"...a higher percentage of children in the communities with the highest levels of these pollutants showed losses in lung function by the time they graduated from high school."

Hazardous air pollutants and cancer risk (*continued*)

exhaust comprised about 90% of this risk. Of the vehicle emissions, diesel exhaust was by far the largest component, accounting for over 70% of the cancer risk from air pollutants.

Recently, the California Air Resources Board estimated the risks from a very large rail yard in northern California. In this first-ever comprehensive analysis of health risks from a major rail yard, the emissions of diesel engine exhaust from normal operations resulted in additional cancer risks that ranged up to 500 in a million for nearby residents over a lifetime exposure.

References:

South Coast Air Quality Management District, "Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES II)", 2002

California Air Resources Board, Roseville Rail Yard Study, 2004.

We hope you have found this sampling of studies that have been conducted on air pollution and its health effects to be useful.

For more information, please contact Pom Pom Ganguli, Public Advisor at (909) 396-3185.

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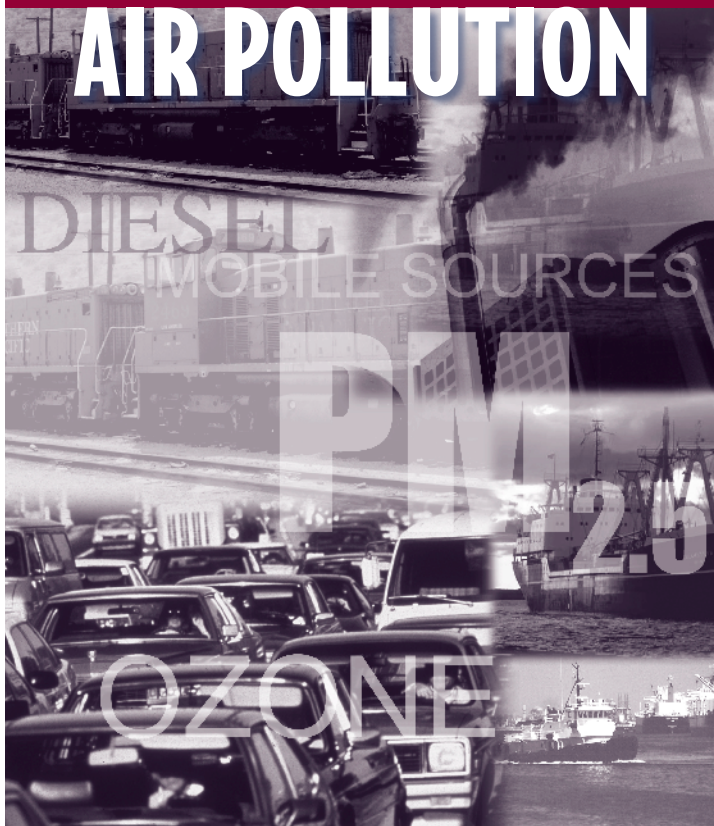
RECENT STUDIES ON THE HEALTH EFFECTS FROM AIR POLLUTION



RECENT STUDIES ON HEALTH EFFECTS FROM AIR POLLUTION

Health effects from air pollution have been repeatedly found by researchers over the past decades. While the catastrophic episodes of air pollution that were experienced in the 1950's and 1960's have been eliminated, recent studies have documented serious adverse health effects from air pollution, even at today's dramatically reduced levels of pollutants. In California, the major pollutants associated with adverse health effects are ground-level ozone, fine particulate matter, and toxic air pollutants. Following are summaries of some of the research related to health effects from air pollution.

Ambient air pollutants linked to adverse effects in children

The Children's Health Study, a multi-year study of children from fourth grade through twelfth grade living in 12 communities in Southern California, found strong evidence that current levels of air pollutants are related to adverse health effects in growing children. The researchers found that elevated ozone levels were associated with increased absences from school due to respiratory diseases, and an increased risk for asthma in children who exercised often outdoors.

The study also found that ambient levels of a mix of vehicle-related pollutants, including nitrogen oxides, particulates, elemental carbon, and acid vapors, were linked to slower growth in lung function as the children were followed in the study. Additionally, a higher percentage of children in the communities with the highest levels of these pollutants showed losses in lung function by the time they graduated from high school. These reductions in lung function are likely permanent, since the children were at or near the end of their growth period.

References:

W. James Gauderman, and associates, "The Effect of Air Pollution on Lung Development from 10 to 18 Years of Age", New England Journal of Medicine 351:1057-67, 2004.

John M. Peters, "Epidemiologic Investigation to Identify Chronic Effects of Ambient Air Pollutants in Southern California", Prepared for the California Air Resources Board California Environmental Protection Agency, Contract No. 94-331, 2004.

Particulate matter and increased mortality

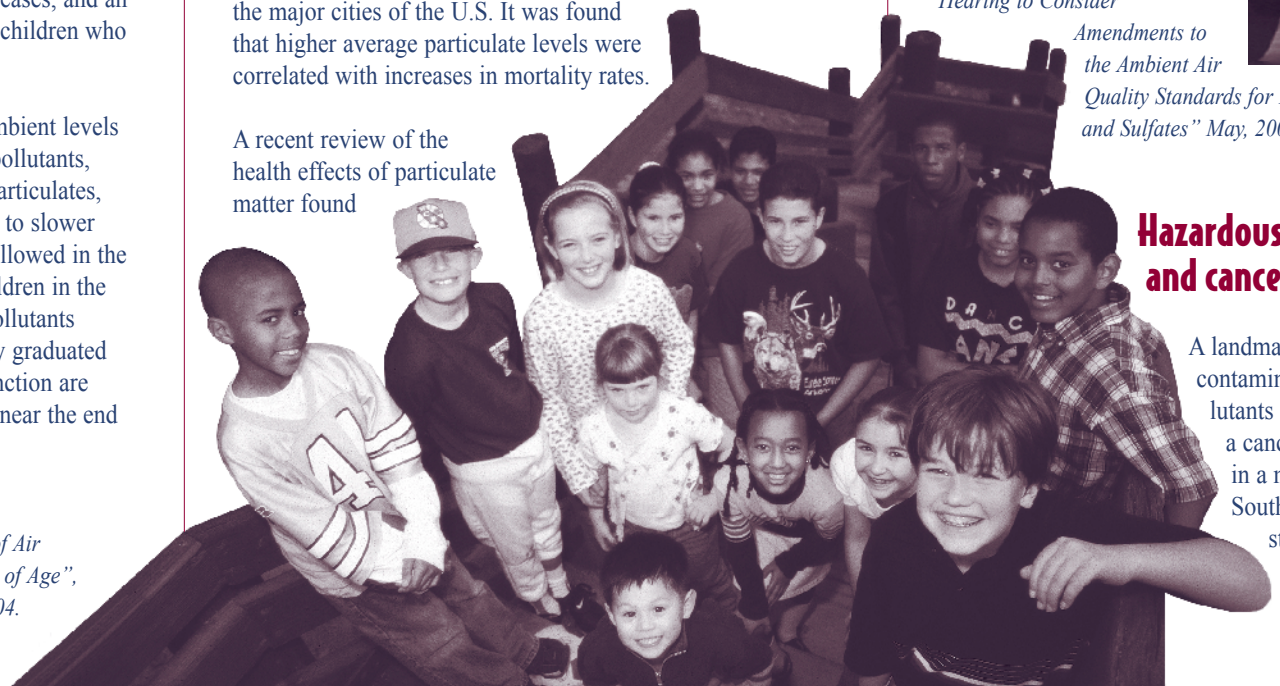
There have been numerous studies conducted in several parts of the world that have found associations between ambient levels of particulate matter and increased mortality rates. One example is a study of about half a million people living in the major cities of the U.S. It was found that higher average particulate levels were correlated with increases in mortality rates.

A recent review of the health effects of particulate matter found that meeting air quality standards for particulate matter could save 6,500 premature deaths a year in California.

References:

C. Arden Pope and associates, "Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution" Journal of the American Medical Association, 287:1132-1141, 2002

Staff report, California Air Resource Board, "Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates" May, 2002.



Hazardous air pollutants and cancer risk

A landmark study of toxic air contaminants found that air pollutants contribute, on average, a cancer risk of about 1,400 in a million to residents of Southern California. The study further found that toxic pollutants associated with vehicle