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Ground-Breaking Database Quantifies Air Pollution Health Harms to Communities in SWPA

Boston College Global Observatory on Planetary Health Scientists Publish “Particulate Air Pollution, Disease and Death in the Cities and Towns of Southwestern Pennsylvania” and Breathe Project Launches Interactive Public Map Based on This Research

Pittsburgh, Pa. – A Feb.4, 2026, published study offers new insights into the health harms of air pollution to residents in Southwestern Pennsylvania and is among the first to examine health data quantifying deaths and adverse birth outcomes attributable to PM2.5 air pollution in the 7-county region.

Key findings of this research include:

- Of 27,224 adult deaths in the Pittsburgh MSA in 2019, the research estimates that between 3,085 and 3,467 of these deaths (11.1%– 12.5% of all deaths) were attributable to PM2.5 pollution.
- There were 229 premature births and 12 stillbirths that could be attributed to prenatal PM2.5 exposure.

First author Ella Whitman, under the direction of Dr. Philip Landrigan, Director of Boston College’s Global Observatory on Pollution and Health, links individual records with satellite-derived air pollution estimates at the census-tract level.

Southwestern Pennsylvania’s Breathe Project collaborated with the authors and has launched a new website tool and map that anyone can use to see how these health impacts relate to their communities across the seven counties of SWPA. Landrigan’s team supported the collaboration in the hopes of shaping public policies and encouraging stricter enforcement that will improve the region’s air quality, people’s health, save lives and boost the region’s economic productivity, he says.

The goal was to quantify deaths and adverse birth outcomes in the Pittsburgh MSA attributable to PM2.5 air pollution, the authors say.

PM2.5 is a leading cause of disease and death. This analysis comes at a time when the U.S. Environmental Protection Agency (EPA) and federal administration are attempting to undermine years of work to improve air quality and the commitment to community health and the Clean Air Act. Air pollution is widely recognized by the [World Health Organization](#) and the [Lancet Commission on Pollution and Health](#) as the largest environmental risk factor for disease and premature death worldwide, as was the case at the U.S. EPA until very recently.

While U.S. air pollution emissions have declined by 75 percent since passage of the Clean Air Act in 1970, the Pittsburgh Metropolitan Statistical Area (MSA) continues to have elevated pollution levels. In 2025, the region had the U.S.'s 12th highest PM2.5 concentration. Steel mills and coke ovens are major point sources, says Landrigan.

“While it is well-established that air pollution is the leading environmental cause of premature death globally, its contribution to health outcomes at the community level is often overlooked,” said co-author Ella Whitman. “By quantifying the local impacts of air pollution on mortality and morbidity, we aim to provide necessary evidence to inform policies that protect both human health and economic development.”

The Air Pollution Impacts tool was unveiled Thursday by the Breathe Project. Available on the Breathe Project Website under “Tech Tools” the map allows anyone to identify the public health harms from air pollution at the level of the region, their community, neighborhood or census block, depending upon how local people are interested in pinpointing the health harms occurring in their community. The map also allows people to see how their community falls on a spectrum of health impacts compared to all communities in the region.

“By linking this data at the census-tract level, we find that an estimated 11.1-12.5% of adult deaths in the Pittsburgh metropolitan area in 2019, adverse birth outcomes in over 400 children, widespread reductions in children’s IQ, and economic losses totaling \$2.7 billion could be attributed to PM2.5 air pollution,” says Dr. Philip Landrigan. “We’ve created this finer grain map so users (and residents) can punch in a community like Braddock and see what the death toll is in that area.”

Many of the health impacts in this study occurred at PM 2.5 exposure levels below the current federal standard of 9.0 µg/m³. This indicates that the federal standard needs to be reduced to protect the health of vulnerable populations, the authors say.

“This tool is one way that can help educate communities that are most impacted by PM 2.5 exposures, on a daily basis,” said Germaine Patterson, a 20-year resident of Clairton and member of Valley Clean Air Now (VCAN). “The rates of cancer and deaths are very alarming. It’s important that our political leaders on a federal, state and local level use this tool for change and protections.”

“The ability to encourage policy change rests on the value of solid public health science,” says Matt Mehalik, Executive Director of Breathe Project. “We Pennsylvanians have the right to clean air, and we all deserve to live in a community that does not impose unfair health harms on children, families, and neighbors. Now that people can see what is happening, we can stand our ground for progress on air quality in our region.”

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Online Tool Access: <https://breatheproject.org/air-pollution-health-impacts/>

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Launched in 2018, the [Global Observatory on Pollution and Health](#) advises elected officials and the global public on energy, environment and health policy. It assists cities and countries around the world to identify and quantify their worst forms of environmental pollution, reduce greenhouse gas emissions and save lives.

[Breathe Project](#), based in the Hill District, Pittsburgh, is a coalition of residents, environmental advocates, public health professionals and academics using the best available science and technology to improve air quality, eliminate climate pollution and make our region a healthy, prosperous place to live.

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