

High self-reported asthma rates in Chinatown, N.Y.

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Research conducted seven years after the terrorist attacks on the World Trade Center (WTC) in New York City (NYC) found that children attending the socioeconomically and ethnically homogeneous elementary school closest to Ground Zero have high rates of self-reported asthma and airway obstruction.

The research will be presented on Tuesday, May 19 at the American Thoracic Society's 105th International Conference in San Diego.

"Our Stony Brook team found that the children who live near the WTC and were present at the time of the 2001 attacks had a higher rate of self-reported [asthma](#), than those living further away and ethnically matched historical controls from NYC," said study author Anthony M. Szema, M.D., who is assistant professor of medicine and surgery at SUNY Stony Brook School of Medicine. "This may potentially indicate that the higher rates of new cases of asthma following the WTC attacks persisted, suggesting that the plume immediately following the attacks precipitated chronic respiratory ailments."

The same researchers found that one year following the WTC attacks, asthmatic children ages five to 12 years old who were living near Ground Zero at the time of the attacks, showed clinical signs of worsening asthma, including reduced peak expiratory flow rates, increased numbers of asthma medications per child and more asthma clinic visits. Additionally, they found that new cases of asthma among children increased 50 percent in the wake of the disaster.

For the most recent study, Dr. Szema, along with colleagues from the New York State Department of Environmental Conservation, and Stony Brook medical students Khalil Savary, Benjamin Ying, and Kevin Lai, collected questionnaire and spirometry data on 202 children who had lived and attended school in the area at the time of and since the attacks. Dr. Szema's team took [air](#) samples to investigate the level of current urban ambient pollution, including 2.5 micron particulate matter (PM2.5) as a surrogate for [diesel exhaust](#), and levels of dust mite antigen and other indoor aeroallergens at an elementary school near Ground Zero.

The researchers also found high levels of PM2.5 measured on the roof of the school, indicating unacceptably high levels of urban ambient air pollution. Surprisingly, indoor aeroallergen exposure to rat, cockroach, dust mite antigen, cat and dog were essentially negligible. Exposure to these indoor aeroallergens, as well as parental smoking, cannot account for acute exposure leading to airway obstruction.

"Our estimates for asthma incidence are open to the criticism that we lacked evidence of reversibility of airway obstruction," acknowledged Dr. Szema, "But our data do show that Chinatown asthma rates are still higher than among other groups (29 percent versus the New York City reference rate of 13 percent). Our study raises the possibility that high air pollution levels may account for increased asthma incidence. It is possible that exposure to various toxins released by the WTC attacks accentuated the effect of subsequent exposure to urban air pollution."

Future directions for this research include continuing to assess this and another control population further away in Queens by utilizing impedance oscillometry as a more sensitive gauge of airway obstruction for long-term follow-up. Shortcomings or yet-to-be-addressed issues may be clarified by further exploration. Support for the study was also provided by NSpire Corporation, the New York City Department of

Education, and the SUNY Stony Brook M.D. with Distinction in Research Program.

Source: American Thoracic Society

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