

## Healthy People 2020 webinar highlights respiratory research at NIEHS

By Eddy Ball

NIEHS lead researcher Steven Kleeberger, Ph.D., was one of two experts featured Sept. 18 in a [Healthy People 2020](http://www.healthypeople.gov/2020/default.aspx) (<http://www.healthypeople.gov/2020/default.aspx>) webinar on respiratory diseases and air quality. The speakers explored the impact of the environment on health and progress in data, communication efforts, and effective implementation strategies.

### Kleeberger

(<http://www.niehs.nih.gov/research/atniehs/labs/lrb/enviro-gen/index.cfm>) , who heads the Environmental Genetics Group at NIEHS, discussed research conducted in labs at the institute and by academic researchers elsewhere, through NIEHS grants. He was joined by Virginia Lau, advanced projects advisor for the [Bay Area Air Quality Management District](http://www.baaqmd.gov/) (<http://www.baaqmd.gov/>) in California, who described air quality improvements realized through translation of research findings into regulations and community outreach.

U.S. Department of Health and Human Services Director of the Office of Disease Prevention and Health Promotion Don Wright, M.D., moderated the panel discussion. Experts from the department filled in for Acting Assistant Secretary of Health Wanda Jones, Dr.P.H., who was unable to participate as scheduled, and contributed to the question-and-answer session and roundtable discussion.

### Research efforts

NIEHS takes part in the Healthy People 2020 initiative as the co-lead agency on the [environmental health](http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=12) (<http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=12>) topic area and is one of three National Institutes of Health agencies leading the [respiratory diseases](http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=36) (<http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=36>) topic area. The program's most recent [progress update](http://www.healthypeople.gov/2020/leading-health-indicators/Healthy-People-2020-Leading-Health-Indicators%3A-Progress-Update) (<http://www.healthypeople.gov/2020/leading-health-indicators/Healthy-People-2020-Leading-Health-Indicators%3A-Progress-Update>) shows marked progress in the two environmental quantified health indexes that relate to air quality.

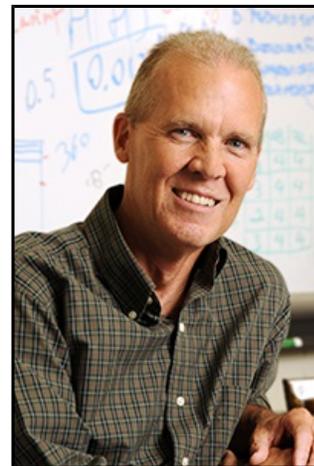
During his overview of work supported by NIEHS, Kleeberger described research that is unraveling the mystery of why people react differently to exposure to air pollution. As he explained, some people with the same exposures develop complex lung diseases, such as asthma, chronic obstructive pulmonary disease, and acute respiratory distress syndrome, whereas others do not. "One of the risk factors that has been identified is genetic background," he explained, referring to studies by his group and others.

"We [also] know that genetics cannot account for all of the increase in asthma prevalence," he added. He pointed to ongoing research into the ways other host characteristics, such as age, immune status, nutrition, and complex environmental exposures, influence health conditions.

### Implementation at the community level

Lau is part of the regional government agency that regulates sources of air pollution within the nine San Francisco Bay Area counties, one of the state's and the nation's hot spots for air pollution. She told an inspiring story of community action, a campaign to raise awareness, and new regulations on diesel emissions that have led to substantially better air quality. By 2014, she said, there was an estimated reduction of 86 percent from 2007 baseline levels in particulate matter emissions from trucks shipping goods.

Together, government and citizens in the Bay Area used research findings, including the type of work Kleeberger described in his presentation of NIEHS research, to inform their air quality improvement efforts. The resulting action plan included anti-idling campaigns, traffic diversion efforts, incentives, and new regulations on the efficiency of diesel engines used in trucks, trains, and ships operating in the Bay Area.



*Kleeberger also discussed the complexity of the developmental origins of respiratory disease that manifests later in life. "We believe that there are some very critical windows [of susceptibility to exposures], particularly during pregnancy, on the fetus," he said. (Photo courtesy of Steve McCaw)*

“One agency cannot do all of the work by itself,” Lau said of her group’s partnership with citizen groups and the California Air Resources Board. “The key to real success is that people are working together.”

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