# US Environmental Protection Agency:
# Air Pollution and Chronic Diseases

*EPA scientists have developed tools that use air pollution levels and activities of older adults to estimate the exposure of older individuals to air pollution. These estimates, in turn, can be used to evaluate whether air pollution can exacerbate diseases of aging, such as heart attack, stroke, chronic obstructive pulmonary disease (COPD), and asthma in older adults.*

**Lead Agency:**

US Environmental Protection Agency

**Agency Mission:**

The mission of the U.S. Environmental Protection Agency (EPA) is to protect public health and safeguard the natural environment.

**Principal Investigator:**

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**Partner Agency:**

Research Triangle Institute
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Environmental and Occupational Health Science Institute

**General Description:**

Measuring air pollution levels at pollution sources, or even at monitoring sites around the nation, does not tell us what individuals are actually exposed to. This research helps EPA estimate the real, personal exposure of older individuals to environmental pollutants by taking into account their micro-environments and personal activities through the day.

EPA scientists have developed tools and information to estimate air pollution exposure to older individuals. These tools use air pollution levels measured at ambient (or background) monitoring sites plus information about where older adults spend their time and what they do. These estimates, in turn, can be used to evaluate whether air pollution can exacerbate diseases of aging, such as heart attack, stroke, chronic obstructive

pulmonary disease (COPD), and asthma in older adults. This research has given EPA the ability to incorporate information on pollution sources, ambient air pollution levels, and personal micro-environments to produce estimates of real-world exposure to potentially hazardous environmental compounds.

Estimates of personal or population-group exposure tell EPA where to intervene with their risk mitigation efforts. These estimates are also used to evaluate whether or not air pollution can exacerbate diseases of aging. Importantly, EPA can thereby consider the health of older adults when setting National Ambient Air Quality Standards.

***Excellence:*** What makes this project exceptional?

This research received EPA's highest level Science and Technical Achievement Award, an internal award given to excellent, scientific, peer-reviewed publications.

***Significance***: How is this research relevant to older persons, populations and/or aging society?

Measurement of air pollution levels at pollution sources, or even at monitoring sites distributed throughout the nation, does not tell us what individuals are exposed to. This research helps the Agency estimate the real, personal exposure of older individuals to environmental pollutants by taking into account their micro-environments and personal activities through the day.

***Effectiveness:*** What is the impact and/or application of this research to older persons?

Estimates of personal or population-group exposure derived from ambient monitoring data tells the EPA where to intervene with risk mitigation efforts. These estimates are also used to evaluate whether air pollution can exacerbate diseases of aging. EPA can thereby consider the health of older adults when setting National Ambient Air Quality Standards.

***Innovation:*** Why is this research exciting or newsworthy?

This research helps EPA estimate the real, personal exposure of older individuals to environmental pollutants by taking into account their micro-environments and personal activities through the day.