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## Association of long-term exposure to community noise and traffic-related air pollution with coronary heart disease mortality

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### Abstract

In metropolitan areas, road traffic is a major contributor to ambient air pollution and the dominant source of community noise. The authors investigated the independent and joint influences of community noise and traffic-related air pollution on risk of coronary heart disease (CHD) mortality in a population-based cohort study with a 5-year exposure period (January 1994-December 1998) and a 4-year follow-up period (January 1999-December 2002). Individuals who were 45-85 years of age and resided in metropolitan Vancouver, Canada, during the exposure period and did not have known CHD at baseline were included (n = 445,868). Individual exposures to community noise and traffic-related air pollutants, including black carbon, particulate matter less than or equal to 2.5 µm in aerodynamic diameter, nitrogen dioxide, and nitric oxide, were estimated at each person's residence using a noise prediction model and land-use regression models, respectively. CHD deaths were identified from the provincial death registration database. After adjustment for potential confounders, including traffic-related air pollutants or noise, elevations in noise and black carbon equal to the interquartile ranges were associated with 6% (95% confidence interval: 1, 11) and 4% (95% confidence interval: 1, 8) increases, respectively, in CHD mortality. Subjects in the highest noise decile had a 22% (95% confidence interval: 4, 43) increase in CHD mortality compared with persons in the lowest decile. These findings suggest that there are independent effects of traffic-related noise and air pollution on CHD mortality.

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