



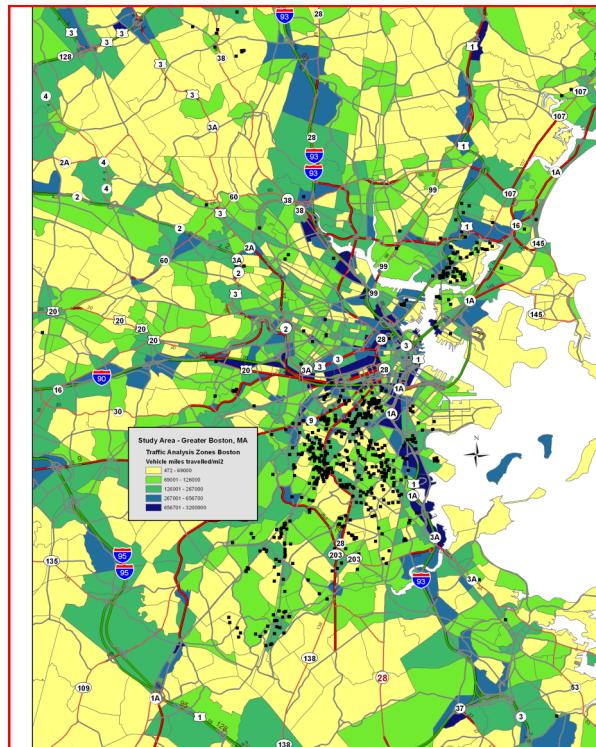
Research summary: Urban traffic exposure and the risk of cardiovascular disease in the Puerto Rican Health Study

Pollution caused by traffic is harmful to the environment, as well as human health. While we are all exposed to traffic and pollution during our daily lives, those living close to major roads or in areas with greater traffic volume may be at a higher risk of getting sick. People living in high-traffic areas are chronically exposed to elevated levels of pollutants, as well as louder background noise. Researchers at Tufts and Northeastern University in Boston have conducted a study to determine if living close to traffic might cause an increased risk of cardiovascular disease (CVD), such as heart attacks and strokes.

How was it done? To compare exposure to traffic and cardiovascular health, Dr. Christine Rioux and colleagues at Tufts and Northeastern Universities looked at participants in a study conducted by the Boston Puerto Rican Center for Population Health and Health Disparities. Puerto Ricans aged 45-75 in the greater Boston area were part of a study of nutrition, stress, and health. Dr. Rioux looked at the levels of C-reactive protein (CRP) in the blood of the 1,017 study participants, as well as their pulse pressure (the difference between the higher and lower numbers of blood pressure measurements). High levels of CRP and high pulse pressure are both signs of an increased risk of heart attack or stroke.

Exposure to traffic was calculated in two different ways. Participants' home addresses were used to find the distance to major roads on which more than 20,000 vehicles traveled per day. The researchers also looked at the amount of traffic on the roads surrounding participants' homes using data from the Boston Region Metropolitan Planning Organization (MPO).

What did they find? After taking into consideration many factors, several significant associations were found between elevated CRP levels and these traffic measures. The researchers noted significantly higher CRP levels in study participants living in areas with the highest traffic volume compared with people living in areas with the lowest traffic volume. When the researchers looked at only participants who were obese, those who lived within 200 meters (about two football fields) of a major road, as well as those living in areas with higher traffic volume, had higher CRP than those obese participants with lower levels of traffic exposure.



“Traffic Analysis Zones” in the Boston area. The darker areas have more traffic, while the lighter zones are less well-traveled. The black dots represent participants in the study.

With regards to pulse pressure, people living within 200 meters of two or more major roads were found to have higher pulse pressure than those with no major roads close to their residence. This difference in pulse pressure was even higher when researchers looked at only obese participants and when they looked at only those with diabetes.

Why is it important? This study contributes to an increasing body of evidence that people living closer to major roads or in high-traffic areas may experience greater risks of numerous health problems. In addition, people with diabetes or obesity, who are already at a higher risk of CVD and heart attacks, may be at an even greater risk of these conditions when they are also exposed to high levels of traffic and pollution.

This study is notable because it examined both distance to major roads and traffic volume as measures of traffic exposure near participants' homes. The innovative technique of using MPO-created traffic analysis zones to characterize the amount of traffic in a certain area can be applied to other studies as a measure of exposure to traffic. The results for the sub-populations of obese and diabetic people are important, as they add to the evidence that people with these conditions may be particularly susceptible to traffic.

What can you do? It may not be possible to move further away from a highway, but there are some things you can do to reduce your risk of heart attack and stroke and also improve the air quality of your neighborhood. Regular, moderate exercise is a great way to keep your heart healthy, as well as eating healthy foods and refraining from smoking. If you want to exercise outside, make sure to do it away from major roads, where pollution is high. On days when pollution levels are high, exercise indoors, or take it a little easier if you do decide to exercise outdoors. If you are obese or have diabetes, you should talk to your doctor about ways to maintain your health and protect your heart. You might tell your doctor if you live near a major highway. Be aware of the signs of a heart attack or stroke, and know when to seek medical attention.

You can also help scientists better understand the health effects of air pollution by joining a study like this one. Participating in these types of studies comes with minimal risk to yourself and benefits your community by providing a better idea of what it is like to live there.

Another way to help change your environment is to join efforts to educate the public and your elected officials about the health effects of near-highway pollution. If policy makers are informed about this issue, they may propose changes to regulations to improve the air quality.

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Pour apprendre plus au sujet de cet étude, si vous plait faire référence a:

Rioux CL, Tucker KL, Mwamburi M, Gute DM, Cohen SA, Brugge D 2010. Residential Traffic Exposure, Pulse Pressure, and C-reactive Protein: Consistency and Contrast among Exposure Characterization Methods. Environ Health Perspect 118:803-811. <http://dx.doi.org/10.1289/ehp.0901182>