

CHILDREN'S ENVIRONMENTAL HEALTH PARTNERSHIP OF NY

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*A Partnership across
New York State to
improve children's
environmental health*

Issues in Focus: Diesel and Children's Health

The Problem with Diesel Exhaust:

The emissions from diesel engines pose both immediate and long term effects on human health, particularly on children. Diesel exhaust ranks among the air pollutants that the EPA declares pose the greatest public health risks. According to the American Lung Association, diesel engines emit 100 times more sooty particles than gasoline engines. Consequently, diesel pollution accounts for over 1/4 of the total hazardous pollution in our air, and 66% of the particulate pollution from traffic sources. Furthermore, the EPA affirms that diesel emissions are a major contributor to ozone production, acid rain, and global climate change.

What is Diesel Exhaust?

Diesel exhaust is a complex mixture of thousands of different gases and fine particles, containing **more than 40 toxic chemicals**, and is produced when an engine burns diesel fuel. These toxic chemicals include many known or suspected cancer causing substances, such as benzene, arsenic and formaldehyde. It also contains other harmful environmental pollutants, including nitrogen oxides.

Health Risks of Diesel Exhaust:

The EPA has determined diesel exhaust to be a human carcinogen. Breathing the toxic gases and small particles that diesel exhaust emits can cause lung damage and respiratory problems. Diesel exhaust can also exacerbate asthma and existing allergies, and long term exposure significantly increases the risk of lung cancer. According to California's Office of Health Hazard Assessment, long term exposure to diesel emissions **poses the highest risk of cancer of any toxic air contaminant**. A report released by the EPA in 1998 revealed that exposure to even low levels of diesel exhaust poses a risk of lung cancer and respiratory impairment. The American Lung Association states that dozens of studies link airborne fine particle, such as those in diesel exhaust, to increased hospitalizations for respiratory diseases, chronic lung disease, pneumonia, heart disease and up to 60,000 premature deaths annually in the U.S. The acute effects of exposure to diesel exhaust include a decrease in pulmonary function, cough, wheezing, headaches, irritation to the eyes, nose, throat and lungs, light-headedness, nausea and inflammation in the lungs, which may aggravate respiratory problems and increase the frequency and/or intensity of asthma attacks.

How are Children Affected?

Air pollution created by diesel engines has severe health implications for everyone, but children are uniquely more vulnerable to this dangerous pollution because they breathe 50 percent more air per pound of body weight than adults. Furthermore, a child's body and organs are still developing- the human lung is not fully grown until eight years of age. The fine particles that make up diesel exhaust can travel and stay deep within the lungs, and will continue to accumulate for years. Exposure to these pollutants is associated with increased frequency of childhood illnesses and can reduce lung function in children, particularly contributing to the development of asthma.

Diesel and Asthma Prevalence:

Children who are exposed to diesel exhaust in childhood are more likely to acquire respiratory diseases such as asthma and will continue to suffer as they age. The occurrence of asthma continues to climb at a staggering rate, and in the last 15 years, asthma has risen 160% for children under 5. Currently, while children make up 25% of the population, they represent 40% of the asthma cases. Asthma is the leading cause of hospitalizations for children under age 15 and the number one reason for school absenteeism, with more than 10 million school days lost due to the disease.

The Danger of Diesel School Buses to Students' Health:

Children who ride to school every day on diesel powered engines face an enormous threat. Students spend approximately an hour and half each weekday in a school bus. According to the U.S. EPA Clean School Bus USA Program, this translates to over 270 hours of exposure to elevated diesel exhaust each year. Studies also reveal that a school bus's engine fills the cabin with four to ten times the amount of toxic fumes as outside air. The School Bus Report card of 2006 states that the national average age of a school bus is nine years old and emits nearly two time more pollution per mile than a big rig truck. It is also dangerous to idle a diesel powered school bus. According to the U.S. EPA, "unnecessary school bus idling pollutes the air, wastes fuel, and causes excess engine wear." Idling school buses poisons the air in and around the bus. Exhaust from idling buses can also enter school buildings through air vents, doors, and open windows, excessively adding to health concerns.

Effective and Efficient Solutions Exist to Reduce Health Risks:

Health experts advise that it is particularly important to avoid environmental triggers such as diesel exhaust to relieve and reduce respiratory symptoms. Specifically, a reduction of inhaled diesel exhaust can reduce the incidence of asthma attacks and the onset of asthma itself.

In an effort to ensure that all existing resources to reduce the incidence of childhood asthma are utilized, and to further the protection of children's environmental health, the following pieces of legislation are currently being considered by the New York State Legislature:

Idle School-Zones Act**A.9874-B (Rivera, et al)**

This bill prohibits school districts and child care facilities from permitting school buses to remain idling while parked or standing in front of a school or child care facility, with the exception of an emergency, and prohibits any other motor vehicle to remain idling for more than 30 seconds while parked or standing in front of a school or child care facility. This legislation also directs school districts to establish clean school bus advisory councils and districts and child care facilities to enforce such measures as well as requiring school districts to post notification of this prohibition. This Legislation is currently in the Assembly Education Committee.

Children's Environmental Health and Safety Advisory Council**A.6905 (Englebright, et al) / S.3061 (Alesi, et al)**

This significant piece of legislation directs the commissioners of health, education, and environmental conservation, and an advisory committee established by the commissioner of health to jointly issue a report which contains criteria and recommendations for evaluating regulations, standards and guidance on children's health and safety. These agencies are further required to evaluate human health risk assessments to insure they adequately consider the impacts on children. This legislation confirms the need to protect the environmental health and safety of our children, and establishes these protections to be of the highest priority. This Legislation has passed the NYS Assembly and is currently in the Senate Health Committee.

Sources:

1. American Lung Association, Diesel Exhaust and Air Pollution, <http://www.lungusa.org>
2. Cal/EPA's Office of Environmental Health Hazard Assessment, http://www.oehha.ca.gov/public_info.html
3. Union of Concerned Scientists, School Bus Report Card 2006
4. U.S. EPA Clean School Bus Program, <http://www.epa.gov/cleanschoolbus/humanhealth.htm> and <http://epa.gov/cleanschoolbus/antididling.htm>