

# Office of Environmental Health Hazard Assessment



Matthew Rodriguez  
Secretary for  
Environmental Protection

George V. Alexeeff, Ph.D., D.A.B.T., Director  
Headquarters • 1001 I Street • Sacramento, California 95814  
Mailing Address: P.O. Box 4010 • Sacramento, California 95812-4010  
Oakland Office • Mailing Address: 1515 Clay Street, 16<sup>th</sup> Floor • Oakland, California 94612



Edmund G. Brown Jr.  
Governor

## **Study finds long-term exposure to ultrafine particle air pollution associated with death from heart disease**

February 25, 2015  
FOR IMMEDIATE RELEASE

SAM DELSON 916-324-0955 (o)  
916-764-0955 (m)

SACRAMENTO – A new study by the California Environmental Protection Agency’s Office of Environmental Health Hazard Assessment (OEHHA) demonstrates an association between long-term exposure to ultrafine particle air pollution and death from heart disease. Ultrafine air pollution particles are tiny – about 0.1 micron in diameter or roughly one-thousandth the width of a human hair. These particles are generated from gas and diesel motor vehicle engines, biomass burning and energy production.

The study is the first to consider the effects on people of long-term exposure to ultrafine particles. It was conducted by OEHHA in collaboration with other institutions and recently published online in the scientific journal *Environmental Health Perspectives*.

“This research provides an important contribution to our understanding of the progression of air pollution-related heart disease,” said OEHHA Director Dr. George Alexeeff. “Research in this area is critical to furthering our understanding of the potential health impacts of the smallest air pollution particles and how they can best be addressed.”

“Our findings suggest that ultrafine particles may have a significant impact on public health,” said lead author Dr. Bart Ostro, former chief of OEHHA’s Air Pollution Epidemiology Section. “This study also provides evidence about the relative importance of the different types and sources of microscopic air pollution particles and may aid in prioritizing and reducing the cost of pollution control.”

The study, titled “Long-term exposures to fine and ultrafine particles, species and sources: Results from the California Teachers Study Cohort,” analyzed data from more than 100,000 middle-aged women whose health status was followed from 2000 through 2007. The findings, based on data from California teachers and administrators recruited from the State Teachers Retirement System, indicate that different types of tiny particles, including those formed from gas- and diesel-fueled vehicles, biomass burning and other combustion sources, were strongly associated with death from heart disease caused by blocked arteries.

---

California Environmental Protection Agency

Sacramento: (916) 324-7572 Oakland: (510) 622-3200

[www.oehha.ca.gov](http://www.oehha.ca.gov)

Key findings included:

- Ultrafine and “fine” particles (2.5 microns in size, or about one-thirtieth that of human hair) contributed to heart disease mortality.
- Certain constituents of ultrafine particles were strongly associated with death from heart attacks. These constituents included copper, iron, other metals, and elemental carbon (soot).
- For several constituents, the ultrafine particles were more strongly associated with death from heart attacks than those in the larger (but still tiny) fine particle size range.

OEHHA’s Dr. Ostro co-authored the paper with researchers from the Cancer Prevention Institute of California, the City of Hope National Medical Center and the University of California, Davis. The latter developed unique methods to estimate long-term exposures to air pollution that were critical to the study.

The study is available online at <http://ehp.niehs.nih.gov/1408565/>.

OEHHA is the primary state entity for the assessment of risks posed by chemical contaminants in the environment. Its mission is to protect and enhance public health and the environment by scientific evaluation of risks posed by hazardous substances.

###