CLEAN AIR RESEARCH CENTERS

Background

The U.S. Environmental Protection Agency (EPA) is at the forefront of advancing air quality science. People are exposed to multiple air pollutants, yet many conclusions about air pollution risks are based on research that considers only one pollutant at a time.

EPA is addressing this issue by funding studies of the health effects of mixtures of multiple air pollutants in combination with other factors that better represent real-world exposures.

To advance research in this area, EPA provided nearly $32 million between 2011 and 2016 to four university-based Clean Air Research Centers (CLARCs) located across the United States. These centers feature collaborations among investigators from multiple institutions to understand complex air quality and health issues with an integrated and multidisciplinary approach that would not be possible through individual grants to single investigators.

This research is providing important information that can potentially be used to protect public health.

Research Focus

Each center received approximately $8 million over the five-year grant period to study a range of exposures to various air pollution sources and mixtures, as well as their associated health effects.

The four CLARCs are advancing our understanding of the human health risks of exposures to particulate matter (PM), ozone, and other air pollutants and addressing how individual variability and susceptibility, social conditions, and other factors affect health outcomes.

While each CLARC has its own research emphasis, the centers are also working together to conduct cross-center collaborative research.

Southeastern Center for Air Pollution and Epidemiology (SCAPE) is a collaboration between Emory University and the Georgia Institute of Technology. This center combines novel measurement techniques with air pollution models to provide an assessment of the health risks of air pollution mixtures. Research is considering how social factors such as commuting, traffic, living and work locations, in combination with exposure to mixtures of air pollutants, can impact health.

Great Lakes Air Center for Integrative Environmental Research (GLACIER) at Michigan State University is exploring the connections between air pollution and adverse effects on metabolism including obesity. Exposure to air pollution is linked to increased risk of heart attacks and strokes and factors such as elevated blood pressure and increased insulin sensitivity. This research focuses on the effects of fine particulate matter and ozone on the cardiometabolic health of vulnerable populations.

University of Washington Center for Clean Air Research (CCAR) is a collaboration between four institutions examining how complex multi-pollutant mixtures near roadways affect cardiovascular and immune system health. The research integrates exposure, epidemiological, toxicological, clinical and statistical sciences to study cardiovascular and immunologic hazards of roadway emissions pollution, in combination with social determinants and other factors such as stress.

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Harvard University Clean Air Research Center (CARC) is investigating the effects of short- and long-term exposures to individual pollutants, pollution sources, and multi-pollutant mixtures across life stages on the brain, cardiovascular system, inflammation, birth weight/growth and cardiovascular disease. The research is expected to identify interactions between air pollutant exposure and social factors such as socioeconomic disparities that may contribute to susceptibility to adverse health impacts such as cognitive impairment and inflammation.

Learn more about the CLARCs at:
https://www.epa.gov/air-research/clean-air-research-center-grants

Learn more about EPA Research Grants at:
www.epa.gov/research-grants

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