	0	0.0	A	4.9	PASS

HAWAII

IDAHO

American Lung Association in Idaho

1412 W. Idaho St. Suite 100
Boise, ID 83702
(208) 345-5864
www.lung.org/idaho

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Ada	400,842	104,383	43,497	8,926	27,301	14,921	91,815	26,841	52,376
Bannock	83,691	22,648	9,540	1,937	5,642	3,055	18,778	5,453	15,222
Benewah	9,209	2,149	1,770	184	655	444	2,659	811	1,485
Butte	2,822	768	496	66	190	128	768	234	454
Canyon	191,694	59,721	21,495	5,107	12,204	6,713	41,167	11,997	37,796
Cassia	23,186	7,584	3,004	649	1,446	850	5,165	1,527	3,797
Franklin	12,850	4,479	1,673	383	777	459	2,783	822	1,410
Kootenai	141,132	34,426	20,979	2,944	9,870	5,984	36,289	10,829	22,370
Lemhi	7,967	1,548	1,821	132	598	428	2,545	783	1,484
Power	7,766	2,396	965	205	496	291	1,771	525	1,320
Shoshone	12,672	2,619	2,555	224	934	633	3,786	1,153	2,449
Totals	**893,831**	**242,721**	**107,795**	**20,757**	**60,113**	**33,906**	**207,526**	**60,975**	**140,163**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Ada	2	0	0	0.7	B
Bannock	DNC	DNC	DNC	DNC	DNC
Benewah	DNC	DNC	DNC	DNC	DNC
Butte	0	0	0	0.0	A
Canyon	DNC	DNC	DNC	DNC	DNC
Cassia	INC	INC	INC	INC	INC
Franklin	DNC	DNC	DNC	DNC	DNC
Kootenai	0	0	0	0.0	A
Lemhi	DNC	DNC	DNC	DNC	DNC
Power	DNC	DNC	DNC	DNC	DNC
Shoshone	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Ada	4	0	0	1.3	C	6.1	PASS
Bannock	1	0	0	0.3	B	5.2	PASS
Benewah	10	0	0	3.3	F	9.0	PASS
Butte	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Canyon	1	0	0	0.3	B	7.4	PASS
Cassia	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Franklin	11	5	0	6.2	F	INC	INC
Kootenai	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lemhi	30	2	0	11.0	F	10.9	PASS
Power	INC	INC	INC	INC	INC	INC	INC
Shoshone	44	2	0	15.7	F	12.0	PASS

ILLINOIS

American Lung Association in Illinois

55 W. Wacker Drive, Suite 800
Chicago, IL 60601
(312) 781-1100
www.lung.org/illinois

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Adams	67,159	15,339	11,760	1,107	4,244	3,377	19,304	5,662	10,322
Champaign	201,685	38,396	20,510	2,771	13,126	9,058	47,461	13,347	43,484
Clark	16,161	3,644	2,902	263	1,028	825	4,752	1,396	1,965
Cook	5,217,080	1,224,813	630,614	88,378	324,343	237,430	1,305,527	374,196	912,067
DuPage	923,222	225,318	110,060	16,258	57,088	42,441	238,798	68,728	71,040
Effingham	34,280	8,320	5,228	600	2,126	1,653	9,414	2,744	3,616
Hamilton	8,425	1,897	1,684	137	536	441	2,551	754	1,287
Jersey	22,916	5,117	3,703	369	1,459	1,142	6,522	1,904	2,176
Jo Daviess	22,712	4,641	4,888	335	1,492	1,253	7,366	2,188	2,176
Kane	520,271	149,064	51,806	10,756	30,227	21,843	120,591	34,419	64,580
Lake	706,222	189,497	76,101	13,673	42,244	31,047	174,023	49,916	76,376
LaSalle	113,518	25,900	18,743	1,869	7,184	5,660	32,393	9,475	12,857
McHenry	308,944	82,475	32,719	5,951	18,546	13,646	76,875	22,055	24,568
McLean	170,556	38,046	17,668	2,745	10,720	7,577	40,796	11,565	24,148
Macon	110,730	25,115	18,284	1,812	7,015	5,517	31,501	9,210	15,842
Macoupin	47,687	10,628	8,138	767	3,041	2,411	13,841	4,055	5,835
Madison	268,459	60,495	38,869	4,365	16,994	12,964	73,098	21,199	37,085
Peoria	186,834	45,007	26,188	3,248	11,567	8,766	49,092	14,213	33,143
Randolph	33,361	6,545	5,440	472	2,194	1,703	9,666	2,816	4,959
Rock Island	147,556	33,032	24,224	2,383	9,374	7,342	41,781	12,204	20,095
St. Clair	270,259	67,679	34,191	4,883	16,545	12,390	69,504	20,049	50,598
Sangamon	198,844	46,658	27,853	3,367	12,460	9,510	53,915	15,635	31,318
Will	681,545	193,737	66,075	13,979	39,759	28,674	158,677	45,259	56,362
Winnebago	293,993	72,393	41,722	5,224	18,124	13,870	78,433	22,764	55,353
Totals	**10,572,419**	**2,573,756**	**1,279,370**	**185,712**	**651,436**	**480,540**	**2,665,881**	**765,753**	**1,561,252**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Adams	1	0	0	0.3	B
Champaign	4	0	0	1.3	C
Clark	0	0	0	0.0	A
Cook	24	1	0	8.5	F
DuPage	1	0	0	0.3	B
Effingham	0	0	0	0.0	A
Hamilton	5	0	0	1.7	C
Jersey	4	0	0	1.3	C
Jo Daviess	INC	INC	INC	INC	INC
Kane	2	0	0	0.7	B
Lake	10	0	0	3.3	F
LaSalle	DNC	DNC	DNC	DNC	DNC
McHenry	1	0	0	0.3	B
McLean	1	0	0	0.3	B
Macon	2	0	0	0.7	B
Macoupin	4	0	0	1.3	C
Madison	30	0	0	10.0	F
Peoria	1	0	0	0.3	B
Randolph	0	0	0	0.0	A
Rock Island	0	0	0	0.0	A
St. Clair	6	1	0	2.5	D
Sangamon	4	0	0	1.3	C
Will	1	0	0	0.3	B
Winnebago	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Adams	0	0	0	0.0	A	9.7	PASS
Champaign	0	0	0	0.0	A	10.4	PASS
Clark	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cook	15	0	0	5.0	F	12.7	FAIL
DuPage	0	0	0	0.0	A	10.7	PASS
Effingham	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hamilton	0	0	0	0.0	A	10.5	PASS
Jersey	0	0	0	0.0	A	10.5	PASS
Jo Daviess	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kane	0	0	0	0.0	A	10.8	PASS
Lake	INC	INC	INC	INC	INC	INC	INC
LaSalle	INC	INC	INC	INC	INC	INC	INC
McHenry	0	0	0	0.0	A	10.0	PASS
McLean	1	0	0	0.3	B	10.5	PASS
Macon	0	0	0	0.0	A	11.6	PASS
Macoupin	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Madison	4	0	0	1.3	C	13.5	FAIL
Peoria	0	0	0	0.0	A	11.3	PASS
Randolph	0	0	0	0.0	A	9.8	PASS
Rock Island	0	0	0	0.0	A	9.8	PASS
St. Clair	2	0	0	0.7	B	12.5	FAIL
Sangamon	0	0	0	0.0	A	10.9	PASS
Will	1	0	0	0.3	B	10.8	PASS
Winnebago	3	0	0	1.0	C	9.9	PASS

INDIANA

American Lung Association in Indiana

115 W. Washington Street, Suite 1180 South
Indianapolis, IN 46204
(317) 819-1181
www.lung.org/indiana

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Allen	358,327	95,826	43,014	9,069	25,176	21,559	92,036	26,508	60,699
Boone	57,481	15,930	6,568	1,508	4,001	3,522	15,001	4,360	4,588
Carroll	20,031	4,800	3,232	454	1,461	1,364	5,896	1,727	2,291
Clark	111,570	26,371	14,384	2,496	8,176	7,101	30,351	8,771	14,322
Delaware	117,660	23,189	17,641	2,195	9,011	7,631	32,829	9,386	25,079
Dubois	42,199	10,575	6,225	1,001	3,035	2,772	11,936	3,484	3,432
Elkhart	198,941	56,316	24,603	5,330	13,665	11,766	50,364	14,508	35,641
Floyd	74,989	17,643	9,894	1,670	5,511	4,882	20,882	6,066	9,418
Gibson	33,505	7,971	5,193	754	2,448	2,237	9,650	2,814	3,766
Greene	32,895	7,720	5,285	731	2,414	2,237	9,666	2,827	4,659
Hamilton	282,810	83,833	25,168	7,934	19,149	15,812	66,717	19,129	12,909
Hancock	70,529	18,066	9,239	1,710	5,043	4,507	19,295	5,616	5,229
Hendricks	147,979	39,780	16,309	3,765	10,396	8,841	37,589	10,829	8,106
Henry	49,264	10,913	8,101	1,033	3,675	3,391	14,657	4,280	8,496
Howard	82,800	19,274	13,840	1,824	6,084	5,653	24,478	7,155	14,065
Huntington	37,211	8,663	5,527	820	2,737	2,460	10,587	3,078	4,203
Jackson	42,966	10,510	6,206	995	3,110	2,773	11,927	3,460	5,931
Johnson	141,656	36,833	17,773	3,486	10,053	8,696	37,184	10,732	12,894
Knox	38,500	8,155	6,117	772	2,902	2,592	11,185	3,241	7,036
Lake	495,558	125,473	66,423	11,875	35,502	31,331	134,320	38,931	94,261
LaPorte	111,374	24,968	16,138	2,363	8,289	7,407	31,815	9,243	18,113
Madison	131,235	29,834	20,577	2,824	9,705	8,735	37,699	10,946	23,553
Marion	911,296	228,998	97,604	21,673	65,410	53,638	227,597	64,921	189,843
Monroe	139,799	22,435	14,487	2,123	11,183	8,254	34,820	9,621	30,806
Morgan	69,464	17,078	9,398	1,616	5,037	4,538	19,442	5,669	7,629

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Perry	19,354	4,071	2,983	385	1,466	1,326	5,709	1,662	2,401
Porter	165,537	39,335	21,064	3,723	12,124	10,606	45,301	13,124	17,438
Posey	25,720	5,959	3,792	564	1,901	1,760	7,564	2,218	3,158
St. Joseph	266,700	65,074	35,727	6,159	19,312	16,731	71,712	20,679	49,884
Shelby	44,337	10,662	6,250	1,009	3,235	2,926	12,561	3,663	5,530
Spencer	20,961	4,982	3,219	472	1,536	1,431	6,165	1,808	2,223
Tippecanoe	174,724	35,661	16,737	3,375	13,264	9,845	41,483	11,492	34,239
Vanderburgh	180,305	39,801	26,030	3,767	13,454	11,799	50,683	14,648	26,795
Vigo	108,182	22,777	14,563	2,156	8,169	6,897	29,518	8,456	18,926
Wabash	32,608	7,300	6,012	691	2,418	2,276	9,907	2,897	4,925
Warrick	60,275	15,300	8,373	1,448	4,322	3,925	16,848	4,918	5,189
Whitley	33,392	8,084	4,820	765	2,432	2,219	9,536	2,786	3,062
Totals	**4,932,134**	**1,210,160**	**618,516**	**114,535**	**356,806**	**305,440**	**1,304,910**	**375,653**	**780,739**

INDIANA

American Lung Association in Indiana

115 W. Washington Street, Suite 1180 South
Indianapolis, IN 46204
(317) 819-1181
www.lung.org/indiana

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Allen	3	0	0	1.0	C
Boone	2	0	0	0.7	B
Carroll	2	0	0	0.7	B
Clark	9	0	0	3.0	D
Delaware	0	0	0	0.0	A
Dubois	DNC	DNC	DNC	DNC	DNC
Elkhart	3	0	0	1.0	C
Floyd	7	0	0	2.3	D
Gibson	DNC	DNC	DNC	DNC	DNC
Greene	7	0	0	2.3	D
Hamilton	2	0	0	0.7	B
Hancock	1	0	0	0.3	B
Hendricks	1	0	0	0.3	B
Henry	DNC	DNC	DNC	DNC	DNC
Howard	DNC	DNC	DNC	DNC	DNC
Huntington	0	0	0	0.0	A
Jackson	1	0	0	0.3	B
Johnson	1	0	0	0.3	B
Knox	INC	INC	INC	INC	INC
Lake	3	0	0	1.0	C
LaPorte	11	0	0	3.7	F
Madison	0	0	0	0.0	A
Marion	9	0	0	3.0	D
Monroe	DNC	DNC	DNC	DNC	DNC
Morgan	1	0	0	0.3	B

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Allen	9	0	0	3.0	D	11.0	PASS
Boone	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carroll	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clark	1	0	0	0.3	B	13.5	FAIL
Delaware	1	0	0	0.3	B	11.7	PASS
Dubois	1	0	0	0.3	B	12.9	FAIL
Elkhart	4	0	0	1.3	C	11.7	PASS
Floyd	6	1	0	2.5	D	12.3	FAIL
Gibson	0	0	0	0.0	A	11.4	PASS
Greene	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hamilton	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hancock	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hendricks	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Henry	1	0	0	0.3	B	11.1	PASS
Howard	1	0	0	0.3	B	11.6	PASS
Huntington	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jackson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Johnson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Knox	0	0	0	0.0	A	11.7	PASS
Lake	16	2	0	6.3	F	12.4	FAIL
LaPorte	0	0	0	0.0	A	10.2	PASS
Madison	2	0	0	0.7	B	INC	INC
Marion	17	0	0	5.7	F	13.1	FAIL
Monroe	0	0	0	0.0	A	INC	INC
Morgan	DNC	DNC	DNC	DNC	DNC	DNC	DNC

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Perry	6	0	0	2.0	C
Porter	4	0	0	1.3	C
Posey	5	0	0	1.7	C
St. Joseph	2	0	0	0.7	B
Shelby	6	0	0	2.0	C
Spencer	DNC	DNC	DNC	DNC	DNC
Tippecanoe	DNC	DNC	DNC	DNC	DNC
Vanderburgh	7	0	0	2.3	D
Vigo	1	0	0	0.3	B
Wabash	INC	INC	INC	INC	INC
Warrick	5	0	0	1.7	C
Whitley	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Perry	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Porter	4	1	0	1.8	C	11.1	PASS
Posey	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Joseph	13	0	0	4.3	F	11.0	PASS
Shelby	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Spencer	0	0	0	0.0	A	12.4	FAIL
Tippecanoe	3	0	0	1.0	C	11.0	PASS
Vanderburgh	2	0	0	0.7	B	12.7	FAIL
Vigo	6	0	0	2.0	C	12.4	FAIL
Wabash	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Warrick	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Whitley	INC	INC	INC	INC	INC	INC	INC

IOWA

American Lung Association in Iowa

2530 73rd Street
Des Moines, IA 50322
(515) 309-9507
www.lung.org/iowa

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Black Hawk	131,549	28,007	18,251	1,612	8,697	4,973	31,470	7,808	20,634
Bremer	24,281	5,401	4,254	311	1,556	991	6,313	1,618	1,709
Clinton	49,015	11,444	8,244	659	3,074	2,021	12,840	3,344	6,540
Delaware	17,658	4,375	2,985	252	1,079	733	4,655	1,227	1,827
Harrison	14,828	3,480	2,632	200	922	628	3,995	1,052	1,477
Johnson	133,038	25,821	11,684	1,486	9,276	4,414	27,614	6,368	21,986
Lee	35,621	7,751	6,125	446	2,276	1,509	9,583	2,504	5,255
Linn	213,875	52,054	28,164	2,996	13,513	7,959	50,261	12,663	22,076
Montgomery	10,640	2,462	2,114	142	660	466	2,975	787	1,496
Muscatine	42,815	11,153	5,937	642	2,619	1,621	10,249	2,629	5,644
Palo Alto	9,419	2,067	2,015	119	594	417	2,675	703	1,027
Polk	437,399	111,192	47,984	6,400	27,512	15,284	96,074	23,770	53,570
Pottawattamie	93,518	22,450	13,567	1,292	5,879	3,643	23,054	5,910	13,205
Scott	167,095	40,617	22,096	2,338	10,521	6,318	39,868	10,134	22,515
Story	89,663	15,599	9,111	898	6,417	3,040	19,108	4,365	17,394
Tama	17,695	4,476	3,271	258	1,074	734	4,684	1,228	1,887
Van Buren	7,510	1,775	1,474	102	464	324	2,072	547	1,211
Warren	46,732	11,918	6,399	686	2,885	1,768	11,175	2,858	2,905
Woodbury	102,509	27,088	13,190	1,559	6,296	3,715	23,466	5,915	16,658
Wright	13,068	3,024	2,749	174	809	577	3,698	978	1,513
Totals	**1,657,928**	**392,154**	**212,246**	**22,572**	**106,123**	**61,135**	**385,829**	**96,408**	**220,529**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Black Hawk	DNC	DNC	DNC	DNC	DNC
Bremer	0	0	0	0.0	A
Clinton	0	0	0	0.0	A
Delaware	DNC	DNC	DNC	DNC	DNC
Harrison	1	0	0	0.3	B
Johnson	DNC	DNC	DNC	DNC	DNC
Lee	DNC	DNC	DNC	DNC	DNC
Linn	0	0	0	0.0	A
Montgomery	0	0	0	0.0	A
Muscatine	DNC	DNC	DNC	DNC	DNC
Palo Alto	0	0	0	0.0	A
Polk	0	0	0	0.0	A
Pottawattamie	DNC	DNC	DNC	DNC	DNC
Scott	0	0	0	0.0	A
Story	0	0	0	0.0	A
Tama	DNC	DNC	DNC	DNC	DNC
Van Buren	0	0	0	0.0	A
Warren	0	0	0	0.0	A
Woodbury	DNC	DNC	DNC	DNC	DNC
Wright	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Black Hawk	5	0	0	1.7	C	10.6	PASS
Bremer	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clinton	10	0	0	3.3	F	11.7	PASS
Delaware	INC	INC	INC	INC	INC	INC	INC
Harrison	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Johnson	4	0	0	1.3	C	10.8	PASS
Lee	2	0	0	0.7	B	11.1	PASS
Linn	9	0	0	3.0	D	10.6	PASS
Montgomery	1	0	0	0.3	B	9.4	PASS
Muscatine	19	4	0	8.3	F	12.8	FAIL
Palo Alto	1	0	0	0.3	B	9.0	PASS
Polk	4	0	0	1.3	C	9.7	PASS
Pottawattamie	2	0	0	0.7	B	10.9	PASS
Scott	7	0	0	2.3	D	12.2	FAIL
Story	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tama	INC	INC	INC	INC	INC	INC	INC
Van Buren	1	0	0	0.3	B	9.6	PASS
Warren	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Woodbury	2	0	0	0.7	B	9.7	PASS
Wright	INC	INC	INC	INC	INC	INC	INC

KANSAS

American Lung Association in Kansas

6701 W 64th Street Suite 110
Cloverleaf Office Park Building #5
Overland Park, Kansas 66202
(913) 912-7190
www.lung.org/kansas

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Johnson	552,991	143,801	62,036	11,725	35,968	26,637	134,447	38,025	36,471
Leavenworth	77,176	18,938	8,780	1,544	5,116	3,799	19,173	5,427	8,053
Linn	9,612	2,213	1,886	180	623	559	2,886	843	1,394
Riley	72,997	13,219	5,354	1,078	5,580	2,983	14,651	3,762	13,222
Sedgwick	501,076	135,140	58,539	11,019	32,176	23,789	120,293	33,967	75,065
Shawnee	178,941	44,086	26,118	3,595	11,675	9,271	47,281	13,531	25,419
Sumner	23,787	6,135	3,778	500	1,508	1,270	6,509	1,884	3,155
Trego	2,930	560	673	46	196	188	979	289	306
Wyandotte	158,224	44,722	16,945	3,647	10,045	7,197	36,278	10,173	40,668
Totals	**1,577,734**	**408,814**	**184,109**	**33,334**	**102,887**	**75,693**	**382,497**	**107,901**	**203,753**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Johnson	4	0	0	1.3	C
Leavenworth	4	0	0	1.3	C
Linn	3	0	0	1.0	C
Riley	INC	INC	INC	INC	INC
Sedgwick	13	0	0	4.3	F
Shawnee	6	0	0	2.0	C
Sumner	9	0	0	3.0	D
Trego	6	0	0	2.0	C
Wyandotte	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Johnson	0	0	0	0.0	A	8.1	PASS
Leavenworth	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Linn	0	0	0	0.0	A	9.4	PASS
Riley	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sedgwick	0	0	0	0.0	A	9.1	PASS
Shawnee	2	0	0	0.7	B	9.2	PASS
Sumner	0	0	0	0.0	A	8.6	PASS
Trego	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wyandotte	0	0	0	0.0	A	10.4	PASS

KENTUCKY

American Lung Association in Kentucky

4100 Churchman Avenue
Louisville, KY 40215
(502) 363-2652
www.lung.org/kentucky

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Bell	28,725	6,284	4,580	537	2,376	2,302	9,593	2,585	11,524
Boone	121,737	34,015	12,003	2,909	9,110	8,478	34,518	8,981	10,513
Boyd	49,466	10,564	8,327	903	4,133	4,032	16,854	4,566	9,665
Bullitt	75,109	18,448	8,706	1,578	5,939	5,631	23,045	6,092	8,071
Campbell	90,940	20,572	11,586	1,759	7,344	6,915	28,459	7,487	11,549
Carter	27,586	6,339	4,221	542	2,241	2,156	8,975	2,405	5,566
Christian	73,591	20,784	7,782	1,777	5,363	4,782	19,675	4,945	16,118
Daviess	97,234	23,629	14,321	2,021	7,766	7,475	31,062	8,325	15,116
Edmonson	12,090	2,632	2,015	225	1,004	978	4,086	1,106	2,280
Fayette	301,569	63,371	31,999	5,419	24,323	21,902	89,440	22,640	51,191
Franklin	49,393	10,532	7,088	901	4,095	3,928	16,247	4,340	7,221
Greenup	36,865	8,142	6,406	696	3,061	3,006	12,598	3,430	6,333
Hancock	8,572	2,195	1,205	188	676	655	2,712	730	1,091
Hardin	107,456	27,508	11,933	2,352	8,311	7,756	31,744	8,285	15,113
Henderson	46,406	10,852	6,637	928	3,757	3,624	15,005	4,026	7,588
Jefferson	746,906	172,038	100,883	14,712	60,213	57,108	235,913	62,461	126,603
Jessamine	49,046	12,530	5,787	1,072	3,802	3,561	14,629	3,832	8,110
Kenton	160,406	39,846	18,078	3,407	12,550	11,746	48,071	12,575	25,305
Livingston	9,531	1,957	1,749	167	815	814	3,411	940	1,464
McCracken	65,864	14,605	11,142	1,249	5,457	5,344	22,356	6,074	11,095
Madison	84,188	17,899	9,676	1,531	6,794	6,167	25,294	6,453	16,317
Morgan	13,943	2,803	1,841	240	1,161	1,090	4,491	1,179	3,797
Ohio	24,103	6,027	3,809	515	1,915	1,857	7,761	2,094	5,354
Oldham	60,642	16,401	5,854	1,403	4,659	4,449	18,023	4,784	3,604
Perry	28,751	6,276	3,905	537	2,367	2,267	9,346	2,493	7,016

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Pike	64,904	14,139	9,190	1,209	5,361	5,162	21,328	5,714	14,305
Pulaski	63,657	14,407	10,569	1,232	5,231	5,101	21,330	5,778	15,260
Simpson	17,378	4,198	2,590	359	1,393	1,346	5,594	1,503	2,795
Trigg	14,305	3,134	2,806	268	1,204	1,206	5,094	1,408	2,325
Warren	115,517	26,081	12,945	2,230	9,162	8,310	34,070	8,685	20,634
Washington	11,846	2,739	1,927	234	968	945	3,944	1,069	1,965
Totals	**2,657,726**	**620,947**	**341,560**	**53,100**	**212,551**	**200,093**	**824,668**	**216,985**	**444,888**

KENTUCKY

American Lung Association in Kentucky

4100 Churchman Avenue
Louisville, KY 40215
(502) 363-2652
www.lung.org/kentucky

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Bell	0	0	0	0.0	A
Boone	1	0	0	0.3	B
Boyd	3	0	0	1.0	C
Bullitt	2	1	0	1.2	C
Campbell	13	0	0	4.3	F
Carter	0	0	0	0.0	A
Christian	3	0	0	1.0	C
Daviess	6	0	0	2.0	C
Edmonson	2	0	0	0.7	B
Fayette	3	0	0	1.0	C
Franklin	DNC	DNC	DNC	DNC	DNC
Greenup	3	0	0	1.0	C
Hancock	5	0	0	1.7	C
Hardin	0	0	0	0.0	A
Henderson	7	0	0	2.3	D
Jefferson	32	2	0	11.7	F
Jessamine	2	0	0	0.7	B
Kenton	INC	INC	INC	INC	INC
Livingston	3	0	0	1.0	C
McCracken	4	0	0	1.3	C
Madison	DNC	DNC	DNC	DNC	DNC
Morgan	INC	INC	INC	INC	INC
Ohio	DNC	DNC	DNC	DNC	DNC
Oldham	19	1	0	6.8	F
Perry	0	0	0	0.0	A
Pike	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Bell	1	0	0	0.3	B	11.3	PASS
Boone	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Boyd	0	0	0	0.0	A	10.8	PASS
Bullitt	1	0	0	0.3	B	12.2	FAIL
Campbell	0	0	0	0.0	A	11.1	PASS
Carter	0	0	0	0.0	A	9.1	PASS
Christian	0	0	0	0.0	A	INC	INC
Daviess	0	0	0	0.0	A	12.3	FAIL
Edmonson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fayette	1	0	0	0.3	B	11.2	PASS
Franklin	0	0	0	0.0	A	INC	INC
Greenup	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hancock	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hardin	0	0	0	0.0	A	11.1	PASS
Henderson	0	0	0	0.0	A	11.7	PASS
Jefferson	4	1	0	1.8	C	12.8	FAIL
Jessamine	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kenton	INC	INC	INC	INC	INC	INC	INC
Livingston	DNC	DNC	DNC	DNC	DNC	DNC	DNC
McCracken	0	0	0	0.0	A	11.1	PASS
Madison	0	0	0	0.0	A	9.9	PASS
Morgan	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ohio	INC	INC	INC	INC	INC	INC	INC
Oldham	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Perry	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pike	1	0	0	0.3	B	9.7	PASS

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Pulaski	0	0	0	0.0	A
Simpson	4	0	0	1.3	C
Trigg	3	0	0	1.0	C
Warren	0	0	0	0.0	A
Washington	INC	INC	INC	INC	INC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Pulaski	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Simpson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Trigg	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Warren	0	0	0	0.0	A	11.0	PASS
Washington	DNC	DNC	DNC	DNC	DNC	DNC	DNC

LOUISIANA

American Lung Association in Louisiana

2325 Severn Avenue, Suite 8
Metairie, LA 70001-6918
(504) 828-5864
www.lung.org/louisiana

AT-RISK GROUPS

				Lung Diseases					
Parish	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Ascension Parish	109,985	31,178	9,982	2,482	5,084	5,194	30,674	8,774	12,525
Bossier Parish	119,732	30,550	14,414	2,432	5,719	6,029	35,750	10,328	16,586
Caddo Parish	257,051	63,116	35,081	5,025	12,500	13,583	80,766	23,492	54,083
Calcasieu Parish	194,092	48,760	24,964	3,882	9,383	10,118	60,103	17,441	35,936
East Baton Rouge Parish	441,438	101,644	49,303	8,093	21,698	22,265	131,684	37,802	86,972
Iberville Parish	33,230	7,365	4,076	586	1,676	1,788	10,605	3,066	6,759
Jefferson Parish	432,640	96,677	59,942	7,697	21,746	23,726	141,077	41,038	77,700
Lafayette Parish	224,390	54,588	23,424	4,346	10,892	11,171	66,031	18,931	38,327
Lafourche Parish	96,666	23,418	12,324	1,864	4,726	5,071	30,107	8,726	16,227
Livingston Parish	130,251	35,342	13,412	2,814	6,111	6,334	37,469	10,764	16,980
Orleans Parish	360,740	77,248	40,444	6,150	18,192	18,774	111,052	31,892	100,078
Ouachita Parish	154,919	40,509	19,380	3,225	7,339	7,810	46,352	13,423	39,183
Pointe Coupee Parish	22,703	5,470	3,568	436	1,127	1,289	7,694	2,260	4,927
Rapides Parish	132,374	34,030	18,279	2,709	6,356	6,976	41,509	12,097	30,038
St. Bernard Parish	39,558	10,183	3,584	811	1,889	1,909	11,262	3,214	7,695
St. Charles Parish	52,517	13,894	5,370	1,106	2,519	2,661	15,756	4,537	6,555
St. James Parish	21,784	5,509	2,874	439	1,059	1,164	6,922	2,015	4,467
St. John the Baptist Parish	45,221	12,009	4,865	956	2,157	2,282	13,521	3,899	7,642
St. Tammany Parish	236,785	59,886	30,950	4,768	11,555	12,742	75,782	22,060	27,765
Tangipahoa Parish	122,571	30,626	14,312	2,438	5,909	6,208	36,787	10,612	27,198
Terrebonne Parish	111,917	28,896	12,817	2,301	5,361	5,669	33,605	9,701	21,271
West Baton Rouge Parish	24,109	5,978	2,718	476	1,173	1,239	7,340	2,117	3,656
Totals	**3,364,673**	**816,876**	**406,083**	**65,036**	**164,171**	**174,002**	**1,031,848**	**298,189**	**642,570**

HIGH OZONE DAYS 2009–2011

Parish	Orange	Red	Purple	Wgt. Avg	Grade
Ascension Parish	15	0	0	5.0	F
Bossier Parish	26	1	0	9.2	F
Caddo Parish	13	0	0	4.3	F
Calcasieu Parish	15	1	0	5.5	F
East Baton Rouge Parish	28	0	0	9.3	F
Iberville Parish	20	0	0	6.7	F
Jefferson Parish	12	0	0	4.0	F
Lafayette Parish	7	0	0	2.3	D
Lafourche Parish	5	0	0	1.7	C
Livingston Parish	11	0	0	3.7	F
Orleans Parish	2	0	0	0.7	B
Ouachita Parish	0	0	0	0.0	A
Pointe Coupee Parish	12	0	0	4.0	F
Rapides Parish	DNC	DNC	DNC	DNC	DNC
St. Bernard Parish	9	0	0	3.0	D
St. Charles Parish	4	0	0	1.3	C
St. James Parish	4	0	0	1.3	C
St. John the Baptist Parish	8	0	0	2.7	D
St. Tammany Parish	11	0	0	3.7	F
Tangipahoa Parish	DNC	DNC	DNC	DNC	DNC
Terrebonne Parish	DNC	DNC	DNC	DNC	DNC
West Baton Rouge Parish	2	1	0	1.2	C

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
Parish	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Ascension Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Bossier Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Caddo Parish	0	0	0	0.0	A	11.1	PASS
Calcasieu Parish	0	0	0	0.0	A	9.1	PASS
East Baton Rouge Parish	2	0	0	0.7	B	10.2	PASS
Iberville Parish	0	0	0	0.0	A	10.0	PASS
Jefferson Parish	1	0	0	0.3	B	9.2	PASS
Lafayette Parish	1	0	0	0.3	B	9.1	PASS
Lafourche Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Livingston Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Orleans Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ouachita Parish	0	0	0	0.0	A	9.2	PASS
Pointe Coupee Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rapides Parish	1	0	0	0.3	B	8.7	PASS
St. Bernard Parish	1	0	0	0.3	B	10.6	PASS
St. Charles Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. James Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. John the Baptist Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Tammany Parish	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tangipahoa Parish	0	0	0	0.0	A	8.9	PASS
Terrebonne Parish	0	0	0	0.0	A	8.6	PASS
West Baton Rouge Parish	2	0	0	0.7	B	10.8	PASS

MAINE

American Lung Association in Maine

122 State Street
Augusta, ME 04330
(207) 624-0308
www.lung.org/maine

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Androscoggin	107,398	23,943	15,366	2,048	10,156	6,345	28,434	7,712	16,815
Aroostook	71,482	14,108	13,931	1,206	6,770	4,770	21,619	5,946	12,738
Cumberland	282,401	57,638	41,330	4,929	27,308	17,191	77,026	20,912	33,225
Hancock	54,578	9,758	10,292	834	5,299	3,717	16,801	4,621	7,375
Kennebec	121,935	24,783	19,296	2,119	11,686	7,670	34,464	9,406	15,078
Knox	39,708	7,555	7,828	646	3,784	2,696	12,219	3,365	4,976
Oxford	57,695	12,084	9,957	1,033	5,416	3,742	16,873	4,633	9,363
Penobscot	153,786	29,964	22,632	2,562	15,107	9,326	41,790	11,315	25,161
Piscataquis	17,419	3,270	3,676	280	1,646	1,226	5,570	1,542	3,332
Sagadahoc	35,207	7,144	6,059	611	3,342	2,282	10,289	2,821	4,071
Washington	32,637	6,408	6,502	548	3,085	2,201	9,985	2,750	6,862
York	198,199	41,442	31,206	3,544	18,823	12,448	55,930	15,280	19,912
Totals	**1,172,445**	**238,097**	**188,075**	**20,360**	**112,422**	**73,614**	**331,000**	**90,303**	**158,908**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Androscoggin	0	0	0	0.0	A
Aroostook	0	0	0	0.0	A
Cumberland	4	1	0	1.8	C
Hancock	9	0	0	3.0	D
Kennebec	1	0	0	0.3	B
Knox	4	0	0	1.3	C
Oxford	0	0	0	0.0	A
Penobscot	1	0	0	0.3	B
Piscataquis	DNC	DNC	DNC	DNC	DNC
Sagadahoc	0	0	0	0.0	A
Washington	2	0	0	0.7	B
York	7	0	0	2.3	D

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Androscoggin	1	0	0	0.3	B	7.5	PASS
Aroostook	1	1	0	0.8	B	7.1	PASS
Cumberland	1	0	0	0.3	B	8.2	PASS
Hancock	0	0	0	0.0	A	4.5	PASS
Kennebec	0	0	0	0.0	A	7.3	PASS
Knox	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Oxford	0	1	0	0.5	B	8.2	PASS
Penobscot	0	0	0	0.0	A	7.3	PASS
Piscataquis	1	0	0	0.3	B	INC	INC
Sagadahoc	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washington	DNC	DNC	DNC	DNC	DNC	DNC	DNC
York	DNC	DNC	DNC	DNC	DNC	DNC	DNC

MARYLAND

American Lung Association in Maryland

211 E. Lombard St., #260
Baltimore, MD 21202
(443) 451-4950
www.lung.org/maryland

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Anne Arundel	544,403	125,245	66,021	11,539	35,444	24,807	142,768	39,768	34,384
Baltimore	809,941	176,310	118,754	16,244	53,285	38,793	223,050	62,804	75,736
Calvert	89,256	22,672	10,171	2,089	5,601	4,001	23,395	6,553	5,418
Carroll	167,288	39,877	22,647	3,674	10,666	7,878	46,025	13,005	8,937
Cecil	101,694	24,959	12,324	2,300	6,467	4,602	26,674	7,464	9,690
Charles	149,130	38,415	14,638	3,539	9,410	6,352	36,543	10,074	11,380
Dorchester	32,640	7,068	5,840	651	2,120	1,670	9,741	2,797	5,608
Frederick	236,745	58,529	27,060	5,393	15,064	10,531	60,854	16,945	15,326
Garrett	30,051	6,480	5,334	597	1,956	1,534	8,936	2,563	3,529
Harford	246,489	59,086	31,665	5,444	15,763	11,356	65,860	18,490	20,309
Kent	20,204	3,517	4,540	324	1,374	1,134	6,579	1,910	2,618
Montgomery	989,794	234,924	124,682	21,645	63,734	45,090	259,520	72,506	65,679
Prince George's	871,233	205,072	85,448	18,894	56,941	37,369	212,058	57,958	79,674
Washington	148,203	33,527	21,414	3,089	9,636	7,037	40,553	11,427	16,475
Worcester	51,514	9,237	12,155	851	3,452	2,967	17,410	5,096	6,578
Baltimore City	619,493	133,562	72,795	12,306	41,431	27,835	157,273	43,290	146,101
Totals	**5,108,078**	**1,178,480**	**635,488**	**108,579**	**332,344**	**232,956**	**1,337,239**	**372,650**	**507,442**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Anne Arundel	19	3	0	7.8	F
Baltimore	32	2	0	11.7	F
Calvert	13	2	0	5.3	F
Carroll	11	0	0	3.7	F
Cecil	20	1	0	7.2	F
Charles	13	1	0	4.8	F
Dorchester	INC	INC	INC	INC	INC
Frederick	13	0	0	4.3	F
Garrett	6	0	0	2.0	C
Harford	46	10	0	20.3	F
Kent	13	1	0	4.8	F
Montgomery	10	0	0	3.3	F
Prince George's	37	0	0	12.3	F
Washington	8	0	0	2.7	D
Worcester	INC	INC	INC	INC	INC
Baltimore City	8	1	0	3.2	D

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Anne Arundel	1	0	0	0.3	B	10.9	PASS
Baltimore	5	0	0	1.7	C	11.1	PASS
Calvert	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carroll	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cecil	3	0	0	1.0	C	10.4	PASS
Charles	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dorchester	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Frederick	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Garrett	INC	INC	INC	INC	INC	INC	INC
Harford	0	0	0	0.0	A	9.8	PASS
Kent	INC	INC	INC	INC	INC	INC	INC
Montgomery	1	0	0	0.3	B	10.2	PASS
Prince George's	3	1	0	1.5	C	10.8	PASS
Washington	2	0	0	0.7	B	10.9	PASS
Worcester	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Baltimore City	11	0	0	3.7	F	10.9	PASS

MASSACHUSETTS

American Lung Association in Massachusetts

460 Totten Pond Road, Suite 400
Waltham, MA 02451-1991
(781) 314-9006
www.lung.org/massachusetts

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Barnstable	215,769	36,379	54,747	4,310	18,234	12,872	69,993	18,549	20,829
Berkshire	130,458	24,911	24,727	2,951	11,011	6,816	37,294	9,696	16,845
Bristol	548,922	120,440	79,442	14,269	45,633	25,251	138,782	35,388	63,799
Dukes	16,766	3,179	2,803	377	1,423	858	4,715	1,223	1,635
Essex	748,930	170,196	107,578	20,164	61,452	34,498	189,721	48,538	84,677
Hampden	463,783	108,428	66,452	12,846	37,857	20,928	114,979	29,306	75,643
Hampshire	157,822	25,548	20,469	3,027	14,317	7,223	39,791	9,956	18,088
Middlesex	1,518,171	319,274	201,278	37,827	128,745	67,954	374,065	94,510	121,592
Norfolk	675,436	150,324	99,280	17,810	55,737	31,382	172,492	44,143	41,894
Plymouth	497,579	117,221	71,526	13,888	40,254	22,975	126,392	32,451	41,433
Suffolk	730,932	128,599	77,384	15,236	66,527	29,727	163,859	39,786	154,370
Worcester	801,227	184,568	103,668	21,867	65,939	35,552	195,892	49,750	90,110
Totals	**6,505,795**	**1,389,067**	**909,354**	**164,572**	**547,129**	**296,036**	**1,627,975**	**413,296**	**730,915**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Barnstable	6	0	0	2.0	C
Berkshire	4	0	0	1.3	C
Bristol	10	0	0	3.3	F
Dukes	9	2	0	4.0	F
Essex	6	0	0	2.0	C
Hampden	8	0	0	2.7	D
Hampshire	10	0	0	3.3	F
Middlesex	5	0	0	1.7	C
Norfolk	6	0	0	2.0	C
Plymouth	DNC	DNC	DNC	DNC	DNC
Suffolk	5	0	0	1.7	C
Worcester	10	0	0	3.3	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Barnstable	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Berkshire	1	0	0	0.3	B	8.9	PASS
Bristol	0	0	0	0.0	A	7.9	PASS
Dukes	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Essex	0	0	0	0.0	A	8.2	PASS
Hampden	1	0	0	0.3	B	9.5	PASS
Hampshire	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Middlesex	0	0	0	0.0	A	7.7	PASS
Norfolk	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Plymouth	0	0	0	0.0	A	8.2	PASS
Suffolk	1	1	0	0.8	B	10.2	PASS
Worcester	0	0	0	0.0	A	9.0	PASS

MASSACHUSETTS

MICHIGAN

American Lung Association in Michigan

1475 E 12 Mile Road
Madison Heights, MI 48071
(248) 784-2000
www.lung.org/michigan

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Allegan	111,234	28,712	14,789	2,874	8,174	6,761	31,156	8,469	13,945
Bay	107,110	23,315	17,747	2,334	8,262	7,084	32,770	8,979	14,279
Benzie	17,443	3,540	3,731	354	1,361	1,274	5,934	1,654	2,094
Berrien	156,941	36,210	26,131	3,625	11,894	10,220	47,301	12,968	26,993
Cass	51,988	11,996	8,335	1,201	3,947	3,429	15,868	4,358	6,625
Chippewa	38,797	7,717	5,723	772	3,074	2,478	11,411	3,087	6,296
Clinton	75,469	18,227	10,010	1,825	5,671	4,611	21,225	5,749	7,675
Emmet	32,848	7,240	5,666	725	2,523	2,222	10,298	2,836	4,233
Genesee	422,080	103,729	59,387	10,384	31,487	25,865	119,225	32,374	86,200
Huron	32,675	6,602	7,196	661	2,549	2,400	11,189	3,122	4,645
Ingham	281,613	56,946	30,419	5,700	22,337	16,020	73,078	19,229	59,677
Kalamazoo	252,074	55,907	31,249	5,596	19,450	14,727	67,498	18,002	47,181
Kent	608,453	157,786	68,782	15,795	44,750	34,287	157,141	42,006	88,002
Lenawee	99,440	22,616	14,905	2,264	7,592	6,326	29,193	7,951	12,480
Macomb	842,145	190,738	122,411	19,093	64,416	53,019	244,438	66,403	118,023
Manistee	24,709	4,610	5,210	461	1,970	1,826	8,500	2,364	3,918
Mason	28,678	6,060	5,623	607	2,220	2,023	9,405	2,608	5,111
Missaukee	14,911	3,552	2,617	356	1,117	990	4,593	1,267	2,793
Monroe	151,560	35,865	20,900	3,590	11,459	9,525	43,904	11,946	18,145
Muskegon	171,302	41,772	23,773	4,181	12,817	10,488	48,328	13,112	33,079
Oakland	1,210,145	278,327	164,430	27,861	92,320	75,717	348,718	94,626	134,420
Ottawa	266,300	68,183	32,221	6,825	19,645	15,246	69,975	18,765	29,471
St. Clair	161,642	37,412	24,264	3,745	12,280	10,423	48,138	13,158	25,106
Schoolcraft	8,490	1,678	1,828	168	667	633	2,949	824	1,235
Tuscola	55,422	12,686	9,061	1,270	4,214	3,640	16,844	4,622	7,878

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Washtenaw	347,962	70,050	36,567	7,012	27,652	19,920	90,858	23,929	55,202
Wayne	1,802,096	448,541	231,349	44,900	134,126	106,962	491,823	132,681	464,882
Wexford	32,718	7,732	5,324	774	2,463	2,120	9,807	2,689	4,898
Totals	**7,406,245**	**1,747,749**	**989,648**	**174,953**	**560,437**	**450,236**	**2,071,567**	**559,778**	**1,284,486**

MICHIGAN

American Lung Association in Michigan

1475 E 12 Mile Road
Madison Heights, MI 48071
(248) 784-2000
www.lung.org/michigan

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Allegan	12	1	0	4.5	F
Bay	DNC	DNC	DNC	DNC	DNC
Benzie	3	0	0	1.0	C
Berrien	11	1	0	4.2	F
Cass	8	0	0	2.7	D
Chippewa	INC	INC	INC	INC	INC
Clinton	2	0	0	0.7	B
Emmet	DNC	DNC	DNC	DNC	DNC
Genesee	3	0	0	1.0	C
Huron	3	0	0	1.0	C
Ingham	1	0	0	0.3	B
Kalamazoo	3	0	0	1.0	C
Kent	6	0	0	2.0	C
Lenawee	6	0	0	2.0	C
Macomb	16	0	0	5.3	F
Manistee	5	0	0	1.7	C
Mason	5	0	0	1.7	C
Missaukee	1	0	0	0.3	B
Monroe	DNC	DNC	DNC	DNC	DNC
Muskegon	10	1	0	3.8	F
Oakland	8	0	0	2.7	D
Ottawa	9	0	0	3.0	D
St. Clair	8	0	0	2.7	D
Schoolcraft	5	0	0	1.7	C
Tuscola	INC	INC	INC	INC	INC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Allegan	0	0	0	0.0	A	8.5	PASS
Bay	1	0	0	0.3	B	8.0	PASS
Benzie	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Berrien	0	0	0	0.0	A	8.8	PASS
Cass	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Chippewa	5	0	0	1.7	C	INC	INC
Clinton	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Emmet	INC	INC	INC	INC	INC	INC	INC
Genesee	0	0	0	0.0	A	8.7	PASS
Huron	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ingham	0	0	0	0.0	A	8.9	PASS
Kalamazoo	1	0	0	0.3	B	9.4	PASS
Kent	1	0	0	0.3	B	9.7	PASS
Lenawee	0	0	0	0.0	A	9.4	PASS
Macomb	0	0	0	0.0	A	9.0	PASS
Manistee	0	0	0	0.0	A	6.4	PASS
Mason	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Missaukee	0	0	0	0.0	A	6.0	PASS
Monroe	2	0	0	0.7	B	9.9	PASS
Muskegon	0	0	0	0.0	A	8.5	PASS
Oakland	0	0	0	0.0	A	9.4	PASS
Ottawa	0	0	0	0.0	A	9.2	PASS
St. Clair	1	0	0	0.3	B	9.3	PASS
Schoolcraft	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tuscola	DNC	DNC	DNC	DNC	DNC	DNC	DNC

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Washtenaw	4	0	0	1.3	C
Wayne	18	0	0	6.0	F
Wexford	INC	INC	INC	INC	INC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Washtenaw	0	0	0	0.0	A	9.6	PASS
Wayne	5	0	0	1.7	C	11.6	PASS
Wexford	DNC	DNC	DNC	DNC	DNC	DNC	DNC

MINNESOTA

American Lung Association in Minnesota

490 Concordia Avenue
St. Paul, MN 55103-2441
(651) 227-8014
www.lung.org/minnesota

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Anoka	333,140	84,876	33,902	7,258	17,278	9,736	67,945	17,493	28,257
Becker	32,778	7,973	5,787	682	1,696	1,130	8,050	2,061	4,176
Carlton	35,455	8,187	5,328	700	1,879	1,171	8,263	2,119	4,118
Cass	28,390	5,990	6,198	512	1,517	1,087	7,816	1,998	5,142
Crow Wing	62,763	14,193	11,907	1,214	3,322	2,234	15,874	4,056	8,301
Dakota	402,006	104,010	41,956	8,895	20,738	11,742	81,894	21,070	27,972
Goodhue	46,217	10,769	7,819	921	2,429	1,584	11,262	2,885	4,156
Hennepin	1,168,431	263,544	134,659	22,537	63,250	35,486	244,603	62,714	156,330
Lake	10,824	2,040	2,467	174	595	428	3,083	788	1,116
Lyon	25,891	6,247	3,557	534	1,369	806	5,566	1,423	3,014
Mille Lacs	25,979	6,523	4,251	558	1,339	858	6,048	1,547	3,337
Olmsted	145,769	36,497	18,875	3,121	7,592	4,479	31,188	7,992	11,429
Ramsey	514,696	119,542	62,743	10,223	27,620	15,668	107,835	27,605	88,308
St. Louis	200,255	38,842	32,047	3,322	11,147	6,911	48,548	12,429	33,653
Scott	132,556	39,389	10,656	3,368	6,534	3,476	23,895	6,150	7,560
Stearns	151,343	34,406	18,784	2,942	8,186	4,623	31,691	8,104	19,379
Washington	241,280	62,964	26,577	5,384	12,361	7,173	50,396	12,973	13,993
Wright	126,437	37,381	12,620	3,197	6,224	3,467	23,934	6,144	8,658
Totals	**3,684,210**	**883,373**	**440,133**	**75,542**	**195,076**	**112,059**	**777,891**	**199,551**	**428,899**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Anoka	1	0	0	0.3	B
Becker	0	0	0	0.0	A
Carlton	0	0	0	0.0	A
Cass	DNC	DNC	DNC	DNC	DNC
Crow Wing	1	0	0	0.3	B
Dakota	DNC	DNC	DNC	DNC	DNC
Goodhue	0	0	0	0.0	A
Hennepin	DNC	DNC	DNC	DNC	DNC
Lake	0	0	0	0.0	A
Lyon	0	0	0	0.0	A
Mille Lacs	0	0	0	0.0	A
Olmsted	0	0	0	0.0	A
Ramsey	DNC	DNC	DNC	DNC	DNC
St. Louis	0	0	0	0.0	A
Scott	0	0	0	0.0	A
Stearns	0	0	0	0.0	A
Washington	1	0	0	0.3	B
Wright	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Anoka	INC	INC	INC	INC	INC	INC	INC
Becker	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carlton	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cass	INC	INC	INC	INC	INC	INC	INC
Crow Wing	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dakota	5	0	0	1.7	C	9.2	PASS
Goodhue	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hennepin	4	0	0	1.3	C	9.5	PASS
Lake	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lyon	INC	INC	INC	INC	INC	INC	INC
Mille Lacs	INC	INC	INC	INC	INC	INC	INC
Olmsted	4	0	0	1.3	C	9.6	PASS
Ramsey	7	0	0	2.3	D	10.0	PASS
St. Louis	1	0	0	0.3	B	6.6	PASS
Scott	3	0	0	1.0	C	8.8	PASS
Stearns	4	0	0	1.3	C	8.6	PASS
Washington	INC	INC	INC	INC	INC	INC	INC
Wright	DNC	DNC	DNC	DNC	DNC	DNC	DNC

MISSISSIPPI

American Lung Association in Mississippi

P.O. Box 2178
Ridgeland, MS 39158
(601) 206-5810
www.lung.org/mississippi

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Adams	32,067	7,059	5,059	620	1,936	2,215	11,235	3,410	10,192
Bolivar	33,771	8,607	4,150	756	1,946	2,075	10,480	3,085	10,754
DeSoto	164,053	45,501	17,254	3,998	9,168	9,561	48,205	14,086	17,001
Forrest	75,842	17,815	8,769	1,565	4,485	4,497	22,654	6,443	20,205
Grenada	21,706	5,335	3,359	469	1,267	1,437	7,290	2,200	4,318
Hancock	44,649	10,585	6,919	930	2,637	3,031	15,375	4,676	10,809
Harrison	191,040	46,723	22,632	4,106	11,162	11,824	59,684	17,547	37,971
Hinds	248,184	64,494	26,959	5,667	14,204	14,739	74,307	21,637	62,970
Jackson	139,901	35,205	17,669	3,094	8,100	8,821	44,595	13,282	23,926
Jones	68,075	17,419	9,896	1,531	3,920	4,346	22,017	6,576	13,390
Lauderdale	80,475	19,945	11,335	1,753	4,684	5,135	25,993	7,731	17,621
Lee	84,156	22,265	11,030	1,956	4,788	5,209	26,345	7,820	13,730
Lowndes	59,671	14,881	7,954	1,308	3,465	3,767	19,050	5,653	14,224
Yalobusha	12,552	2,978	2,133	262	741	859	4,362	1,326	2,946
Totals	**1,256,142**	**318,812**	**155,118**	**28,015**	**72,503**	**77,516**	**391,592**	**115,472**	**260,057**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Adams	1	0	0	0.3	B
Bolivar	5	0	0	1.7	C
DeSoto	9	0	0	3.0	D
Forrest	DNC	DNC	DNC	DNC	DNC
Grenada	DNC	DNC	DNC	DNC	DNC
Hancock	2	0	0	0.7	B
Harrison	7	0	0	2.3	D
Hinds	4	0	0	1.3	C
Jackson	4	0	0	1.3	C
Jones	DNC	DNC	DNC	DNC	DNC
Lauderdale	0	0	0	0.0	A
Lee	0	0	0	0.0	A
Lowndes	DNC	DNC	DNC	DNC	DNC
Yalobusha	INC	INC	INC	INC	INC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Adams	INC	INC	INC	INC	INC	INC	INC
Bolivar	INC	INC	INC	INC	INC	INC	INC
DeSoto	0	0	0	0.0	A	9.9	PASS
Forrest	0	0	0	0.0	A	11.6	PASS
Grenada	0	0	0	0.0	A	9.4	PASS
Hancock	0	0	0	0.0	A	9.8	PASS
Harrison	0	0	0	0.0	A	9.6	PASS
Hinds	1	0	0	0.3	B	11.1	PASS
Jackson	0	0	0	0.0	A	9.5	PASS
Jones	0	0	0	0.0	A	11.8	PASS
Lauderdale	0	0	0	0.0	A	10.9	PASS
Lee	0	0	0	0.0	A	10.9	PASS
Lowndes	INC	INC	INC	INC	INC	INC	INC
Yalobusha	DNC	DNC	DNC	DNC	DNC	DNC	DNC

MISSOURI

American Lung Association in Missouri

1118 Hampton Avenue
St. Louis, MO 63139-3196
(314) 645-5505
www.lung.org/missouri

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Andrew	17,196	4,022	2,720	316	1,209	1,144	5,202	1,467	1,599
Boone	165,627	34,279	15,500	2,696	12,035	9,150	41,313	10,820	30,568
Buchanan	89,666	21,046	12,548	1,655	6,287	5,554	25,262	6,978	15,146
Callaway	44,420	9,815	5,617	772	3,178	2,780	12,559	3,458	5,681
Cass	100,052	26,067	13,974	2,050	6,785	6,170	28,017	7,808	10,144
Cedar	13,948	3,207	3,154	252	979	1,003	4,647	1,339	3,651
Clay	225,161	57,436	25,827	4,518	15,401	13,218	59,662	16,325	19,335
Clinton	20,789	5,045	3,378	397	1,443	1,369	6,240	1,761	2,455
Greene	277,214	58,113	39,402	4,571	20,045	17,192	78,423	21,456	46,460
Jackson	676,360	165,200	85,500	12,995	46,888	40,787	184,755	50,778	124,814
Jasper	118,435	30,333	16,056	2,386	8,067	7,043	32,077	8,827	19,411
Jefferson	219,480	54,323	25,328	4,273	15,191	13,384	60,192	16,610	24,380
Lincoln	53,076	14,624	5,894	1,150	3,535	3,084	13,888	3,821	6,902
Monroe	8,734	1,971	1,708	155	619	619	2,838	813	1,342
Perry	19,041	4,704	2,998	370	1,313	1,219	5,560	1,559	2,506
St. Charles	365,151	92,043	42,610	7,240	25,095	21,881	98,642	27,130	21,625
Ste. Genevieve	18,124	4,124	2,964	324	1,285	1,235	5,613	1,590	2,161
St. Louis	998,692	229,818	151,691	18,077	70,500	65,016	295,604	82,739	116,470
Taney	52,736	11,634	9,571	915	3,756	3,551	16,302	4,596	10,057
St. Louis City	318,069	67,547	34,548	5,313	22,980	18,693	84,398	22,670	83,819
Totals	**3,801,971**	**895,351**	**500,988**	**70,425**	**266,591**	**234,092**	**1,061,194**	**292,545**	**548,526**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Andrew	7	0	0	2.3	D
Boone	0	0	0	0.0	A
Buchanan	DNC	DNC	DNC	DNC	DNC
Callaway	1	0	0	0.3	B
Cass	3	0	0	1.0	C
Cedar	4	0	0	1.3	C
Clay	20	0	0	6.7	F
Clinton	15	0	0	5.0	F
Greene	2	0	0	0.7	B
Jackson	DNC	DNC	DNC	DNC	DNC
Jasper	11	0	0	3.7	F
Jefferson	10	1	0	3.8	F
Lincoln	9	0	0	3.0	D
Monroe	1	0	0	0.3	B
Perry	10	0	0	3.3	F
St. Charles	29	0	0	9.7	F
Ste. Genevieve	4	0	0	1.3	C
St. Louis	15	0	0	5.0	F
Taney	INC	INC	INC	INC	INC
St. Louis City	12	1	0	4.5	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Andrew	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Boone	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Buchanan	1	0	0	0.3	B	INC	INC
Callaway	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cass	1	0	0	0.3	B	10.2	PASS
Cedar	0	0	0	0.0	A	10.8	PASS
Clay	1	0	0	0.3	B	9.5	PASS
Clinton	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Greene	1	0	0	0.3	B	10.1	PASS
Jackson	4	0	0	1.3	C	10.7	PASS
Jasper	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jefferson	1	0	0	0.3	B	10.4	PASS
Lincoln	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Monroe	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Perry	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Charles	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ste. Genevieve	INC	INC	INC	INC	INC	INC	INC
St. Louis	2	0	0	0.7	B	INC	INC
Taney	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Louis City	4	1	0	1.8	C	13.1	FAIL

MONTANA

American Lung Association in Montana

3919 Heritage Way
Missoula MT 59802
(406) 728-0368
www.lung.org/montana

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Cascade	81,837	18,562	12,859	1,256	5,760	3,823	20,832	5,086	12,154
Flathead	91,301	20,899	13,765	1,414	6,383	4,348	23,764	5,822	11,134
Gallatin	91,377	18,822	8,882	1,273	6,812	3,711	20,017	4,588	10,998
Glacier	13,624	4,289	1,461	290	861	530	2,880	686	4,162
Lewis and Clark	64,318	14,414	9,094	975	4,545	3,014	16,458	4,001	6,781
Lincoln	19,566	3,816	4,182	258	1,391	1,091	5,997	1,522	4,297
Missoula	110,138	21,526	12,953	1,456	8,242	4,786	25,912	6,072	18,194
Powder River	1,738	319	393	22	125	100	550	140	235
Ravalli	40,450	8,628	8,119	584	2,828	2,146	11,770	2,968	6,133
Richland	10,128	2,352	1,465	159	707	472	2,579	628	983
Rosebud	9,379	2,754	1,099	186	606	393	2,146	518	1,749
Sanders	11,440	2,274	2,586	154	806	647	3,555	908	2,041
Silver Bow	34,383	7,159	5,630	484	2,470	1,673	9,127	2,238	5,759
Yellowstone	150,069	35,286	21,522	2,387	10,487	6,815	37,120	8,997	19,058
Totals	**729,748**	**161,100**	**104,010**	**10,898**	**52,023**	**33,549**	**182,707**	**44,174**	**103,678**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Cascade	DNC	DNC	DNC	DNC	DNC
Flathead	0	0	0	0.0	A
Gallatin	DNC	DNC	DNC	DNC	DNC
Glacier	INC	INC	INC	INC	INC
Lewis and Clark	INC	INC	INC	INC	INC
Lincoln	DNC	DNC	DNC	DNC	DNC
Missoula	INC	INC	INC	INC	INC
Powder River	INC	INC	INC	INC	INC
Ravalli	DNC	DNC	DNC	DNC	DNC
Richland	0	0	0	0.0	A
Rosebud	INC	INC	INC	INC	INC
Sanders	DNC	DNC	DNC	DNC	DNC
Silver Bow	DNC	DNC	DNC	DNC	DNC
Yellowstone	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Cascade	INC	INC	INC	INC	INC	INC	INC
Flathead	0	0	0	0.0	A	INC	INC
Gallatin	3	0	0	1.0	C	INC	INC
Glacier	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lewis and Clark	16	3	0	6.8	F	INC	INC
Lincoln	3	0	0	1.0	C	INC	INC
Missoula	7	0	0	2.3	D	7.6	PASS
Powder River	INC	INC	INC	INC	INC	INC	INC
Ravalli	13	1	0	4.8	F	7.8	PASS
Richland	0	0	0	0.0	A	6.0	PASS
Rosebud	INC	INC	INC	INC	INC	INC	INC
Sanders	0	0	0	0.0	A	INC	INC
Silver Bow	19	0	0	6.3	F	9.8	PASS
Yellowstone	INC	INC	INC	INC	INC	INC	INC

NEBRASKA

American Lung Association in Nebraska

8990 W. Dodge Road, Suite 226
Omaha, NE 68114
(402) 502-4250
www.lung.org/nebraska

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Douglas	524,861	136,791	55,938	8,281	28,624	18,009	112,333	29,745	74,975
Hall	59,477	16,210	7,983	981	3,169	2,163	13,643	3,671	8,410
Knox	8,575	2,038	1,968	123	469	394	2,544	708	1,261
Lancaster	289,800	66,373	32,109	4,018	16,529	10,171	63,197	16,617	40,144
Sarpy	162,561	46,259	14,342	2,800	8,593	5,245	32,591	8,586	10,632
Scotts Bluff	37,044	9,085	6,272	550	2,036	1,488	9,461	2,575	6,132
Sioux	1,336	292	294	18	75	62	400	111	229
Washington	20,295	4,980	2,949	301	1,113	807	5,136	1,403	1,433
Totals	**1,103,949**	**282,028**	**121,855**	**17,072**	**60,608**	**38,339**	**239,305**	**63,416**	**143,216**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Douglas	0	0	0	0.0	A
Hall	DNC	DNC	DNC	DNC	DNC
Knox	INC	INC	INC	INC	INC
Lancaster	0	0	0	0.0	A
Sarpy	DNC	DNC	DNC	DNC	DNC
Scotts Bluff	INC	INC	INC	INC	INC
Sioux	INC	INC	INC	INC	INC
Washington	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Douglas	5	0	0	1.7	C	9.8	PASS
Hall	0	0	0	0.0	A	7.1	PASS
Knox	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lancaster	1	0	0	0.3	B	8.5	PASS
Sarpy	4	0	0	1.3	C	11.0	PASS
Scotts Bluff	0	0	0	0.0	A	INC	INC
Sioux	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washington	2	0	0	0.7	B	9.1	PASS

NEVADA

American Lung Association in Nevada

3552 W. Cheyenne Avenue, Suite 130
North Las Vegas NV 89032
(702) 431-6333
www.lung.org/nevada

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Churchill	24,637	6,128	3,857	362	1,454	1,491	6,691	2,132	3,127
Clark	1,969,975	489,207	230,765	28,891	119,639	106,515	482,878	150,723	326,579
Lyon	51,871	12,524	8,870	740	3,057	3,306	14,772	4,746	6,508
Washoe	425,710	99,179	53,499	5,857	26,170	24,365	109,899	34,625	55,543
White Pine	10,098	2,170	1,530	128	626	627	2,815	896	1,245
Carson City	55,439	11,741	9,437	693	3,420	3,574	16,018	5,118	7,651
Totals	**2,537,730**	**620,949**	**307,958**	**36,671**	**154,366**	**139,878**	**633,073**	**198,240**	**400,653**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Churchill	0	0	0	0.0	A
Clark	36	0	0	12.0	F
Lyon	2	0	0	0.7	B
Washoe	3	0	0	1.0	C
White Pine	1	0	0	0.3	B
Carson City	1	0	0	0.3	B

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Churchill	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clark	2	0	0	0.7	B	7.7	PASS
Lyon	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washoe	4	0	0	1.3	C	6.8	PASS
White Pine	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carson City	DNC	DNC	DNC	DNC	DNC	DNC	DNC

NEW HAMPSHIRE

American Lung Association in New Hampshire

1800 Elm Street, Unit D
Manchester, NH 03104
(603) 410-5108
www.lung.org/newhampshire

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Belknap	60,223	12,196	10,368	1,043	5,170	3,269	17,105	4,637	6,191
Cheshire	76,918	14,740	11,670	1,261	6,832	3,995	20,750	5,484	7,649
Coos	32,688	5,944	6,532	508	2,852	1,876	9,850	2,690	4,555
Grafton	88,923	15,915	14,239	1,361	8,008	4,723	24,551	6,497	9,366
Hillsborough	401,696	92,181	49,098	7,883	34,280	19,297	99,844	26,194	33,214
Merrimack	146,579	31,110	20,555	2,660	12,658	7,435	38,637	10,270	12,333
Rockingham	296,207	65,448	39,207	5,597	25,232	14,911	77,529	20,728	18,734
Totals	**1,103,234**	**237,534**	**151,669**	**20,313**	**95,032**	**55,506**	**288,266**	**76,500**	**92,042**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Belknap	1	0	0	0.3	B
Cheshire	0	0	0	0.0	A
Coos	2	0	0	0.7	B
Grafton	0	0	0	0.0	A
Hillsborough	5	0	0	1.7	C
Merrimack	1	0	0	0.3	B
Rockingham	6	0	0	2.0	C

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Belknap	0	0	0	0.0	A	5.8	PASS
Cheshire	6	0	0	2.0	C	9.6	PASS
Coos	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Grafton	0	0	0	0.0	A	INC	INC
Hillsborough	0	0	0	0.0	A	7.8	PASS
Merrimack	1	0	0	0.3	B	8.6	PASS
Rockingham	0	1	0	0.5	B	INC	INC

NEW HAMPSHIRE

NEW JERSEY

American Lung Association in New Jersey

1031 Route 22 West Suite 203
Bridgewater, NJ 08807-2919
(908) 685-8040
www.lung.org/newjersey

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Atlantic	274,338	63,158	39,611	5,499	18,940	11,130	72,269	19,242	35,108
Bergen	911,004	202,352	138,800	17,618	63,445	37,797	245,690	65,638	59,235
Camden	513,241	123,261	66,718	10,732	35,120	19,900	128,696	33,934	66,839
Cumberland	157,095	37,698	20,113	3,282	10,771	5,970	38,457	10,073	24,300
Essex	785,137	193,366	91,804	16,836	53,515	29,143	187,550	48,895	132,017
Gloucester	289,104	69,093	36,600	6,016	19,819	11,257	72,910	19,245	21,035
Hudson	641,224	132,198	67,131	11,510	46,363	23,326	148,316	37,696	102,173
Hunterdon	128,038	29,088	17,096	2,533	8,872	5,349	35,009	9,398	5,370
Mercer	367,063	82,122	47,458	7,150	25,697	14,345	92,575	24,305	38,790
Middlesex	814,217	184,390	101,605	16,054	56,880	31,327	201,824	52,784	67,199
Monmouth	631,020	147,109	89,056	12,808	43,379	25,810	168,117	44,931	42,983
Morris	494,976	115,516	70,242	10,057	34,021	20,170	131,263	35,043	24,438
Ocean	579,369	134,965	122,140	11,751	39,183	25,834	168,752	46,109	64,467
Passaic	502,007	123,703	61,551	10,770	34,154	18,858	121,521	31,804	79,789
Union	539,494	130,571	68,620	11,368	36,857	20,721	133,884	35,226	56,959
Warren	108,339	24,794	15,623	2,159	7,486	4,466	29,091	7,779	8,218
Totals	**7,735,666**	**1,793,384**	**1,054,168**	**156,143**	**534,502**	**305,403**	**1,975,924**	**522,102**	**828,920**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Atlantic	9	0	0	3.0	D
Bergen	15	0	0	5.0	F
Camden	22	2	0	8.3	F
Cumberland	8	0	0	2.7	D
Essex	17	0	0	5.7	F
Gloucester	24	2	0	9.0	F
Hudson	10	1	0	3.8	F
Hunterdon	17	0	0	5.7	F
Mercer	24	0	0	8.0	F
Middlesex	26	0	0	8.7	F
Monmouth	15	1	0	5.5	F
Morris	12	0	0	4.0	F
Ocean	27	1	0	9.5	F
Passaic	7	0	0	2.3	D
Union	DNC	DNC	DNC	DNC	DNC
Warren	INC	INC	INC	INC	INC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Atlantic	0	0	0	0.0	A	9.2	PASS
Bergen	2	0	0	0.7	B	9.2	PASS
Camden	0	0	0	0.0	A	9.7	PASS
Cumberland	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Essex	0	0	0	0.0	A	INC	INC
Gloucester	0	0	0	0.0	A	9.3	PASS
Hudson	4	0	0	1.3	C	11.1	PASS
Hunterdon	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mercer	2	0	0	0.7	B	9.7	PASS
Middlesex	0	0	0	0.0	A	7.9	PASS
Monmouth	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Morris	1	0	0	0.3	B	8.5	PASS
Ocean	0	0	0	0.0	A	8.6	PASS
Passaic	1	0	0	0.3	B	9.3	PASS
Union	5	0	0	1.7	C	11.4	PASS
Warren	2	0	0	0.7	B	9.2	PASS

NEW JERSEY

NEW MEXICO

American Lung Association in New Mexico

5911 Jefferson Street, NE
Albuquerque, NM 87109
(505) 265-0732
www.lung.org/newmexico

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Bernalillo	670,968	159,740	83,823	16,061	51,433	30,946	154,720	49,951	129,882
Chaves	65,890	18,454	9,360	1,855	4,745	3,024	15,070	4,881	14,287
Doña Ana	213,598	56,503	26,936	5,681	15,816	9,408	47,038	15,117	61,023
Eddy	54,152	13,937	7,644	1,401	4,021	2,583	12,873	4,185	8,138
Grant	29,380	6,306	6,480	634	2,266	1,718	8,498	2,794	5,924
Lea	65,423	19,323	7,058	1,943	4,654	2,693	13,486	4,330	11,738
Luna	25,281	6,708	4,994	674	1,836	1,306	6,473	2,107	6,940
Sandoval	134,259	34,899	17,032	3,509	9,953	6,291	31,399	10,223	19,830
San Juan	128,200	36,753	14,447	3,695	9,206	5,505	27,536	8,893	22,563
Santa Fe	145,648	30,053	23,353	3,022	11,493	7,834	38,971	12,783	23,668
Valencia	77,070	19,964	10,304	2,007	5,713	3,658	18,243	5,941	16,021
Totals	**1,609,869**	**402,640**	**211,431**	**40,482**	**121,136**	**74,966**	**374,307**	**121,205**	**320,014**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Bernalillo	5	0	0	1.7	C
Chaves	DNC	DNC	DNC	DNC	DNC
Doña Ana	4	0	0	1.3	C
Eddy	2	0	0	0.7	B
Grant	3	0	0	1.0	C
Lea	0	0	0	0.0	A
Luna	0	0	0	0.0	A
Sandoval	0	0	0	0.0	A
San Juan	3	0	0	1.0	C
Santa Fe	0	0	0	0.0	A
Valencia	1	0	0	0.3	B

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Bernalillo	5	0	0	1.7	C	5.9	PASS
Chaves	0	0	0	0.0	A	INC	INC
Doña Ana	20	2	0	7.7	F	11.9	PASS
Eddy	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Grant	0	0	0	0.0	A	INC	INC
Lea	1	0	0	0.3	B	INC	INC
Luna	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sandoval	INC	INC	INC	INC	INC	INC	INC
San Juan	0	0	0	0.0	A	4.5	PASS
Santa Fe	1	0	0	0.3	B	4.2	PASS
Valencia	DNC	DNC	DNC	DNC	DNC	DNC	DNC

NEW MEXICO

NEW YORK

American Lung Association in New York

418 Broadway, First Floor
Albany, NY 12207
(518) 465-2013
www.lung.org/newyork

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Albany	303,565	59,114	42,667	5,598	23,716	14,512	80,129	25,534	39,157
Bronx	1,392,002	368,277	149,393	34,874	100,034	57,410	312,137	97,995	410,645
Chautauqua	134,368	28,887	22,567	2,735	10,151	6,661	37,320	12,057	25,528
Chemung	88,840	19,616	13,968	1,858	6,670	4,324	24,181	7,799	13,715
Dutchess	297,999	64,497	41,333	6,108	22,572	14,204	79,037	25,371	28,353
Erie	918,028	195,099	144,799	18,475	69,750	44,778	249,805	80,381	136,447
Essex	39,181	7,378	7,241	699	3,048	2,068	11,671	3,796	5,363
Franklin	51,551	10,513	7,009	996	3,978	2,448	13,546	4,325	9,402
Hamilton	4,793	781	1,156	74	379	287	1,657	549	512
Herkimer	64,160	14,020	10,746	1,328	4,817	3,200	17,989	5,829	10,590
Jefferson	117,910	29,762	13,184	2,818	8,615	4,942	26,849	8,423	19,448
Kings	2,532,645	598,162	291,894	56,643	188,991	108,783	591,575	185,760	593,162
Madison	73,365	15,548	10,477	1,472	5,589	3,520	19,583	6,284	8,118
Monroe	745,625	165,502	105,644	15,672	56,161	35,001	194,088	62,101	118,261
Nassau	1,344,436	306,847	207,049	29,057	99,930	64,989	363,892	117,493	93,082
New York	1,601,948	237,292	218,844	22,470	133,447	76,419	414,330	129,720	286,081
Niagara	216,011	45,572	34,702	4,315	16,402	10,739	60,210	19,464	27,246
Oneida	234,287	50,433	38,605	4,776	17,710	11,532	64,508	20,809	37,793
Onondaga	466,960	105,268	66,219	9,968	34,993	21,916	121,688	38,982	70,191
Orange	374,872	100,079	42,411	9,477	26,682	16,140	89,060	28,363	50,494
Oswego	122,228	27,495	15,736	2,604	9,179	5,659	31,352	10,022	22,592
Putnam	99,933	22,944	13,020	2,173	7,421	4,761	26,661	8,609	5,826
Queens	2,247,848	463,568	290,869	43,898	173,664	103,331	566,703	179,422	355,276
Rensselaer	159,395	33,429	21,775	3,166	12,201	7,556	41,874	13,390	18,412
Richmond	470,467	107,875	61,194	10,215	35,147	21,619	119,644	38,209	58,103

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Rockland	315,158	87,662	43,094	8,301	21,982	13,920	77,466	24,870	43,754
St. Lawrence	111,690	23,337	15,747	2,210	8,568	5,265	29,093	9,277	18,992
Saratoga	220,882	48,797	31,037	4,621	16,611	10,574	59,001	18,989	15,407
Schenectady	155,058	34,847	23,358	3,300	11,605	7,408	41,296	13,278	21,399
Steuben	99,033	22,771	15,911	2,156	7,331	4,844	27,209	8,811	17,702
Suffolk	1,498,816	351,786	207,631	33,312	110,842	70,002	389,703	125,151	101,355
Tompkins	101,723	15,729	11,248	1,489	8,463	4,557	24,321	7,496	17,762
Ulster	182,448	35,766	27,968	3,387	14,141	9,112	50,948	16,428	25,296
Wayne	93,436	21,659	13,805	2,051	6,907	4,510	25,302	8,184	11,773
Westchester	955,899	225,922	141,478	21,394	70,454	45,044	251,204	80,807	93,107
Totals	**17,836,560**	**3,946,234**	**2,403,779**	**373,690**	**1,348,151**	**822,035**	**4,535,032**	**1,443,978**	**2,810,344**

NEW YORK

American Lung Association in New York

418 Broadway, First Floor
Albany, NY 12207
(518) 465-2013
www.lung.org/newyork

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Albany	4	0	0	1.3	C
Bronx	7	0	0	2.3	D
Chautauqua	10	0	0	3.3	F
Chemung	1	0	0	0.3	B
Dutchess	6	1	0	2.5	D
Erie	2	0	0	0.7	B
Essex	6	0	0	2.0	C
Franklin	1	0	0	0.3	B
Hamilton	0	0	0	0.0	A
Herkimer	0	0	0	0.0	A
Jefferson	10	0	0	3.3	F
Kings	DNC	DNC	DNC	DNC	DNC
Madison	1	0	0	0.3	B
Monroe	0	0	0	0.0	A
Nassau	DNC	DNC	DNC	DNC	DNC
New York	9	0	0	3.0	D
Niagara	3	0	0	1.0	C
Oneida	0	0	0	0.0	A
Onondaga	5	0	0	1.7	C
Orange	4	0	0	1.3	C
Oswego	1	0	0	0.3	B
Putnam	7	0	0	2.3	D
Queens	9	1	0	3.5	F
Rensselaer	4	0	0	1.3	C
Richmond	26	1	0	9.2	F
Rockland	6	0	0	2.0	C

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Albany	1	0	0	0.3	B	8.3	PASS
Bronx	5	0	0	1.7	C	11.9	PASS
Chautauqua	0	0	0	0.0	A	7.4	PASS
Chemung	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dutchess	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Erie	1	0	0	0.3	B	9.7	PASS
Essex	0	0	0	0.0	A	4.4	PASS
Franklin	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hamilton	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Herkimer	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jefferson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kings	2	0	0	0.7	B	10.3	PASS
Madison	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Monroe	1	0	0	0.3	B	INC	INC
Nassau	0	0	0	0.0	A	8.9	PASS
New York	2	0	0	0.7	B	11.7	PASS
Niagara	0	0	0	0.0	A	INC	INC
Oneida	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Onondaga	0	0	0	0.0	A	7.7	PASS
Orange	1	0	0	0.3	B	8.2	PASS
Oswego	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Putnam	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Queens	2	0	0	0.7	B	9.4	PASS
Rensselaer	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Richmond	1	0	0	0.3	B	9.8	PASS
Rockland	DNC	DNC	DNC	DNC	DNC	DNC	DNC

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
St. Lawrence	DNC	DNC	DNC	DNC	DNC
Saratoga	1	0	0	0.3	B
Schenectady	1	0	0	0.3	B
Steuben	0	0	0	0.0	A
Suffolk	28	3	0	10.8	F
Tompkins	INC	INC	INC	INC	INC
Ulster	1	0	0	0.3	B
Wayne	0	0	0	0.0	A
Westchester	8	1	0	3.2	D

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
St. Lawrence	INC	INC	INC	INC	INC	INC	INC
Saratoga	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Schenectady	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Steuben	0	0	0	0.0	A	7.1	PASS
Suffolk	0	0	0	0.0	A	8.4	PASS
Tompkins	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ulster	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wayne	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Westchester	1	0	0	0.3	B	9.1	PASS

NORTH CAROLINA

American Lung Association in North Carolina

514 Daniels Street, #109
Raleigh, NC 27605
(919) 719-9960
www.lung.org/northcarolina

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Alamance	153,291	35,777	22,705	3,060	10,340	8,351	42,497	13,354	26,553
Alexander	37,087	8,296	5,852	709	2,530	2,120	10,815	3,424	6,510
Avery	17,572	2,995	3,059	256	1,280	1,063	5,428	1,714	3,171
Buncombe	241,419	49,008	39,167	4,191	16,906	13,949	71,122	22,439	42,765
Caldwell	82,395	18,266	13,148	1,562	5,634	4,744	24,206	7,671	16,891
Carteret	67,373	12,622	13,126	1,079	4,786	4,274	21,933	7,019	11,050
Caswell	23,403	4,641	3,905	397	1,648	1,422	7,262	2,313	4,370
Catawba	154,181	36,164	22,503	3,093	10,389	8,510	43,303	13,654	22,001
Chatham	64,195	13,866	12,140	1,186	4,399	3,911	20,076	6,418	7,182
Cumberland	324,885	86,092	31,114	7,362	21,197	14,983	75,192	22,982	59,957
Davidson	162,697	38,269	23,976	3,273	10,951	9,060	46,123	14,573	23,666
Davie	41,552	9,591	7,137	820	2,801	2,443	12,504	3,987	4,862
Duplin	59,542	15,089	8,530	1,290	3,912	3,173	16,146	5,079	11,870
Durham	273,392	62,015	27,244	5,303	18,767	13,201	66,218	20,215	51,591
Edgecombe	56,041	13,476	8,350	1,152	3,744	3,123	15,913	5,036	14,019
Forsyth	354,952	85,831	46,974	7,340	23,744	18,702	94,847	29,677	64,346
Franklin	61,140	14,755	8,109	1,262	4,093	3,308	16,787	5,284	9,597
Gaston	207,031	48,975	28,093	4,188	13,940	11,157	56,631	17,781	33,820
Graham	8,802	1,899	1,764	162	602	543	2,791	894	1,919
Granville	59,976	12,971	7,750	1,109	4,154	3,300	16,715	5,245	8,608
Guilford	495,279	114,911	62,036	9,827	33,612	25,724	130,122	40,472	90,599
Haywood	58,855	11,189	12,757	957	4,150	3,786	19,505	6,256	10,798
Jackson	40,285	7,038	6,261	602	2,927	2,268	11,520	3,586	7,400
Johnston	172,595	47,665	18,224	4,076	11,068	8,392	42,323	13,154	26,116
Lenoir	59,339	14,178	9,651	1,212	3,963	3,389	17,315	5,502	14,884

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Lincoln	78,932	18,329	10,786	1,567	5,345	4,374	22,214	7,010	11,093
McDowell	45,104	9,645	7,672	825	3,110	2,642	13,504	4,284	8,534
Macon	34,074	6,508	8,401	557	2,387	2,275	11,780	3,801	6,410
Martin	24,180	5,241	4,363	448	1,658	1,472	7,545	2,413	5,944
Mecklenburg	944,373	238,469	85,467	20,393	62,749	44,217	221,529	67,711	159,148
Mitchell	15,445	2,937	3,338	251	1,089	994	5,119	1,642	2,925
Montgomery	27,667	6,658	4,335	569	1,845	1,551	7,917	2,508	7,268
New Hanover	206,189	40,597	29,367	3,472	14,602	11,268	57,141	17,787	34,971
Person	39,637	9,115	6,168	779	2,683	2,276	11,607	3,685	7,092
Pitt	171,134	37,985	17,239	3,248	11,820	8,227	41,258	12,559	41,041
Robeson	135,517	36,399	15,654	3,113	8,765	6,686	33,792	10,507	40,615
Rockingham	93,329	20,366	15,550	1,742	6,403	5,489	28,047	8,917	15,385
Rowan	138,019	32,298	20,284	2,762	9,305	7,600	38,676	12,186	25,323
Swain	14,043	3,269	2,415	280	944	808	4,134	1,312	2,669
Union	205,463	61,371	20,657	5,248	12,771	9,750	49,165	15,309	21,541
Wake	929,780	239,466	82,193	20,478	61,386	43,699	218,943	67,116	105,629
Watauga	51,333	7,077	6,538	605	3,918	2,725	13,709	4,165	11,912
Wayne	123,697	30,498	16,492	2,608	8,220	6,490	32,925	10,306	26,362
Yancey	17,701	3,518	3,733	301	1,236	1,124	5,790	1,857	3,566
Totals	**6,572,896**	**1,575,325**	**804,227**	**134,714**	**441,773**	**338,563**	**1,712,089**	**532,804**	**1,111,973**

NORTH CAROLINA

American Lung Association in North Carolina

514 Daniels Street, #109
Raleigh, NC 27605
(919) 719-9960
www.lung.org/northcarolina

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Alamance	DNC	DNC	DNC	DNC	DNC
Alexander	3	0	0	1.0	C
Avery	0	0	0	0.0	A
Buncombe	1	0	0	0.3	B
Caldwell	1	0	0	0.3	B
Carteret	INC	INC	INC	INC	INC
Caswell	2	0	0	0.7	B
Catawba	DNC	DNC	DNC	DNC	DNC
Chatham	0	0	0	0.0	A
Cumberland	7	0	0	2.3	D
Davidson	DNC	DNC	DNC	DNC	DNC
Davie	2	0	0	0.7	B
Duplin	DNC	DNC	DNC	DNC	DNC
Durham	3	0	0	1.0	C
Edgecombe	2	0	0	0.7	B
Forsyth	18	0	0	6.0	F
Franklin	2	0	0	0.7	B
Gaston	DNC	DNC	DNC	DNC	DNC
Graham	4	0	0	1.3	C
Granville	4	0	0	1.3	C
Guilford	9	0	0	3.0	D
Haywood	5	0	0	1.7	C
Jackson	3	0	0	1.0	C
Johnston	2	0	0	0.7	B
Lenoir	1	0	0	0.3	B

HIGH PARTICLE POLLUTION DAYS 2009–2011

24 Hour					Annual	
Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
1	0	0	0.3	B	10.1	PASS
DNC	DNC	DNC	DNC	DNC	DNC	DNC
DNC	DNC	DNC	DNC	DNC	DNC	DNC
0	0	0	0.0	A	9.3	PASS
DNC	DNC	DNC	DNC	DNC	DNC	DNC
DNC	DNC	DNC	DNC	DNC	DNC	DNC
0	0	0	0.0	A	8.9	PASS
0	0	0	0.0	A	10.6	PASS
0	0	0	0.0	A	8.5	PASS
0	0	0	0.0	A	10.3	PASS
0	0	0	0.0	A	11.1	PASS
DNC	DNC	DNC	DNC	DNC	DNC	DNC
1	0	0	0.3	B	8.9	PASS
0	0	0	0.0	A	9.7	PASS
0	0	0	0.0	A	9.1	PASS
0	0	0	0.0	A	10.0	PASS
DNC	DNC	DNC	DNC	DNC	DNC	DNC
0	0	0	0.0	A	10.5	PASS
DNC	DNC	DNC	DNC	DNC	DNC	DNC
DNC	DNC	DNC	DNC	DNC	DNC	DNC
0	0	0	0.0	A	9.8	PASS
0	0	0	0.0	A	10.0	PASS
0	0	0	0.0	A	9.4	PASS
1	0	0	0.3	B	9.2	PASS
1	1	0	0.8	B	9.3	PASS

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Lincoln	8	0	0	2.7	D
McDowell	DNC	DNC	DNC	DNC	DNC
Macon	INC	INC	INC	INC	INC
Martin	1	0	0	0.3	B
Mecklenburg	32	1	0	11.2	F
Mitchell	DNC	DNC	DNC	DNC	DNC
Montgomery	INC	INC	INC	INC	INC
New Hanover	1	0	0	0.3	B
Person	4	0	0	1.3	C
Pitt	4	0	0	1.3	C
Robeson	DNC	DNC	DNC	DNC	DNC
Rockingham	5	0	0	1.7	C
Rowan	25	0	0	8.3	F
Swain	0	0	0	0.0	A
Union	3	0	0	1.0	C
Wake	9	0	0	3.0	D
Watauga	DNC	DNC	DNC	DNC	DNC
Wayne	DNC	DNC	DNC	DNC	DNC
Yancey	3	0	0	1.0	C

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Lincoln	DNC	DNC	DNC	DNC	DNC	DNC	DNC
McDowell	0	0	0	0.0	A	9.8	PASS
Macon	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Martin	0	0	0	0.0	A	8.7	PASS
Mecklenburg	0	0	0	0.0	A	11.2	PASS
Mitchell	0	0	0	0.0	A	9.3	PASS
Montgomery	0	0	0	0.0	A	9.3	PASS
New Hanover	INC	INC	INC	INC	INC	INC	INC
Person	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pitt	0	0	0	0.0	A	8.7	PASS
Robeson	0	0	0	0.0	A	10.0	PASS
Rockingham	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rowan	0	0	0	0.0	A	10.5	PASS
Swain	0	0	0	0.0	A	9.7	PASS
Union	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wake	0	1	0	0.5	B	9.8	PASS
Watauga	0	0	0	0.0	A	8.3	PASS
Wayne	0	0	0	0.0	A	9.9	PASS
Yancey	DNC	DNC	DNC	DNC	DNC	DNC	DNC

NORTH DAKOTA

American Lung Association in North Dakota

212 N. 2nd Street
Bismarck, ND 58501
(701) 223-5613
www.lung.org/northdakota

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Billings	816	143	126	8	53	33	230	62	73
Burke	2,033	439	399	25	125	86	591	163	179
Burleigh	83,145	18,640	11,356	1,077	5,182	3,015	20,326	5,317	7,347
Cass	152,368	32,727	15,076	1,890	9,777	4,987	32,817	8,108	18,355
Dunn	3,720	804	616	46	231	147	1,007	272	396
McKenzie	7,019	1,879	911	109	410	245	1,663	440	866
Mercer	8,449	1,811	1,345	105	519	342	2,362	648	653
Oliver	1,830	399	298	23	111	75	520	144	210
Totals	**259,380**	**56,842**	**30,127**	**3,283**	**16,408**	**8,930**	**59,516**	**15,154**	**28,079**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Billings	0	0	0	0.0	A
Burke	0	0	0	0.0	A
Burleigh	0	0	0	0.0	A
Cass	0	0	0	0.0	A
Dunn	0	0	0	0.0	A
McKenzie	0	0	0	0.0	A
Mercer	0	0	0	0.0	A
Oliver	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Billings	0	0	0	0.0	A	4.3	PASS
Burke	INC	INC	INC	INC	INC	INC	INC
Burleigh	0	0	0	0.0	A	6.9	PASS
Cass	2	0	0	0.7	B	8.1	PASS
Dunn	INC	INC	INC	INC	INC	INC	INC
McKenzie	INC	INC	INC	INC	INC	INC	INC
Mercer	0	0	0	0.0	A	6.3	PASS
Oliver	INC	INC	INC	INC	INC	INC	INC

NORTH DAKOTA

OHIO

American Lung Association in Ohio

1950 Arlingate Lane
Columbus, OH 43228-4102
(614) 279-1700
www.lung.org/ohio

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Allen	106,094	25,153	15,869	2,516	7,935	6,326	29,338	8,326	19,203
Ashtabula	101,345	23,536	16,137	2,354	7,590	6,272	29,186	8,346	19,891
Athens	64,769	9,867	6,653	987	5,550	3,515	15,836	4,240	19,353
Butler	369,999	92,160	43,580	9,218	27,563	20,726	94,812	26,617	49,749
Clark	137,691	32,211	22,542	3,222	10,278	8,478	39,536	11,292	25,642
Clermont	199,139	49,987	24,469	5,000	14,733	11,506	52,767	14,949	21,474
Clinton	41,927	10,204	5,749	1,021	3,120	2,472	11,404	3,236	6,375
Cuyahoga	1,270,294	283,168	198,263	28,323	96,576	78,103	362,751	103,256	233,438
Delaware	178,341	50,904	17,634	5,092	12,688	9,515	43,230	12,153	7,946
Fayette	28,985	7,074	4,389	708	2,144	1,733	8,049	2,291	5,090
Franklin	1,178,799	280,751	118,607	28,081	89,982	62,909	285,006	78,616	216,974
Geauga	93,228	23,448	15,049	2,345	6,766	5,885	27,435	7,932	7,383
Greene	162,846	34,464	22,583	3,447	12,678	9,669	44,541	12,525	23,980
Hamilton	800,362	187,735	106,776	18,778	60,469	46,564	214,359	60,440	144,388
Jefferson	68,828	13,717	12,634	1,372	5,340	4,553	21,330	6,130	11,200
Knox	61,275	14,569	9,118	1,457	4,580	3,648	16,916	4,800	8,382
Lake	229,885	50,096	37,485	5,011	17,522	14,591	67,914	19,453	23,042
Lawrence	62,489	14,434	9,833	1,444	4,697	3,814	17,738	5,052	11,684
Licking	167,248	40,728	22,696	4,074	12,448	9,866	45,491	12,914	21,273
Lorain	301,614	70,757	44,067	7,077	22,632	18,260	84,518	24,070	44,755
Lucas	440,005	104,313	58,858	10,434	33,123	25,554	117,682	33,194	100,123
Madison	43,401	9,678	5,471	968	3,339	2,546	11,669	3,286	4,506
Mahoning	237,270	50,368	42,318	5,038	18,130	15,340	71,808	20,606	40,663
Medina	173,262	42,846	23,424	4,286	12,811	10,342	47,679	13,597	15,308
Miami	102,857	24,453	16,166	2,446	7,652	6,298	29,298	8,371	14,133

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Montgomery	537,602	121,810	85,100	12,184	40,666	32,736	152,257	43,272	96,053
Noble	14,702	2,797	3,122	280	1,139	1,048	4,949	1,442	2,172
Portage	161,624	32,690	21,344	3,270	12,767	9,637	44,228	12,417	24,200
Preble	42,083	10,096	6,521	1,010	3,122	2,583	12,005	3,435	4,829
Scioto	79,277	17,850	12,362	1,785	6,017	4,791	22,262	6,312	19,671
Stark	375,087	84,543	61,972	8,456	28,303	23,453	109,350	31,269	59,598
Summit	539,832	121,199	79,547	12,123	41,067	32,935	152,407	43,344	87,840
Trumbull	209,264	45,592	36,880	4,560	15,876	13,469	63,023	18,099	33,943
Warren	214,910	57,967	23,794	5,798	15,568	11,868	54,188	15,277	14,477
Washington	61,755	12,699	11,045	1,270	4,760	4,021	18,816	5,398	8,849
Wood	126,355	26,854	15,761	2,686	9,885	7,267	33,265	9,280	16,617
Totals	**8,984,444**	**2,080,718**	**1,257,818**	**208,121**	**679,516**	**532,293**	**2,457,043**	**695,237**	**1,464,204**

OHIO

American Lung Association in Ohio

1950 Arlingate Lane
Columbus, OH 43228-4102
(614) 279-1700
www.lung.org/ohio

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Allen	4	0	0	1.3	C
Ashtabula	17	0	0	5.7	F
Athens	1	0	0	0.3	B
Butler	30	0	0	10.0	F
Clark	12	0	0	4.0	F
Clermont	11	1	0	4.2	F
Clinton	17	0	0	5.7	F
Cuyahoga	16	0	0	5.3	F
Delaware	3	0	0	1.0	C
Fayette	INC	INC	INC	INC	INC
Franklin	14	0	0	4.7	F
Geauga	8	0	0	2.7	D
Greene	6	0	0	2.0	C
Hamilton	37	1	0	12.8	F
Jefferson	1	0	0	0.3	B
Knox	7	0	0	2.3	D
Lake	23	0	0	7.7	F
Lawrence	3	0	0	1.0	C
Licking	8	0	0	2.7	D
Lorain	4	0	0	1.3	C
Lucas	8	0	0	2.7	D
Madison	9	0	0	3.0	D
Mahoning	5	0	0	1.7	C
Medina	3	0	0	1.0	C
Miami	3	0	0	1.0	C
Montgomery	18	0	0	6.0	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Allen	INC	INC	INC	INC	INC	INC	INC
Ashtabula	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Athens	0	0	0	0.0	A	9.0	PASS
Butler	1	0	0	0.3	B	13.0	FAIL
Clark	1	0	0	0.3	B	12.6	FAIL
Clermont	0	0	0	0.0	A	11.3	PASS
Clinton	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cuyahoga	4	0	0	1.3	C	13.1	FAIL
Delaware	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fayette	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Franklin	2	0	0	0.7	B	12.2	FAIL
Geauga	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Greene	0	0	0	0.0	A	INC	INC
Hamilton	7	0	0	2.3	D	13.8	FAIL
Jefferson	3	0	0	1.0	C	12.5	FAIL
Knox	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lake	0	0	0	0.0	A	10.1	PASS
Lawrence	0	0	0	0.0	A	11.4	PASS
Licking	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lorain	1	0	0	0.3	B	9.9	PASS
Lucas	3	0	0	1.0	C	11.4	PASS
Madison	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mahoning	3	0	0	1.0	C	11.8	PASS
Medina	0	0	0	0.0	A	INC	INC
Miami	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Montgomery	1	0	0	0.3	B	12.9	FAIL

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Noble	INC	INC	INC	INC	INC
Portage	2	0	0	0.7	B
Preble	4	0	0	1.3	C
Scioto	DNC	DNC	DNC	DNC	DNC
Stark	16	0	0	5.3	F
Summit	10	0	0	3.3	F
Trumbull	8	0	0	2.7	D
Warren	18	0	0	6.0	F
Washington	5	0	0	1.7	C
Wood	2	0	0	0.7	B

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Noble	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Portage	0	0	0	0.0	A	10.9	PASS
Preble	1	0	0	0.3	B	11.3	PASS
Scioto	0	0	0	0.0	A	10.9	PASS
Stark	7	0	0	2.3	D	13.4	FAIL
Summit	6	0	0	2.0	C	12.6	FAIL
Trumbull	INC	INC	INC	INC	INC	INC	INC
Warren	1	0	0	0.3	B	11.5	PASS
Washington	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wood	DNC	DNC	DNC	DNC	DNC	DNC	DNC

OKLAHOMA

American Lung Association in Oklahoma

11212 N. May Ave Suite 405
Oklahoma City, OK 73120
(405) 748-4674
www.lung.org/oklahoma

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Adair	22,612	6,269	2,986	590	1,570	1,429	6,357	1,861	4,978
Caddo	29,537	7,420	4,337	698	2,120	1,949	8,693	2,548	5,608
Canadian	119,492	31,900	13,195	3,003	8,450	7,332	32,470	9,423	9,687
Carter	48,096	12,356	7,179	1,163	3,425	3,190	14,228	4,180	7,643
Cherokee	47,845	11,411	6,593	1,074	3,496	3,067	13,682	3,974	11,322
Cleveland	261,281	58,855	27,503	5,540	19,535	15,959	70,744	20,271	33,363
Comanche	125,815	31,544	12,876	2,969	9,094	7,372	32,708	9,355	20,241
Cotton	6,179	1,497	1,040	141	448	431	1,927	569	1,103
Creek	70,467	17,338	10,798	1,632	5,093	4,829	21,513	6,341	11,810
Dewey	4,867	1,197	1,020	113	348	356	1,602	477	600
Jefferson	6,506	1,542	1,244	145	473	472	2,117	629	1,372
Kay	46,159	11,613	7,956	1,093	3,297	3,177	14,230	4,202	8,147
Lincoln	34,155	8,633	5,289	813	2,446	2,348	10,460	3,090	6,020
Love	9,386	2,284	1,647	215	678	657	2,944	870	1,523
McClain	35,235	9,398	4,734	885	2,484	2,293	10,188	2,991	4,913
McCurtain	33,195	8,639	5,171	813	2,350	2,219	9,906	2,917	10,096
Mayes	41,389	10,556	6,621	994	2,950	2,812	12,558	3,704	7,555
Muskogee	71,003	17,583	10,545	1,655	5,120	4,709	21,008	6,157	16,201
Oklahoma	732,371	186,003	88,264	17,509	52,587	45,422	201,833	58,484	137,495
Osage	47,425	11,340	7,307	1,067	3,462	3,322	14,781	4,368	8,317
Ottawa	31,860	7,860	5,405	740	2,291	2,167	9,712	2,859	6,395
Pittsburg	45,625	10,085	8,018	949	3,394	3,252	14,555	4,295	7,513
Sequoyah	42,341	10,892	6,492	1,025	3,012	2,834	12,643	3,721	8,736
Tulsa	610,599	155,633	74,918	14,651	43,782	38,212	169,784	49,300	90,078
Totals	**2,523,440**	**631,848**	**321,138**	**59,477**	**181,905**	**159,810**	**710,643**	**206,586**	**420,716**

(continued)

	HIGH OZONE DAYS 2009–2011					HIGH PARTICLE POLLUTION DAYS 2009–2011						
						24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Adair	5	0	0	1.7	C	1	0	0	0.3	B	INC	INC
Caddo	8	0	0	2.7	D	0	0	0	0.0	A	INC	INC
Canadian	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carter	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cherokee	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cleveland	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Comanche	9	0	0	3.0	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cotton	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Creek	16	0	0	5.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dewey	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jefferson	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kay	13	0	0	4.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lincoln	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Love	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
McClain	11	0	0	3.7	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC
McCurtain	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mayes	10	0	0	3.3	F	0	0	0	0.0	A	INC	INC
Muskogee	INC	INC	INC	INC	INC	0	0	0	0.0	A	INC	INC
Oklahoma	32	0	0	10.7	F	0	0	0	0.0	A	9.5	PASS
Osage	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ottawa	7	0	0	2.3	D	INC	INC	INC	INC	INC	INC	INC
Pittsburg	7	0	0	2.3	D	1	0	0	0.3	B	10.1	PASS
Sequoyah	3	0	0	1.0	C	0	0	0	0.0	A	INC	INC
Tulsa	30	0	0	10.0	F	0	0	0	0.0	A	10.8	PASS

OREGON

American Lung Association in Oregon

7420 SW Bridgeport Road, Suite 200
Tigard, OR 97224-7711
(503) 924-4094
www.lung.org/oregon

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Clackamas	380,207	88,090	54,019	8,336	30,544	17,946	96,400	28,342	41,457
Columbia	49,402	11,456	7,226	1,084	3,966	2,368	12,716	3,753	6,020
Crook	20,839	4,385	4,440	415	1,709	1,128	6,099	1,817	3,840
Deschutes	160,338	36,349	25,021	3,440	12,944	7,647	41,219	12,072	21,999
Harney	7,373	1,637	1,431	155	597	386	2,080	619	1,350
Jackson	204,822	44,166	37,073	4,179	16,734	10,291	55,596	16,358	39,829
Josephine	82,987	16,701	19,052	1,580	6,876	4,616	24,998	7,448	17,021
Klamath	66,299	14,573	11,651	1,379	5,390	3,298	17,807	5,240	15,023
Lake	7,908	1,444	1,642	137	672	439	2,366	705	1,538
Lane	353,416	68,420	54,567	6,475	29,763	16,874	91,147	26,384	73,046
Linn	118,122	28,115	18,463	2,661	9,393	5,530	29,843	8,719	22,379
Marion	318,872	83,848	41,800	7,935	24,567	13,552	73,180	21,068	63,412
Multnomah	748,031	152,353	79,874	14,417	62,458	31,567	170,155	48,122	142,279
Umatilla	76,725	20,363	9,784	1,927	5,894	3,256	17,562	5,067	12,846
Union	25,791	5,732	4,395	542	2,091	1,247	6,743	1,970	3,954
Washington	540,410	136,608	56,264	12,927	42,333	21,959	118,195	33,709	67,522
Totals	**3,161,542**	**714,240**	**426,702**	**67,589**	**255,931**	**142,104**	**766,106**	**221,393**	**533,515**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Clackamas	3	0	0	1.0	C
Columbia	0	0	0	0.0	A
Crook	DNC	DNC	DNC	DNC	DNC
Deschutes	0	0	0	0.0	A
Harney	DNC	DNC	DNC	DNC	DNC
Jackson	0	0	0	0.0	A
Josephine	DNC	DNC	DNC	DNC	DNC
Klamath	DNC	DNC	DNC	DNC	DNC
Lake	DNC	DNC	DNC	DNC	DNC
Lane	0	0	0	0.0	A
Linn	DNC	DNC	DNC	DNC	DNC
Marion	2	0	0	0.7	B
Multnomah	2	0	0	0.7	B
Umatilla	0	0	0	0.0	A
Union	DNC	DNC	DNC	DNC	DNC
Washington	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Clackamas	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Columbia	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Crook	2	0	0	0.7	B	8.6	PASS
Deschutes	INC	INC	INC	INC	INC	INC	INC
Harney	3	0	0	1.0	C	INC	INC
Jackson	5	0	0	1.7	C	8.8	PASS
Josephine	2	0	0	0.7	B	7.5	PASS
Klamath	11	1	0	4.2	F	10.7	PASS
Lake	5	3	0	3.2	D	9.1	PASS
Lane	21	1	0	7.5	F	10.0	PASS
Linn	1	0	0	0.3	B	INC	INC
Marion	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Multnomah	3	0	0	1.0	C	7.4	PASS
Umatilla	0	0	0	0.0	A	7.4	PASS
Union	INC	INC	INC	INC	INC	INC	INC
Washington	4	0	0	1.3	C	7.9	PASS

PENNSYLVANIA

American Lung Association in Pennsylvania

3001 Old Gettysburg Road
Camp Hill, PA 17011-7206
(717) 541-5864
www.lung.org/pennsylvania

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Adams	101,434	22,087	16,331	2,215	7,120	5,393	28,187	7,733	8,451
Allegheny	1,227,066	239,182	203,896	23,991	89,052	66,386	346,036	94,750	159,663
Armstrong	68,568	13,830	12,710	1,387	4,845	3,876	20,441	5,692	8,950
Beaver	170,414	34,376	31,534	3,448	12,062	9,593	50,533	14,061	20,541
Berks	412,778	96,889	60,495	9,719	28,599	20,901	108,588	29,506	53,881
Blair	127,099	26,667	22,582	2,675	8,978	6,929	36,323	10,049	18,074
Bucks	626,854	140,910	93,703	14,134	43,522	33,068	172,973	47,283	40,661
Cambria	143,728	27,749	26,912	2,783	10,331	8,088	42,499	11,804	19,466
Centre	154,722	23,729	17,730	2,380	12,425	7,445	37,191	9,540	26,772
Chester	503,897	122,975	66,195	12,335	34,515	25,021	129,838	35,031	34,765
Clearfield	81,445	15,947	14,286	1,600	5,859	4,504	23,595	6,511	11,287
Cumberland	237,892	48,237	37,673	4,838	17,158	12,599	65,504	17,853	17,961
Dauphin	268,977	61,585	37,534	6,177	18,784	13,666	70,954	19,200	33,406
Delaware	559,494	128,423	80,471	12,882	39,099	28,344	147,055	39,847	54,776
Elk	31,751	6,469	6,030	649	2,228	1,812	9,577	2,677	3,078
Erie	280,985	62,942	41,160	6,313	19,787	14,328	74,316	20,148	44,103
Franklin	150,811	35,600	25,359	3,571	10,340	7,860	41,100	11,332	15,365
Greene	38,623	7,555	5,947	758	2,810	2,061	10,713	2,912	5,475
Indiana	89,298	16,436	13,982	1,649	6,657	4,706	24,304	6,572	15,155
Lackawanna	214,166	43,541	37,771	4,367	15,301	11,669	61,048	16,846	28,339
Lancaster	523,594	128,645	79,806	12,904	35,696	26,329	136,991	37,402	55,061
Lawrence	90,535	18,942	17,059	1,900	6,350	5,052	26,613	7,420	14,181
Lebanon	134,311	30,572	23,054	3,067	9,287	7,126	37,321	10,309	14,454
Lehigh	352,947	82,186	52,278	8,244	24,504	17,942	93,245	25,357	48,435
Luzerne	320,651	64,179	57,539	6,438	22,953	17,641	92,412	25,549	47,132

(continued)

	AT-RISK GROUPS								
				Lung Diseases					
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Lycoming	116,747	24,060	19,269	2,413	8,341	6,258	32,655	8,953	15,941
Mercer	116,205	24,712	21,626	2,479	8,140	6,407	33,691	9,376	15,675
Monroe	169,882	39,327	22,302	3,945	11,793	8,637	44,906	12,123	22,263
Montgomery	804,210	181,706	122,986	18,226	56,075	41,803	217,927	59,503	50,823
Northampton	298,476	63,991	47,529	6,419	21,110	15,794	82,380	22,541	28,873
Perry	46,042	10,486	6,614	1,052	3,196	2,393	12,484	3,398	4,917
Philadelphia	1,536,471	345,974	186,055	34,703	110,641	72,503	369,110	97,274	414,826
Somerset	77,405	14,733	14,626	1,478	5,563	4,409	23,213	6,459	9,968
Tioga	42,419	8,610	7,710	864	3,019	2,341	12,278	3,402	6,326
Washington	208,282	42,186	36,713	4,232	14,788	11,561	60,741	16,812	21,479
Westmoreland	364,471	71,196	69,087	7,141	25,925	20,851	110,034	30,691	37,877
York	436,770	100,836	62,697	10,114	30,350	22,318	116,088	31,522	46,355
Totals	**11,129,420**	**2,427,470**	**1,699,251**	**243,490**	**787,203**	**577,614**	**3,002,864**	**817,438**	**1,474,755**

PENNSYLVANIA

American Lung Association in Pennsylvania

3001 Old Gettysburg Road
Camp Hill, PA 17011-7206
(717) 541-5864
www.lung.org/pennsylvania

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Adams	4	0	0	1.3	C
Allegheny	29	1	0	10.2	F
Armstrong	5	0	0	1.7	C
Beaver	6	0	0	2.0	C
Berks	12	0	0	4.0	F
Blair	6	0	0	2.0	C
Bucks	19	2	0	7.3	F
Cambria	4	0	0	1.3	C
Centre	6	0	0	2.0	C
Chester	16	0	0	5.3	F
Clearfield	5	0	0	1.7	C
Cumberland	DNC	DNC	DNC	DNC	DNC
Dauphin	8	0	0	2.7	D
Delaware	11	0	0	3.7	F
Elk	INC	INC	INC	INC	INC
Erie	6	0	0	2.0	C
Franklin	1	0	0	0.3	B
Greene	5	0	0	1.7	C
Indiana	11	0	0	3.7	F
Lackawanna	2	0	0	0.7	B
Lancaster	24	0	0	8.0	F
Lawrence	2	0	0	0.7	B
Lebanon	INC	INC	INC	INC	INC
Lehigh	18	0	0	6.0	F
Luzerne	1	0	0	0.3	B
Lycoming	1	0	0	0.3	B

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Adams	2	0	0	0.7	B	11.7	PASS
Allegheny	50	8	0	20.7	F	15.0	FAIL
Armstrong	3	0	0	1.0	C	INC	INC
Beaver	2	0	0	0.7	B	12.4	FAIL
Berks	7	0	0	2.3	D	10.7	PASS
Blair	INC	INC	INC	INC	INC	INC	INC
Bucks	6	1	0	2.5	D	10.9	PASS
Cambria	10	0	0	3.3	F	12.4	FAIL
Centre	5	0	0	1.7	C	9.3	PASS
Chester	11	0	0	3.7	F	13.7	FAIL
Clearfield	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cumberland	17	0	0	5.7	F	11.0	PASS
Dauphin	12	0	0	4.0	F	12.1	FAIL
Delaware	7	0	0	2.3	D	12.7	FAIL
Elk	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Erie	2	0	0	0.7	B	10.7	PASS
Franklin	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Greene	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Indiana	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lackawanna	2	0	0	0.7	B	9.4	PASS
Lancaster	9	0	0	3.0	D	12.0	PASS
Lawrence	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lebanon	INC	INC	INC	INC	INC	INC	INC
Lehigh	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Luzerne	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lycoming	DNC	DNC	DNC	DNC	DNC	DNC	DNC

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Mercer	8	0	0	2.7	D
Monroe	6	0	0	2.0	C
Montgomery	17	0	0	5.7	F
Northampton	13	0	0	4.3	F
Perry	2	0	0	0.7	B
Philadelphia	32	0	0	10.7	F
Somerset	INC	INC	INC	INC	INC
Tioga	3	0	0	1.0	C
Washington	4	0	0	1.3	C
Westmoreland	7	0	0	2.3	D
York	10	0	0	3.3	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Mercer	2	0	0	0.7	B	10.5	PASS
Monroe	INC	INC	INC	INC	INC	INC	INC
Montgomery	4	0	0	1.3	C	10.1	PASS
Northampton	12	2	0	5.0	F	13.4	FAIL
Perry	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Philadelphia	9	0	0	3.0	D	11.6	PASS
Somerset	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tioga	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washington	6	0	0	2.0	C	12.6	FAIL
Westmoreland	13	0	0	4.3	F	13.7	FAIL
York	12	0	0	4.0	F	11.5	PASS

RHODE ISLAND

American Lung Association in Rhode Island

260 West Exchange Street, Suite 102-B
Providence, RI 02903
(401) 533-5171
www.lung.org/rhodeisland

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Kent	165,535	33,365	26,572	4,313	15,484	8,802	49,213	11,880	15,481
Providence	626,709	135,816	84,961	17,556	58,464	29,957	167,763	39,928	109,466
Washington	126,563	24,532	19,738	3,171	11,979	6,704	37,533	9,040	11,139
Totals	**918,807**	**193,713**	**131,271**	**25,040**	**85,927**	**45,463**	**254,509**	**60,848**	**136,086**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Kent	5	0	0	1.7	C
Providence	7	0	0	2.3	D
Washington	6	0	0	2.0	C

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Kent	0	0	0	0.0	A	6.4	PASS
Providence	2	1	0	1.2	C	9.4	PASS
Washington	DNC	DNC	DNC	DNC	DNC	DNC	DNC

RHODE ISLAND

SOUTH CAROLINA

American Lung Association in South Carolina

44-A Markfield Drive
Charleston, SC 29407
(843) 556-8451
www.lung.org/southcarolina

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Abbeville	25,161	5,611	4,289	480	1,631	1,584	8,159	2,553	4,986
Aiken	160,682	35,604	25,540	3,045	10,394	9,908	50,922	15,881	31,892
Anderson	188,488	44,600	29,057	3,814	11,943	11,329	58,203	18,142	29,142
Berkeley	183,525	45,852	18,804	3,921	11,247	9,831	50,019	15,334	27,721
Charleston	357,704	74,052	46,660	6,333	23,240	20,731	105,908	32,701	66,260
Cherokee	55,540	13,549	7,728	1,159	3,470	3,221	16,505	5,123	12,346
Chesterfield	46,557	11,266	6,507	963	2,926	2,751	14,103	4,379	11,585
Colleton	38,611	9,222	6,348	789	2,454	2,388	12,294	3,844	10,743
Darlington	68,299	16,272	10,141	1,392	4,323	4,111	21,102	6,568	15,988
Edgefield	26,670	5,535	3,679	473	1,750	1,631	8,349	2,586	4,657
Florence	137,862	33,754	18,767	2,887	8,597	7,946	40,702	12,623	28,655
Greenville	461,299	111,572	59,950	9,541	28,780	26,180	133,913	41,434	71,212
Horry	276,340	55,240	48,991	4,724	18,389	17,666	90,983	28,481	51,367
Lexington	267,129	64,657	33,648	5,529	16,696	15,289	78,163	24,159	38,243
Oconee	74,418	15,402	14,632	1,317	4,944	4,910	25,369	7,985	13,953
Pickens	119,574	23,876	16,559	2,042	7,827	6,948	35,529	10,991	22,193
Richland	389,116	88,015	39,002	7,527	24,441	20,746	105,374	32,213	66,542
Spartanburg	286,868	69,324	39,486	5,928	17,961	16,597	85,026	26,376	53,098
York	230,528	58,236	26,889	4,980	14,174	12,821	65,449	20,177	34,223
Totals	**3,394,371**	**781,639**	**456,677**	**66,844**	**215,187**	**196,588**	**1,006,072**	**311,550**	**594,806**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Abbeville	0	0	0	0.0	A
Aiken	0	0	0	0.0	A
Anderson	6	0	0	2.0	C
Berkeley	0	0	0	0.0	A
Charleston	0	0	0	0.0	A
Cherokee	3	0	0	1.0	C
Chesterfield	1	0	0	0.3	B
Colleton	0	0	0	0.0	A
Darlington	1	0	0	0.3	B
Edgefield	0	0	0	0.0	A
Florence	DNC	DNC	DNC	DNC	DNC
Greenville	3	0	0	1	C
Horry	INC	INC	INC	INC	INC
Lexington	DNC	DNC	DNC	DNC	DNC
Oconee	1	0	0	0.3	B
Pickens	3	0	0	1.0	C
Richland	11	0	0	3.7	F
Spartanburg	10	0	0	3.3	F
York	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Abbeville	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Aiken	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Anderson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Berkeley	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Charleston	4	0	0	1.3	C	9.2	PASS
Cherokee	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Chesterfield	0	0	0	0.0	A	9.7	PASS
Colleton	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Darlington	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Edgefield	1	0	0	0.3	B	10.1	PASS
Florence	0	0	0	0.0	A	10.7	PASS
Greenville	5	0	0	1.7	C	11.2	PASS
Horry	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lexington	0	0	0	0.0	A	11.3	PASS
Oconee	1	0	0	0.3	B	INC	INC
Pickens	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Richland	0	0	0	0.0	A	11.0	PASS
Spartanburg	0	0	0	0.0	A	11.0	PASS
York	DNC	DNC	DNC	DNC	DNC	DNC	DNC

SOUTH CAROLINA

SOUTH DAKOTA

American Lung Association in South Dakota

401 East 8th Street Suite 205
Sioux Falls, SD 57103
(605) 336-7222
www.lung.org/southdakota

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Brookings	32,226	6,020	3,249	515	1,776	1,174	7,271	1,966	4,359
Brown	36,822	8,504	5,849	727	1,948	1,582	9,879	2,767	3,545
Codington	27,442	6,763	4,057	578	1,417	1,139	7,136	1,993	3,312
Custer	8,338	1,602	1,841	137	468	440	2,764	789	884
Jackson	3,169	1,033	422	88	147	117	730	204	1,038
Meade	25,546	6,205	3,175	531	1,309	1,016	6,418	1,776	3,018
Minnehaha	171,752	42,742	19,491	3,655	8,717	6,514	41,030	11,289	18,813
Pennington	102,815	25,014	14,265	2,139	5,307	4,196	26,342	7,329	13,323
Union	14,651	3,736	2,115	319	744	612	3,861	1,079	947
Totals	**422,761**	**101,619**	**54,464**	**8,689**	**21,833**	**16,790**	**105,431**	**29,192**	**49,239**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Brookings	0	0	0	0.0	A
Brown	DNC	DNC	DNC	DNC	DNC
Codington	DNC	DNC	DNC	DNC	DNC
Custer	0	0	0	0.0	A
Jackson	0	0	0	0.0	A
Meade	0	0	0	0.0	A
Minnehaha	0	0	0	0.0	A
Pennington	DNC	DNC	DNC	DNC	DNC
Union	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Brookings	1	0	0	0.3	B	8.4	PASS
Brown	0	0	0	0.0	A	8.0	PASS
Codington	1	0	0	0.3	B	8.5	PASS
Custer	2	3	0	2.2	D	4.5	PASS
Jackson	0	0	0	0.0	A	3.8	PASS
Meade	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Minnehaha	2	0	0	0.7	B	9.1	PASS
Pennington	0	0	0	0.0	A	5.9	PASS
Union	3	0	0	1.0	C	8.8	PASS

SOUTH DAKOTA

TENNESSEE

American Lung Association in Tennessee

One Vantage Way, Suite D-220
Nashville, TN 37228
(615) 329-1151
www.lung.org/tennessee

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Anderson	75,233	16,124	13,235	1,541	4,350	5,811	26,331	7,402	12,376
Blount	123,901	27,002	20,567	2,580	7,100	9,391	42,386	11,811	17,800
Claiborne	32,172	6,637	5,348	634	1,864	2,446	11,037	3,063	8,180
Davidson	635,475	138,793	66,674	13,263	35,091	42,555	186,623	48,080	118,715
DeKalb	18,854	4,279	3,023	409	1,067	1,409	6,346	1,763	3,597
Dyer	38,192	9,416	5,643	900	2,099	2,742	12,306	3,388	7,279
Hamilton	340,855	73,183	50,655	6,993	19,403	25,040	112,159	30,626	63,596
Jefferson	51,666	11,232	8,626	1,073	2,955	3,890	17,574	4,891	9,749
Knox	436,929	94,045	57,894	8,987	24,608	31,029	137,976	36,924	62,531
Lawrence	42,115	10,494	6,906	1,003	2,310	3,044	13,780	3,845	7,857
Loudon	49,237	9,840	11,038	940	2,933	4,045	18,683	5,430	6,378
McMinn	52,508	11,614	9,070	1,110	3,001	3,987	18,060	5,062	10,344
Madison	98,255	23,265	13,236	2,223	5,413	6,911	30,806	8,322	18,724
Maury	81,509	19,582	10,946	1,871	4,502	5,821	25,922	7,041	13,330
Meigs	11,737	2,460	2,042	235	684	916	4,141	1,163	2,699
Montgomery	176,619	48,949	14,128	4,678	8,910	10,475	45,462	11,346	28,472
Putnam	72,958	15,509	10,892	1,482	4,112	5,188	23,290	6,300	16,472
Roane	53,838	11,012	10,338	1,052	3,179	4,324	19,696	5,613	9,501
Rutherford	268,921	69,431	22,750	6,635	14,033	16,777	72,885	18,405	31,803
Sevier	91,466	20,043	14,577	1,915	5,223	6,869	30,913	8,565	15,171
Shelby	935,088	243,754	97,553	23,293	49,455	61,528	270,299	70,823	196,779
Sullivan	157,419	31,896	29,957	3,048	9,251	12,434	56,652	16,060	28,292
Sumner	163,686	40,701	21,337	3,889	8,928	11,504	51,170	13,858	17,618
Williamson	188,560	54,214	19,068	5,181	9,791	12,602	55,266	14,727	11,606
Wilson	116,617	28,639	14,743	2,737	6,402	8,274	36,696	9,922	13,604
Totals	**4,313,810**	**1,022,114**	**540,246**	**97,672**	**236,664**	**299,012**	**1,326,459**	**354,430**	**732,473**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Anderson	4	0	0	1.3	C
Blount	24	0	0	8.0	F
Claiborne	INC	INC	INC	INC	INC
Davidson	4	0	0	1.3	C
DeKalb	INC	INC	INC	INC	INC
Dyer	DNC	DNC	DNC	DNC	DNC
Hamilton	14	0	0	4.7	F
Jefferson	12	0	0	4.0	F
Knox	7	0	0	2.3	D
Lawrence	INC	INC	INC	INC	INC
Loudon	8	0	0	2.7	D
McMinn	DNC	DNC	DNC	DNC	DNC
Madison	DNC	DNC	DNC	DNC	DNC
Maury	DNC	DNC	DNC	DNC	DNC
Meigs	4	0	0	1.3	C
Montgomery	DNC	DNC	DNC	DNC	DNC
Putnam	DNC	DNC	DNC	DNC	DNC
Roane	DNC	DNC	DNC	DNC	DNC
Rutherford	1	0	0	0.3	B
Sevier	23	0	0	7.7	F
Shelby	22	0	0	7.3	F
Sullivan	5	0	0	1.7	C
Sumner	18	0	0	6.0	F
Williamson	6	0	0	2.0	C
Wilson	3	0	0	1.0	C

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Anderson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Blount	0	0	0	0.0	A	11.0	PASS
Claiborne	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Davidson	0	0	0	0.0	A	10.9	PASS
DeKalb	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dyer	1	0	0	0.3	B	9.7	PASS
Hamilton	0	1	0	0.5	B	11.2	PASS
Jefferson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Knox	2	0	0	0.7	B	12.3	FAIL
Lawrence	0	0	0	0.0	A	8.6	PASS
Loudon	1	0	0	0.3	B	11.7	PASS
McMinn	0	0	0	0.0	A	10.9	PASS
Madison	0	0	0	0.0	A	9.3	PASS
Maury	0	0	0	0.0	A	9.2	PASS
Meigs	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Montgomery	0	0	0	0.0	A	10.4	PASS
Putnam	0	0	0	0.0	A	9.6	PASS
Roane	0	2	0	1.0	C	11.2	PASS
Rutherford	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sevier	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Shelby	1	0	0	0.3	B	10.4	PASS
Sullivan	1	0	0	0.3	B	10.7	PASS
Sumner	0	0	0	0.0	A	10.2	PASS
Williamson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wilson	DNC	DNC	DNC	DNC	DNC	DNC	DNC

TEXAS

American Lung Association in Texas

5926 Balcones Drive, Suite 100
Austin, TX 78731
(512) 467-6753
www.lung.org/texas

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Bell	315,196	89,212	27,950	7,166	16,601	11,573	70,728	21,123	48,432
Bexar	1,756,153	472,558	182,442	37,960	95,316	69,676	424,952	129,213	307,195
Bowie	92,793	22,376	13,299	1,797	5,311	4,245	25,569	7,940	16,531
Brazoria	319,973	88,132	31,569	7,080	17,332	12,720	78,226	24,057	37,492
Brewster	9,386	1,813	1,596	146	572	471	2,812	874	1,544
Cameron	414,123	135,215	46,669	10,862	20,730	15,719	94,663	28,786	138,278
Collin	812,226	229,940	65,714	18,471	43,335	30,497	189,409	57,907	66,217
Dallas	2,416,014	666,960	215,670	53,577	129,337	91,285	560,864	169,501	475,446
Denton	686,406	187,155	50,520	15,034	36,863	25,093	156,026	47,083	63,240
Ector	140,111	40,763	14,104	3,274	7,382	5,402	32,969	10,037	21,718
Ellis	152,753	43,586	15,814	3,501	8,201	6,145	37,741	11,687	18,918
El Paso	820,790	243,861	84,844	19,589	42,784	31,417	190,906	57,903	198,017
Galveston	295,747	74,702	34,038	6,001	16,683	12,758	78,244	24,383	43,270
Gillespie	25,114	5,003	6,757	402	1,565	1,540	8,931	2,855	3,079
Gregg	123,081	31,371	16,793	2,520	6,882	5,416	32,595	10,051	21,085
Harris	4,180,894	1,165,484	350,212	93,623	222,920	155,592	959,756	290,025	803,895
Harrison	66,296	17,239	8,781	1,385	3,711	2,944	17,857	5,574	10,654
Hays	164,050	39,859	14,453	3,202	9,127	6,299	38,675	11,564	23,378
Hidalgo	797,810	274,480	75,576	22,049	38,472	27,692	167,359	50,002	294,504
Hood	51,670	10,797	11,442	867	3,157	2,904	17,102	5,442	5,803
Hunt	86,531	21,501	12,223	1,727	4,918	3,945	23,822	7,428	13,882
Jefferson	252,802	60,611	32,003	4,869	14,419	11,098	67,337	20,781	47,273
Johnson	152,734	41,125	18,234	3,304	8,409	6,492	39,577	12,294	19,581
Kaufman	105,358	30,150	11,065	2,422	5,647	4,241	26,007	8,047	12,858
Lubbock	283,910	68,617	31,369	5,512	15,871	11,505	69,638	20,908	55,655

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
McLennan	238,564	59,951	29,787	4,816	13,298	10,106	60,963	18,591	54,383
Montgomery	471,734	128,929	50,756	10,357	25,786	19,450	119,378	37,034	64,169
Navarro	48,054	13,042	6,966	1,048	2,649	2,156	12,959	4,041	9,315
Nueces	343,281	88,138	42,119	7,080	19,153	14,728	89,465	27,636	67,589
Orange	82,487	20,519	11,645	1,648	4,696	3,778	22,848	7,144	13,118
Parker	118,376	29,511	15,047	2,371	6,751	5,324	32,550	10,226	12,327
Polk	45,725	9,660	8,686	776	2,758	2,398	14,251	4,494	8,294
Potter	122,285	34,254	13,290	2,752	6,560	4,886	29,741	9,091	26,259
Randall	123,351	30,350	15,363	2,438	6,963	5,332	32,322	9,945	11,965
Rockwall	81,290	23,671	8,156	1,901	4,332	3,236	19,920	6,177	4,846
Smith	213,381	54,512	30,714	4,379	11,932	9,528	57,098	17,620	35,744
Tarrant	1,849,815	515,168	169,223	41,383	99,250	71,169	438,244	133,693	307,362
Travis	1,063,130	254,109	79,393	20,412	59,171	39,302	243,076	72,070	188,084
Victoria	87,545	23,214	11,945	1,865	4,858	3,876	23,409	7,286	15,918
Webb	256,496	89,351	20,476	7,178	12,256	8,498	51,895	15,447	81,311
Totals	**19,667,435**	**5,436,889**	**1,886,703**	**436,744**	**1,055,958**	**760,436**	**4,659,884**	**1,415,960**	**3,648,629**

TEXAS

American Lung Association in Texas

5926 Balcones Drive, Suite 100
Austin, TX 78731
(512) 467-6753
www.lung.org/texas

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Bell	2	0	0	0.7	B
Bexar	17	0	0	5.7	F
Bowie	DNC	DNC	DNC	DNC	DNC
Brazoria	40	4	0	15.3	F
Brewster	7	0	0	2.3	D
Cameron	0	0	0	0.0	A
Collin	30	0	0	10.0	F
Dallas	34	4	0	13.3	F
Denton	49	2	0	17.3	F
Ector	DNC	DNC	DNC	DNC	DNC
Ellis	9	0	0	3.0	D
El Paso	8	0	0	2.7	D
Galveston	16	1	0	5.8	F
Gillespie	INC	INC	INC	INC	INC
Gregg	18	0	0	6.0	F
Harris	67	10	0	27.3	F
Harrison	8	0	0	2.7	D
Hays	9	0	0	3.0	D
Hidalgo	0	0	0	0.0	A
Hood	13	0	0	4.3	F
Hunt	7	0	0	2.3	D
Jefferson	29	2	0	10.7	F
Johnson	17	0	0	5.7	F
Kaufman	2	0	0	0.7	B
Lubbock	DNC	DNC	DNC	DNC	DNC
McLennan	7	0	0	2.3	D

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Bell	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Bexar	0	0	0	0.0	A	9.3	PASS
Bowie	0	0	0	0.0	A	11.1	PASS
Brazoria	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Brewster	INC	INC	INC	INC	INC	INC	INC
Cameron	0	0	0	0.0	A	INC	INC
Collin	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dallas	1	0	0	0.3	B	10.7	PASS
Denton	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ector	INC	INC	INC	INC	INC	INC	INC
Ellis	0	0	0	0.0	A	INC	INC
El Paso	8	1	0	3.2	D	9.6	PASS
Galveston	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Gillespie	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Gregg	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Harris	1	0	0	0.3	B	12.4	FAIL
Harrison	0	1	0	0.5	B	10.6	PASS
Hays	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hidalgo	0	0	0	0.0	A	10.5	PASS
Hood	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hunt	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jefferson	INC	INC	INC	INC	INC	INC	INC
Johnson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kaufman	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lubbock	INC	INC	INC	INC	INC	INC	INC
McLennan	DNC	DNC	DNC	DNC	DNC	DNC	DNC

(continued)

	HIGH OZONE DAYS 2009–2011					HIGH PARTICLE POLLUTION DAYS 2009–2011						
						24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Montgomery	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Navarro	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Nueces	7	0	0	2.3	D	0	0	0	0.0	A	10.3	PASS
Orange	12	0	0	4.0	F	INC	INC	INC	INC	INC	INC	INC
Parker	24	2	0	9.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Polk	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Potter	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC
Randall	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rockwall	15	1	0	5.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Smith	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tarrant	62	6	0	23.7	F	0	0	0	0.0	A	10.6	PASS
Travis	9	0	0	3.0	D	0	0	0	0.0	A	10.3	PASS
Victoria	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Webb	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC

UTAH

American Lung Association in Utah

1930 South 1100 East
Salt Lake City, UT 84106-2317
(801) 484-4456
www.lung.org/utah

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Box Elder	50,290	16,886	5,697	1,140	2,942	1,449	9,410	2,559	5,021
Cache	114,699	35,495	9,054	2,397	6,974	3,008	18,402	4,770	18,567
Carbon	21,318	5,699	2,895	385	1,376	698	4,591	1,260	3,070
Davis	311,811	106,178	26,050	7,171	18,092	8,284	52,486	13,938	25,573
Duchesne	18,888	6,369	2,083	430	1,103	536	3,464	939	2,227
Garfield	5,144	1,375	831	93	332	180	1,212	339	726
Salt Lake	1,048,985	303,918	92,845	20,525	65,553	29,865	188,795	50,044	149,852
San Juan	14,825	4,927	1,652	333	871	429	2,790	759	4,360
Tooele	59,326	21,231	4,533	1,434	3,351	1,521	9,620	2,547	5,669
Uintah	33,163	11,005	3,021	743	1,950	905	5,755	1,535	3,845
Utah	530,499	184,519	35,144	12,462	30,458	12,772	77,117	19,746	73,997
Washington	141,666	42,587	24,891	2,876	8,752	4,683	30,862	8,587	21,972
Weber	234,420	70,002	23,991	4,728	14,473	6,835	43,758	11,743	30,614
Totals	**2,585,034**	**810,191**	**232,687**	**54,717**	**156,227**	**71,165**	**448,262**	**118,766**	**345,493**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Box Elder	3	0	0	1.0	C
Cache	0	0	0	0.0	A
Carbon	INC	INC	INC	INC	INC
Davis	4	0	0	1.3	C
Duchesne	INC	INC	INC	INC	INC
Garfield	INC	INC	INC	INC	INC
Salt Lake	15	0	0	5.0	F
San Juan	1	0	0	0.3	B
Tooele	3	0	0	1.0	C
Uintah	34	21	9	27.8	F
Utah	2	0	0	0.7	B
Washington	1	0	0	0.3	B
Weber	5	0	0	1.7	C

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Box Elder	8	2	0	3.7	F	8.2	PASS
Cache	28	10	0	14.3	F	9.7	PASS
Carbon	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Davis	10	3	0	4.8	F	9.2	PASS
Duchesne	INC	INC	INC	INC	INC	INC	INC
Garfield	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Salt Lake	42	14	0	21.0	F	9.7	PASS
San Juan	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tooele	1	2	0	1.3	C	6.8	PASS
Uintah	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Utah	25	7	0	11.8	F	9.1	PASS
Washington	0	0	0	0.0	A	4.2	PASS
Weber	28	4	0	11.3	F	9.5	PASS

VERMONT

American Lung Association in Vermont

372 Hurricane Lane, Suite 101
Williston, VT 05495
(802) 876-6862
www.lung.org/vermont

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Bennington	36,970	7,376	7,181	588	3,201	1,642	10,548	2,523	5,130
Chittenden	157,491	30,543	18,393	2,434	14,570	5,653	37,407	8,573	15,553
Rutland	61,289	11,550	10,557	920	5,435	2,649	17,087	4,067	7,566
Totals	**255,750**	**49,469**	**36,131**	**3,942**	**23,206**	**9,944**	**65,042**	**15,163**	**28,249**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Bennington	1	0	0	0.3	B
Chittenden	0	0	0	0.0	A
Rutland	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Bennington	0	0	0	0.0	A	6.9	PASS
Chittenden	1	0	0	0.3	B	7.3	PASS
Rutland	3	0	0	1.0	C	9.8	PASS

VERMONT

VIRGINIA

American Lung Association in Virginia

9702 Gayton Road, #110
Richmond, VA 23238
(804) 955-4910
www.lung.org/virginia

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Albemarle	100,553	21,443	14,561	1,834	6,920	5,012	27,419	8,497	9,139
Arlington	216,004	34,495	18,735	2,950	15,728	9,663	51,085	15,032	15,894
Caroline	28,674	6,749	3,929	577	1,925	1,405	7,701	2,395	3,422
Charles City	7,241	1,248	1,269	107	531	419	2,331	741	843
Chesterfield	320,277	81,628	34,997	6,980	21,010	14,852	80,943	25,009	22,569
Fairfax	1,100,692	265,215	112,190	22,680	73,444	50,683	274,921	84,362	73,792
Fauquier	66,071	16,288	8,708	1,393	4,400	3,285	18,090	5,673	4,148
Frederick	79,666	19,667	10,435	1,682	5,272	3,838	21,028	6,538	7,026
Giles	17,124	3,600	3,168	308	1,187	929	5,156	1,629	2,136
Hanover	100,342	24,344	13,756	2,082	6,707	5,019	27,643	8,667	6,001
Henrico	310,445	74,013	39,201	6,329	20,711	14,718	80,248	24,770	33,123
Loudoun	325,405	98,249	22,420	8,402	19,935	12,952	69,403	20,928	12,996
Madison	13,169	2,839	2,421	243	909	721	4,009	1,272	1,549
Page	23,958	5,045	4,303	431	1,660	1,291	7,155	2,258	4,055
Prince Edward	23,343	3,992	3,315	341	1,676	1,143	6,176	1,876	4,748
Prince William	419,006	119,405	29,836	10,211	26,271	17,024	91,167	27,458	28,639
Roanoke	92,740	19,743	16,322	1,688	6,414	4,983	27,609	8,713	7,274
Rockbridge	22,375	4,201	4,731	359	1,595	1,293	7,214	2,296	2,855
Rockingham	76,589	17,860	12,103	1,527	5,153	3,891	21,452	6,723	7,227
Stafford	132,133	37,214	10,073	3,182	8,356	5,572	30,026	9,136	8,070
Wythe	29,204	5,977	5,333	511	2,038	1,586	8,789	2,773	4,148
Alexandria City	144,301	25,229	13,431	2,157	10,357	6,583	35,081	10,459	11,522
Bristol City	17,750	3,592	3,340	307	1,235	949	5,243	1,646	4,466
Hampton City	136,401	30,712	17,200	2,626	9,248	6,511	35,436	10,906	20,153
Lynchburg City	76,504	14,947	10,760	1,278	5,325	3,624	19,573	5,936	14,671

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Newport News City	179,611	43,481	19,459	3,718	11,870	7,995	43,126	13,095	26,712
Norfolk City	242,628	50,672	22,838	4,333	16,640	10,505	55,870	16,589	42,703
Roanoke City	96,714	21,053	13,871	1,800	6,621	4,798	26,255	8,140	18,565
Salem City	24,961	4,914	4,378	420	1,751	1,320	7,275	2,275	2,578
Suffolk City	84,930	21,786	10,043	1,863	5,549	3,958	21,604	6,684	10,214
Virginia Beach City	442,707	104,515	48,120	8,938	29,570	20,151	108,978	33,242	38,498
Totals	**4,951,518**	**1,184,116**	**535,246**	**101,257**	**330,008**	**226,673**	**1,228,006**	**375,718**	**449,736**

VIRGINIA

American Lung Association in Virginia

9702 Gayton Road, #110
Richmond, VA 23238
(804) 955-4910
www.lung.org/virginia

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Albemarle	3	0	0	1.0	C
Arlington	22	1	0	7.8	F
Caroline	4	0	0	1.3	C
Charles City	8	1	0	3.2	D
Chesterfield	4	2	0	2.3	D
Fairfax	22	2	0	8.3	F
Fauquier	0	0	0	0.0	A
Frederick	1	0	0	0.3	B
Giles	INC	INC	INC	INC	INC
Hanover	9	0	0	3.0	D
Henrico	13	0	0	4.3	F
Loudoun	8	0	0	2.7	D
Madison	5	0	0	1.7	C
Page	0	0	0	0.0	A
Prince Edward	INC	INC	INC	INC	INC
Prince William	3	0	0	1.0	C
Roanoke	1	0	0	0.3	B
Rockbridge	0	0	0	0.0	A
Rockingham	1	0	0	0.3	B
Stafford	7	0	0	2.3	D
Wythe	0	0	0	0.0	A
Alexandria City	16	1	0	5.8	F
Bristol City	DNC	DNC	DNC	DNC	DNC
Hampton City	INC	INC	INC	INC	INC
Lynchburg City	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Albemarle	1	0	0	0.3	B	8.7	PASS
Arlington	1	0	0	0.3	B	INC	INC
Caroline	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Charles City	0	0	0	0.0	A	8.9	PASS
Chesterfield	0	0	0	0.0	A	9.6	PASS
Fairfax	2	0	0	0.7	B	9.6	PASS
Fauquier	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Frederick	0	0	0	0.0	A	10.4	PASS
Giles	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hanover	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Henrico	0	0	0	0.0	A	9.6	PASS
Loudoun	1	0	0	0.3	B	9.5	PASS
Madison	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Page	0	0	0	0.0	A	9.3	PASS
Prince Edward	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Prince William	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Roanoke	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rockbridge	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rockingham	2	0	0	0.7	B	10.2	PASS
Stafford	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wythe	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Alexandria City	INC	INC	INC	INC	INC	INC	INC
Bristol City	0	0	0	0.0	A	9.9	PASS
Hampton City	1	0	0	0.3	B	INC	INC
Lynchburg City	0	0	0	0.0	A	8.8	PASS

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Newport News City	INC	INC	INC	INC	INC
Norfolk City	DNC	DNC	DNC	DNC	DNC
Roanoke City	DNC	DNC	DNC	DNC	DNC
Salem City	DNC	DNC	DNC	DNC	DNC
Suffolk City	10	0	0	3.3	F
Virginia Beach City	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Newport News City	INC	INC	INC	INC	INC	INC	INC
Norfolk City	3	0	0	1.0	C	10.0	PASS
Roanoke City	0	0	0	0.0	A	9.9	PASS
Salem City	0	0	0	0.0	A	10.0	PASS
Suffolk City	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Virginia Beach City	1	0	0	0.3	B	9.6	PASS

WASHINGTON

American Lung Association in Washington

822 John Street
Seattle, WA 98109
(206) 441-5100
www.lung.org/washington

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Clallam	71,838	12,784	17,659	905	5,702	3,034	23,543	6,672	9,248
Clark	433,418	112,762	51,839	7,982	31,180	13,301	104,875	28,877	58,684
King	1,969,722	417,042	220,901	29,522	151,016	61,022	483,448	131,564	234,867
Okanogan	41,411	9,678	7,348	685	3,078	1,507	11,757	3,311	8,843
Pierce	807,904	196,609	91,170	13,918	59,447	24,456	193,447	52,842	99,907
Skagit	118,109	27,650	19,567	1,957	8,771	4,097	32,080	8,940	17,481
Snohomish	722,400	173,083	77,622	12,253	53,481	22,112	174,777	47,955	78,538
Spokane	473,761	108,598	62,992	7,688	35,472	15,253	120,213	33,067	69,943
Thurston	256,591	58,180	34,351	4,119	19,281	8,380	65,980	18,211	32,189
Whatcom	203,663	41,589	28,057	2,944	15,733	6,659	52,562	14,378	30,944
Yakima	247,141	75,089	28,963	5,316	16,703	6,985	55,195	15,061	55,803
Totals	**5,345,958**	**1,233,064**	**640,469**	**87,289**	**399,864**	**166,806**	**1,317,877**	**360,878**	**696,447**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Clallam	0	0	0	0.0	A
Clark	1	0	0	0.3	B
King	5	0	0	1.7	C
Okanogan	DNC	DNC	DNC	DNC	DNC
Pierce	0	0	0	0.0	A
Skagit	0	0	0	0.0	A
Snohomish	DNC	DNC	DNC	DNC	DNC
Spokane	0	0	0	0.0	A
Thurston	1	0	0	0.3	B
Whatcom	0	0	0	0.0	A
Yakima	DNC	DNC	DNC	DNC	DNC

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Clallam	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clark	12	1	0	4.5	F	7.7	PASS
King	0	0	0	0.0	A	6.3	PASS
Okanogan	INC	INC	INC	INC	INC	INC	INC
Pierce	14	1	0	5.2	F	8.3	PASS
Skagit	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Snohomish	18	0	0	6.0	F	7.9	PASS
Spokane	1	0	0	0.3	B	INC	INC
Thurston	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Whatcom	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Yakima	10	1	0	3.8	F	8.9	PASS

WASHINGTON

WEST VIRGINIA

American Lung Association in West Virginia

2102 Kanawha Blvd., East
Charleston, WV 25311
(304) 342-6600
www.lung.org/westvirginia

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Berkeley	105,750	26,154	12,393	1,999	7,352	6,754	30,928	9,039	15,425
Brooke	23,844	4,491	4,522	343	1,773	1,797	8,349	2,493	3,434
Cabell	96,653	18,915	15,363	1,446	7,123	6,652	30,709	8,914	20,685
Gilmer	8,705	1,258	1,220	96	684	602	2,761	786	1,818
Greenbrier	35,800	7,136	6,952	545	2,623	2,680	12,471	3,728	6,266
Hancock	30,571	6,071	5,776	464	2,246	2,300	10,695	3,208	5,009
Harrison	69,436	15,182	11,568	1,160	4,980	4,909	22,732	6,745	11,940
Kanawha	192,315	39,371	32,367	3,009	14,043	13,835	64,045	19,008	32,636
Marion	56,586	11,110	9,614	849	4,166	4,013	18,577	5,453	9,008
Marshall	32,800	6,745	5,728	516	2,394	2,414	11,189	3,349	5,019
Monongalia	98,528	15,520	10,053	1,186	7,634	6,118	27,743	7,606	17,284
Ohio	44,246	8,407	8,141	643	3,283	3,272	15,187	4,509	6,922
Raleigh	79,127	16,530	12,741	1,263	5,748	5,569	25,740	7,597	12,758
Tucker	7,021	1,341	1,467	102	519	544	2,536	763	1,182
Wood	87,120	18,919	14,924	1,446	6,256	6,204	28,759	8,542	15,452
Totals	**968,502**	**197,150**	**152,829**	**15,067**	**70,824**	**67,663**	**312,421**	**91,740**	**164,838**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Berkeley	1	0	0	0.3	B
Brooke	DNC	DNC	DNC	DNC	DNC
Cabell	4	0	0	1.3	C
Gilmer	INC	INC	INC	INC	INC
Greenbrier	0	0	0	0.0	A
Hancock	5	0	0	1.7	C
Harrison	DNC	DNC	DNC	DNC	DNC
Kanawha	8	0	0	2.7	D
Marion	DNC	DNC	DNC	DNC	DNC
Marshall	DNC	DNC	DNC	DNC	DNC
Monongalia	5	0	0	1.7	C
Ohio	5	0	0	1.7	C
Raleigh	DNC	DNC	DNC	DNC	DNC
Tucker	INC	INC	INC	INC	INC
Wood	3	0	0	1.0	C

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Berkeley	4	0	0	1.3	C	11.8	PASS
Brooke	5	0	0	1.7	C	13.0	FAIL
Cabell	1	0	0	0.3	B	12.1	FAIL
Gilmer	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Greenbrier	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hancock	0	0	0	0.0	A	11.7	PASS
Harrison	1	0	0	0.3	B	INC	INC
Kanawha	0	0	0	0.0	A	12.5	FAIL
Marion	0	0	0	0.0	A	12.1	FAIL
Marshall	1	0	0	0.3	B	13.0	FAIL
Monongalia	0	0	0	0.0	A	10.9	PASS
Ohio	0	0	0	0.0	A	11.9	PASS
Raleigh	0	0	0	0.0	A	9.6	PASS
Tucker	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wood	1	0	0	0.3	B	12.3	FAIL

WEST VIRGINIA

WISCONSIN

American Lung Association in Wisconsin

13100 West Lisbon Road, Suite 700
Brookfield, WI 53005-2508
(262) 703-4200
www.lung.org/wisconsin

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Ashland	16,142	3,710	2,594	283	1,138	706	4,121	1,119	2,614
Brown	251,412	62,043	29,799	4,731	17,463	9,854	56,690	15,120	26,675
Columbia	56,909	13,038	8,507	994	4,015	2,469	14,353	3,903	5,082
Dane	495,959	105,839	52,259	8,070	36,196	19,051	108,743	28,448	61,906
Dodge	88,661	19,235	13,417	1,467	6,366	3,858	22,420	6,066	8,858
Door	27,820	4,987	6,379	380	2,065	1,463	8,670	2,410	3,033
Eau Claire	99,879	20,604	12,848	1,571	7,347	3,996	23,007	6,037	13,743
Florence	4,440	757	967	58	333	235	1,390	388	568
Fond du Lac	102,079	22,939	15,672	1,749	7,256	4,416	25,695	6,952	9,764
Forest	9,236	2,006	1,874	153	659	438	2,583	707	1,410
Grant	51,210	10,683	7,937	815	3,737	2,174	12,638	3,365	7,721
Jefferson	83,943	19,716	11,253	1,503	5,907	3,453	19,968	5,364	8,145
Kenosha	167,293	42,396	19,004	3,233	11,515	6,486	37,262	9,950	23,165
Kewaunee	20,589	4,743	3,491	362	1,447	924	5,404	1,476	1,807
La Crosse	115,572	24,218	15,596	1,847	8,445	4,722	27,260	7,210	16,241
Manitowoc	80,976	17,747	13,847	1,353	5,769	3,697	21,625	5,919	6,882
Marathon	134,400	32,505	19,368	2,479	9,344	5,648	32,799	8,876	14,803
Milwaukee	952,532	237,294	108,863	18,094	66,246	35,916	206,207	54,233	202,050
Oneida	35,801	6,444	7,874	491	2,660	1,849	10,934	3,030	4,571
Outagamie	177,913	43,895	21,412	3,347	12,343	7,050	40,593	10,868	14,171
Ozaukee	86,568	19,846	13,571	1,513	6,083	3,875	22,583	6,199	4,486
Racine	195,388	47,928	26,210	3,655	13,529	8,073	46,724	12,637	25,046
Rock	160,092	39,274	22,102	2,995	11,106	6,555	37,989	10,215	22,946
St. Croix	84,922	22,791	8,844	1,738	5,724	3,219	18,442	4,939	6,384
Sauk	62,290	14,719	9,520	1,122	4,360	2,666	15,520	4,204	7,453

(continued)

AT-RISK GROUPS

Lung Diseases

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Cardio-vascular Disease	Diabetes	Poverty
Sheboygan	115,149	27,113	16,969	2,067	8,063	4,929	28,644	7,776	9,837
Taylor	20,661	5,008	3,363	382	1,429	910	5,320	1,455	2,469
Vernon	29,954	7,818	5,028	596	2,017	1,312	7,688	2,109	4,804
Vilas	21,442	3,721	5,699	284	1,598	1,184	7,074	1,971	2,735
Walworth	102,931	23,587	13,971	1,799	7,301	4,255	24,612	6,602	13,288
Washington	132,386	31,792	18,448	2,424	9,204	5,632	32,649	8,894	8,307
Waukesha	390,730	91,816	57,554	7,001	27,295	17,067	99,182	27,143	21,319
Totals	**4,375,279**	**1,030,212**	**574,240**	**78,556**	**307,960**	**178,082**	**1,028,789**	**275,585**	**562,283**

WISCONSIN

American Lung Association in Wisconsin

13100 West Lisbon Road, Suite 700
Brookfield, WI 53005-2508
(262) 703-4200
www.lung.org/wisconsin

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Ashland	0	0	0	0.0	A
Brown	2	0	0	0.7	B
Columbia	0	0	0	0.0	A
Dane	0	0	0	0.0	A
Dodge	0	0	0	0.0	A
Door	11	0	0	3.7	F
Eau Claire	INC	INC	INC	INC	INC
Florence	INC	INC	INC	INC	INC
Fond du Lac	2	0	0	0.7	B
Forest	0	0	0	0.0	A
Grant	DNC	DNC	DNC	DNC	DNC
Jefferson	0	0	0	0.0	A
Kenosha	15	1	0	5.5	F
Kewaunee	5	1	0	2.2	D
La Crosse	0	0	0	0.0	A
Manitowoc	11	1	0	4.2	F
Marathon	0	0	0	0.0	A
Milwaukee	10	1	0	3.8	F
Oneida	0	0	0	0.0	A
Outagamie	1	0	0	0.3	B
Ozaukee	10	1	0	3.8	F
Racine	12	1	0	4.5	F
Rock	0	0	0	0.0	A
St. Croix	INC	INC	INC	INC	INC
Sauk	0	0	0	0.0	A
Sheboygan	17	2	0	6.7	F

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Ashland	0	0	0	0.0	A	5.5	PASS
Brown	18	0	0	6.0	F	10.4	PASS
Columbia	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dane	10	0	0	3.3	F	10.6	PASS
Dodge	3	0	0	1.0	C	INC	INC
Door	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Eau Claire	0	0	0	0.0	A	INC	INC
Florence	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fond du Lac	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Forest	0	0	0	0.0	A	6.0	PASS
Grant	3	0	0	1.0	C	10.7	PASS
Jefferson	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kenosha	3	0	0	1.0	C	9.7	PASS
Kewaunee	DNC	DNC	DNC	DNC	DNC	DNC	DNC
La Crosse	3	0	0	1.0	C	9.6	PASS
Manitowoc	INC	INC	INC	INC	INC	INC	INC
Marathon	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Milwaukee	7	0	0	2.3	D	11.1	PASS
Oneida	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Outagamie	9	0	0	3.0	D	9.8	PASS
Ozaukee	1	0	0	0.3	B	9.5	PASS
Racine	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rock	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Croix	2	0	0	0.7	B	INC	INC
Sauk	4	0	0	1.3	C	9.0	PASS
Sheboygan	DNC	DNC	DNC	DNC	DNC	DNC	DNC

(continued)

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Taylor	INC	INC	INC	INC	INC
Vernon	INC	INC	INC	INC	INC
Vilas	0	0	0	0.0	A
Walworth	1	0	0	0.3	B
Washington	INC	INC	INC	INC	INC
Waukesha	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Taylor	1	0	0	0.3	B	7.9	PASS
Vernon	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Vilas	0	0	0	0.0	A	6.1	PASS
Walworth	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washington	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Waukesha	5	0	0	1.7	C	11.7	PASS

WYOMING

American Lung Association in Wyoming

822 John Street
Seattle, WA 98109
(206) 441-4100
www.lung.org/wyoming

AT-RISK GROUPS

				Lung Diseases					
County	**Total Population**	**Under 18**	**65 & Over**	**Pediatric Asthma**	**Adult Asthma**	**COPD**	**Cardio-vascular Disease**	**Diabetes**	**Poverty**
Albany	36,889	5,925	3,325	507	2,943	1,470	7,882	1,958	7,511
Big Horn	11,759	2,995	2,135	256	772	628	3,126	845	1,332
Campbell	46,618	13,079	2,752	1,118	3,101	1,730	9,332	2,393	3,205
Carbon	15,786	3,689	2,057	315	1,089	759	3,893	1,032	2,069
Converse	13,755	3,416	1,825	292	926	663	3,389	902	1,404
Crook	7,111	1,652	1,166	141	480	382	1,922	519	586
Fremont	40,579	10,285	5,923	880	2,710	1,986	10,077	2,688	6,174
Laramie	92,680	22,241	11,979	1,902	6,370	4,351	22,342	5,898	9,008
Natrona	76,366	18,137	9,537	1,551	5,277	3,548	18,276	4,814	8,559
Park	28,592	5,894	5,137	504	2,008	1,584	7,932	2,136	3,154
Sheridan	29,239	6,407	4,667	548	2,027	1,545	7,805	2,094	2,811
Sublette	10,146	2,395	1,102	205	700	468	2,432	642	638
Sweetwater	44,175	11,976	3,776	1,024	2,957	1,778	9,388	2,433	4,319
Teton	21,548	4,156	2,253	355	1,598	972	5,103	1,323	1,767
Uinta	20,985	6,289	1,966	538	1,334	862	4,504	1,182	2,013
Totals	**496,228**	**118,536**	**59,600**	**10,136**	**34,292**	**22,726**	**117,403**	**30,859**	**54,550**

HIGH OZONE DAYS 2009–2011

County	Orange	Red	Purple	Wgt. Avg	Grade
Albany	INC	INC	INC	INC	INC
Big Horn	INC	INC	INC	INC	INC
Campbell	0	0	0	0.0	A
Carbon	0	0	0	0.0	A
Converse	DNC	DNC	DNC	DNC	DNC
Crook	0	0	0	0.0	A
Fremont	8	0	0	2.7	D
Laramie	INC	INC	INC	INC	INC
Natrona	INC	INC	INC	INC	INC
Park	DNC	DNC	DNC	DNC	DNC
Sheridan	DNC	DNC	DNC	DNC	DNC
Sublette	9	1	3	5.5	F
Sweetwater	0	0	0	0.0	A
Teton	1	0	0	0.3	B
Uinta	0	0	0	0.0	A

HIGH PARTICLE POLLUTION DAYS 2009–2011

	24 Hour					Annual	
County	Orange	Red	Purple	Wgt. Avg	Grade	Design Value	Pass/ Fail
Albany	0	0	0	0.0	A	INC	INC
Big Horn	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Campbell	2	0	0	0.7	B	INC	INC
Carbon	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Converse	0	0	0	0.0	A	INC	INC
Crook	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fremont	2	0	0	0.7	B	8.5	PASS
Laramie	1	0	0	0.3	B	4.1	PASS
Natrona	0	0	0	0.0	A	INC	INC
Park	0	0	0	0.0	A	4.4	PASS
Sheridan	1	0	0	0.3	B	8.3	PASS
Sublette	0	0	0	0.0	A	INC	INC
Sweetwater	1	0	0	0.3	B	5.6	PASS
Teton	0	0	0	0.0	A	4.5	PASS
Uinta	DNC	DNC	DNC	DNC	DNC	DNC	DNC

WYOMING

We will breathe easier when the air in every
American community is clean and healthy.

We will breathe easier when people are free from the addictive
grip of tobacco and the debilitating effects of lung disease.

We will breathe easier when the air in our public spaces and
workplaces is clear of secondhand smoke.

We will breathe easier when children no longer
battle airborne poisons or fear an asthma attack.

Until then, we are fighting for air.

About the American Lung Association

Now in its second century, the American Lung Association is the leading organization working to save lives by improving lung health and preventing lung disease. With your generous support, the American Lung Association is "Fighting for Air" through research, education and advocacy. For more information about the American Lung Association, a holder of the Better Business Bureau Wise Giving Guide Seal, or to support the work it does, call 1-800-LUNGUSA (1-800-586-4872) or visit www.lung.org.

AMERICAN LUNG ASSOCIATION®
Fighting for Air