

Cleaner Air Brings Drop in Death Rate

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When air pollution in a city declines, the city benefits with a directly proportional drop in death rates, a new study has found.

For each decrease of 1 microgram of soot per cubic meter of air, death rates from cardiovascular disease, respiratory illness and lung [cancer](#) decrease by 3 percent — extending the lives of 75,000 people a year in the United States. The association held even after controlling for [smoking](#) and body mass index.

The work, described in a paper in the March 15 issue of *The American Journal of Respiratory and Critical Care Medicine*, was carried out in six metropolitan areas: Watertown, Mass.; Kingston and Harriman, Tenn.; St. Louis; Steubenville, Ohio; Portage, Wyocena and Pardeeville, Wis.; and Topeka, Kan. The participants, ages 25 to 74 at enrollment, were followed from 1974 through 1998.

The scientists periodically measured concentrations of soot, or particulate air pollution, in each city. At the same time, they tracked disease and mortality among 8,096 residents. Particulate air pollution consists of a mixture of liquid and solid particles, mostly a result of fossil fuel combustion and high-temperature industrial processes. By definition, the particles have a diameter less than 2.5 microns, or about one ten-thousandth of an inch.

"For the most part, pollution levels are lower in this country than they were in the 70's and 80's," said Francine Laden, the study's lead author, "and the message here is that if you continue to decrease them, you will save more lives."

Further declines in air pollution are within reach, said Dr. Laden, an assistant professor of environmental epidemiology at [Harvard](#). "The technology is out there," she said. "The cities that we've covered have cleaned up considerably over the course of the study."

In Steubenville, for example, soot declined to 22 micrograms per cubic meter from 27 over the course of the study, and the city had a corresponding 25 percent decrease in mortality risk. "Consistently," Dr. Laden said, "in the cities where there was the most cleanup, there was also the greatest decrease in risk of death."

Dr. Laden said the study supported what the federal scientific advisers had advocated: lowering the air quality standard below the present 15 micrograms per cubic meter. "There was discussion about lowering it to 12," she said, "and this study supports that."