

Cleaner Air Linked to Better Health

By Maria Godoy

WASHINGTON, DC, October 22, 2002 (ENS) - Improving air quality through emissions controls can significantly reduce deaths due to heart and lung diseases, a new European population study suggests.

Over the past two decades, a large body of research has established the link between air pollution and an increased risk of death due to cardiopulmonary disease. But the new study, which examined the long term health benefits of the 1990 ban of coal sales in Dublin, Ireland, is among the first to yield tangible evidence that public policy interventions can reverse that trend.

Air quality in Dublin has improved since the city banned sales of bituminous coal in 1990. (Photo courtesy [Dublin Employment Pact](#))



"The Dublin study is among the first to show in a natural experiment that improving the air does indeed reduce deaths from cardiopulmonary disease," said Dr. Annette Peters, director of the Institute for Epidemiology at the GSF - the German government's National Research Center for Environment and Health.

During the 1980s, Dublin's air quality deteriorated after many residents opted to switch from oil to cheaper and more readily available solid fuels to heat their homes. Prompted by this decline, the Irish government banned the marketing, sale and distribution of bituminous coals within the city of Dublin in September of 1990.

In the current issue of the European medical journal "The Lancet," researchers from St. James' Hospital and Trinity College, both in Dublin, and the Harvard School of Public Health report that the health benefits of that ban were greater and more immediate than anyone would have guessed. Levels of black smoke pollution in the city fell by a whopping 70 percent.



"These changes were seen immediately in the winter following the introduction of the ban," said Harvard Professor Douglas Dockery, one of the report's co-authors.

The improvements in air quality spanned all seasons. However, the effects were most noticeable in winter, when heating demands tend to create the highest black smoke levels, Dockery said.

Prior to the coal ban, wintertime black smoke levels averaged about 80 micrograms per cubic meter. After the ban, those figures had plummeted to just over 20 cubic micrograms per cubic meter.

Black, sooty air pollution has been linked to increased risk of death from cardiopulmonary disease. (Photo courtesy National Renewable Energy Laboratory)

The boost in air quality corresponded to a drop in heart and lung disease mortality, say the researchers, who examined death records for the six years before and after the coal ban's introduction. They found that deaths from respiratory diseases dropped by 15 percent, while cardiovascular disease mortality rates sank by 10 percent.

Dockery and his colleagues say these health benefits, which were also measurable within the first year of the coal ban, were substantially greater than previous short term studies had predicted.

"This study, on top of the broad body of epidemiological studies, highlights the urgent need for measures reducing ambient air pollution," Peters said. "Emission control and effective local interventions are needed to lighten the health burden everywhere."



Another study appearing in the same issue of "The Lancet" suggests the health burdens caused by air pollution may be even greater than previously estimated.

In the study, researchers from the Environmental and Occupational Health Unit at Utrecht University in the Netherlands studied the relationship between traffic related pollution and death rates. Over the course of eight years, the researchers followed a random sample of 5,000 people and estimated their long term exposure to emissions from vehicles.

Living near heavy traffic areas may increase your risk of heart and lung disease. (Photo by Warren Gretz courtesy National Renewable Energy Lab)

People living within 164 feet (50 meters) of a major road or 328 feet (100 meters) of a major highway were twice as likely to die from heart and lung diseases as those who did not, the study found. The same mortality risk was not found among study participants who lived in areas located away from major roads, even when background levels of air pollution were otherwise equal.

"Traffic emissions contain many pollutants that might be responsible for the mortality association, including ultrafine particles, diesel soot, and nitrogen oxides," the authors speculate. "Diesel soot also causes pulmonary inflammation, which might be associated with subsequent cardiovascular events."

According to the GSF's Peters, these findings indicate that the long term impact of living near soot emitting cars and trucks may be much greater than previously suspected.

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