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Death rate higher near busy roads

BY STEPHEN STRAUSS

Canadian scientists have found a startling rise in death rates associated with nothing more perilous than living within 50 metres of a major highway and 100 metres of a city road that carries a slew of polluting cars and trucks.

While there have been a number of studies tying surges in deaths to city air pollu- tion in general, what the researchers at Mc- Master University uncovered was a roughly 18-per-cent spike in mortality in the Hamil- ton area among people who lived adjacent to streets carrying 35,000 to 75,000 vehicles daily.

The rise in the pollution death rate did not come from asthma, emphysema or lung cancer but from heart attacks and other heart conditions. "Basically air pollution does not affect your lungs but your heart", is how Murray Finkelstein of McMaster's program in occupational health and environmental medicine, and a co-author of the new study, describes what his group has found.

The reason for the large heart-disease hit is still uncertain, but Dr. Finkelstein points to research in animals that suggests air pollution particles can irritate arteries and lead to their general hardening and thickening.

Although the study, which was published in the July issue of the *American Journal of Epidemiology*, focused on the roads and highways of Hamilton, the researchers see no reason why the findings shouldn't apply to city dwellers perched above traffic surging along St. Lawrence Street in Montreal, Yonge Street in Toronto, or Hastings Street in Vancouver. Not to mention anyone whose dwelling is on the skirt of the traffic behemoth known as the Trans-Canada Highway, which, as it moves 400,000 people a day in some locations, is North America's second-busiest highway.

What the researchers also did is translate the increasing death rates, which have a relatively small impact on younger people, into something closer to an insurance company's life-expectancy table. They found there is a 2.5-year increase in age-related death levels for people whose dwellings are located cheek-to-jowl with heavy traffic.

But there is also a class-related confounding factor to the data. ..... more poor people may be more likely to live near busy streets than rich people, and poor people have other behaviours – smoking in particular – that might kill them in larger numbers.

"Basically, that means your mortality pattern if you are 50 years old is the same as someone 52.5 years old who doesn't live on a busy road", said Dr. Finkelstein. What is even more sobering is the fact that the deadliness of living near major thoroughfares is not far off the life-shortening effects of such known killers as diabetes or chronic lung disease.

The McMaster scientists say their research leads to a very simple bit of advice for a health-conscious individual. "If you have a heart condition, I would advise not buying a place very close to major roadways or highways", said Michael Jerrett, a McMaster University geography professor who is another co-author on the study.

He also suggests that susceptible people who live close to the busy thoroughfares consider air purification systems in their homes as a preventative act.

There some some caveats to the new study, which replicates Dutch research published two years ago. There was no direct measure of how much higher the motor-vehicle related pollution was near major roads. This omission should be remedied next month when the McMaster group tracks road-pollution level themselves.

But there is also a class-related confounding factor to the data. Because of existing concerns over noise and pollution, Dr. Finkelstein says more poor people may be more likely to live near busy streets than rich people, and poor people have other behaviours – smoking in particular – that might kill them in larger numbers.

REFERENCE: Finkelstein, M.M., Jerrett, M. and M.R. Sears: Traffic Air Pollution and Mortality Rate Advancement Periods. *American Journal of Epidemiolgy* **160**(#2): 173-177, July 15 (2004). [UW Library E-journal]

The abstract given in the original article is:

Chronic exposure to air pollution is associated with increased mortality rates. The impact of air pollution relative to other causes of death in a population is of public health importance and has not been well established. In this study, the rate advancement periods associated with traffic pollution exposures were estimated. Study subjects underwent pulmonary function testing at a clinic in Hamilton, Ontario, Canada, between 1985 and 1999. Cox regression was used to model mortality from all natural causes during 1992-2001 in relation to lung function, body mass index, a diagnosis of chronic pulmonary disease, chronic ischemic heart disease or diabetes mellitus, household income, and residence within 50 m of a major urban road or within 100 m of a highway. Subjects living close to a major road had an increased risk of mortality (relative risk = 1.18, 95% confidence interval: 1.02, 1.38). The mortality rate advancement period associated with residence near a major road was 2.5 years (95% confidence interval: 0.2, 4.8). By comparison, the rate advancement periods attributable to chronic pulmonary disease, chronic ischemic heart disease, and diabetes were 3.4 years, 3.1 years, and 4.4 years, respectively.