

## Heart-y risks from breathing fine dust

Nearly 1,200 hospitalizations for heart disease in the Detroit area each year may trace to fine, dust-sized particles in the air—and perhaps to carbon monoxide, a new study suggests. If the associations hold up, any national tally of heart disease emergencies fostered by these pollutants would be dramatically higher.

The Environmental Protection Agency is currently reevaluating its 1987 particulates standard. One impetus has been a spate of studies showing that daily hospital admissions and deaths from respiratory disease tend to fluctuate in near lockstep with variations in airborne dust—even when particulate levels fall within federal limits.

The new study departs from earlier analyses by following up on hints of a tantalizing cardiovascular link that appeared in several mortality studies. The researchers selected Detroit, explains Joel Schwartz of the Harvard School of Public Health in Boston, because it was the largest region for which daily measurements are kept of the most respirable particles—those 10 micrometers and smaller. EPA regulates just these PM-10 particulates.

Along with Robert Morris of the Medical College of Wisconsin in Madison, Schwartz looked for correlations between heart disease and either weather or any of several different pollutants, including sulfur dioxide, ozone, and PM-10.

Only PM-10 correlated with hospital admissions for ischemia (problems linked to reduced blood flow), they report in the July 1 *AMERICAN JOURNAL OF EPIDEMIOLOGY*. For each 100 microgram increase in PM-10 per cubic meter ( $\mu\text{g}/\text{m}^3$ ) of air, admissions climbed roughly 6 percent. Moreover, Schwartz notes, their analyses show no sign of any threshold below which this trend disappears.

The pair also linked a nearly 8 percent increase in hospital admissions for congestive heart failure (an inability of the heart to pump out all the blood that returns to it) with each 100  $\mu\text{g}/\text{m}^3$  increase in PM-10 or 4 parts per million increase in carbon monoxide (CO). By contrast, they turned up no link between any of the factors and admissions for heart arrhythmias.

This study extends to individual heart ailments the PM-10 trends seen in mortality studies, notes Patrick L. Kinney of the Columbia University School of Public Health in New York City.

“But the most interesting thing to me was the CO effect,” says David Fairley of the Bay Area Air Quality Management District in San Francisco. He says most analysts have largely ignored this persistent auto pollutant because ambient levels had not been associated with serious health effects.

How particulates might foster cardiovascular emergencies remains a big, unanswered question. However, Schwartz notes, data he published in the January 1994 *ENVIRONMENTAL RESEARCH* indicate that aggravation of some accompanying respiratory disease accounted for roughly half the PM-10-linked cardiovascular deaths he identified in Philadelphia 4 years ago (SN: 4/6/91, p.212).

— J. Raloff