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Traffic, Health & Climate

Ask Dr. John

Our chief health scientist, Dr. John Balbus, answers your questions about traffic and health

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Q: Why is air pollution near roadways so harmful?

Scientists find that people who spend a lot of time near big roadways have higher risks of health problems. Children living or going to school near busy streets and highways must take more asthma medication, some studies show. Others show that children who spend time near heavily trafficked roads are hospitalized for their asthma more often. Children exposed to traffic pollution can have stunted lung development and a higher risk of developing asthma.

For adults, living near traffic increases the risk of heart attacks, chronic heart disease and worsened lung diseases. Even fetuses aren't safe: several studies confirm lower birth weight and other developmental problems in babies born to mothers exposed to traffic pollution. (More on [toxic pollution from cars and trucks](#).)

Q: Haven't cars been getting cleaner?

It's true that what comes out of tailpipes is cleaner. Since the 1970s, the amount of pollution each car spews has dropped significantly. The problem is that there has been huge growth in the number of cars and miles driven. This growth means that pollution from cars overall is much more than you'd expect from the amount of pollution coming from each car.

Two other factors add to the problem. First, our cities are more congested with more cars. Second, cars stuck in stop-and-go traffic produce up to three times the pollution of cars moving steadily. So we have not fully



A physician and public health professional, [John Balbus](#) is chief health scientist and director of our health program.

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reaped the benefits of cleaner emissions. Even though cars are cleaner, the health effects of traffic are getting worse.

Pollution standards for cars improved over the last three decades, but diesel trucks and buses are a different story. Until very recently, their standards were weak. So air pollution near roads with a lot of large trucks and buses can be considerable.

Q: What kind of air pollution is worse closer to traffic?

Car and truck exhaust contains a mix of different types of air pollution. This mixture includes tiny particles of soot, toxic gases like nitrogen oxides and carbon monoxide, and many poisonous or irritating chemicals. Diesel vehicles produce more fine particles and sulfur dioxide from the sulfur in diesel fuel. Older vehicles are usually dirtier than newer ones.

Nitrogen oxides affect the lungs, so asthma and other lung diseases can get worse. Carbon monoxide harms fetal development and also causes heart disease and neurological damage. People exposed to fine particles can have a number of health problems.

Risks of heart attacks and strokes, decreased birth weight, and lung cancer can all increase. Different health effects, including eye and throat irritation, worsened asthma, some types of cancer, and heart disease are linked to other toxic and irritating chemicals found in exhaust.

Q: How far from traffic is safe?

There is no single or simple answer to this. Roads and traffic patterns vary from place to place. Also, concentrations of different types of pollution decline at different rates as you get farther away from the traffic. Researchers have learned that pollutant amounts are still quite high even 500 to 1500 feet from major roadways — up to six city blocks. Of course, the closer you are, the higher your exposure. So being 100 feet from a road puts you at higher risk than being 1500 feet from the same road.

Q: What can I do to protect my health or my family's health?

You can reduce exposures by minimizing your time near major roads. Stay indoors at high traffic times if your home is already with 500-1500 feet of a major roadway. If that's not possible, avoid strenuous outdoor exercise in those areas, or when air quality alerts are announced. If you are moving, choose a home more than 1500 feet from a busy thoroughfare.

While everybody exposed to traffic pollution is at some risk, children, seniors and people with other health problems, like diabetes, heart disease or lung disease are especially vulnerable. For children, this is so because they breathe more frequently and their lungs are still developing. And of course, those who are exposed the most often and for the longest period of time are also at increased risk.

Policy options to protect public health include making engines cleaner, reducing traffic congestion (because cars in stop-and-go traffic can put out as much as three times the pollution as cars freely moving), and making sure new schools and housing developments are not within 500-1500 feet of major roadways.

Q: Where can I get more information?

Environmental Defense's report [All Choked Up](#) has more details on traffic-related air pollution. It also

presents the implications and solutions for New York City. The National Library of Medicine's Medline Plus web site includes information on [air pollution health effects](#) and links to additional resources.

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257 Park Avenue South, New York, NY 10010

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