Cardiovascular mortality has been associated with exposure to traffic-related noise and air pollution, but both exposures have previously been studied separately. We investigated associations between cardiovascular mortality and noise and air pollution together.

We used data from an ongoing cohort study on diet and cancer (NLCS, 120,852 subjects) with follow-up from 1987 to 1996. We evaluated cardiovascular causes of death. Exposure to road traffic noise was modeled with a 25 x 25 m resolution. Exposure to black smoke (BS) and traffic intensity on the nearest road were assessed at the home address. We conducted Cox proportional hazard analyses for the association between exposure and cardiovascular mortality.

Traffic intensity on the nearest road was associated with cardiovascular mortality, with highest relative risk for ischemic heart disease mortality. There was an excess of cardiovascular mortality in the highest noise category (> 65 dB Letmaal), which was concentrated in ischemic hearth disease and especially hearth failure mortality. Relative risk for background BS concentrations were elevated for cerebrovascular and heart failure mortality. After adjustment for BS concentrations and traffic intensity, effects of road traffic noise were reduced. The associations for background BS concentrations and traffic intensity were insentitive for the adjustment of traffic noise.