

As Director of Bellevue's Asthma Clinic, she has been caring for asthma patients for years while also pursuing research on the impact of ambient particulate matter on the lungs. After 9/11, Dr. Joan Reibman found herself uniquely positioned to investigate how the Towers' collapse impacted the respiratory health of residents and bystanders near Ground Zero. Her findings have helped thousands breathe easier.

A Particle of Difference

Joan Reibman, M.D.

Associate Professor of Medicine and
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“We showed that not just World Trade Center workers were suffering, but residents and bystanders, too,” said Dr. Joan Reibman, referring to the critical epidemiological research she conducted after 9/11 in collaboration with the New York State Department of Health. “We documented a significant increase in respiratory symptoms that were asthma-like at a time when there was no federal funding for treatment of this population.”

In 2005, with \$2.1 million in funding from the American Red Cross Liberty Disaster Relief Fund, the World Trade Center Environmental Health Center in Bellevue Hospital, under the direction of Dr. Reibman, finally began to treat patients with wide-ranging symptoms. With additional funding from the city, the clinic has since been able to add social workers, psychologists, gastroenterologists and other specialists to treat what has proven to be both a mental and physical health issue. “This is a wonderful interdisciplinary clinic—we have evaluated and helped over 2500 patients,” said Dr. Reibman. “We would like this type of program to be available at the Asthma Clinic as well.”

Dr. Reibman was drawn to pulmonary medicine by both a desire to help the underserved populations most affected by asthma and tuberculosis, and by a scientific curiosity about the unknown mechanisms of these chronic diseases. Her lab is currently focused on how airway epithelial cells modulate inflammation leading to asthma.

According to Dr. Reibman, New York is a great place for pulmonary and environmental research. “We have a large patient population in need of care and an understanding of why they're sick. We have great scientists, collaborators, and people doing outreach in the community. And we have plenty of particulate matter—better known as pollution!”

Shown in background, an enlarged image of human bronchial epithelial cells that have been exposed to New York City particulate matter and have engulfed the particles. In an NIH-funded study, Dr. Reibman's group found that these cells are stimulated and activated by pollutants. Signals derived from these stimulated epithelial cells trigger dendritic cell maturation and polarization, which in turn can alter T-cell function that promotes the type of immune response seen in asthma. This finding may provide clues to understanding the increase in allergic asthma in response to ambient pollutants. Further study is underway to understand which components of pollution are responsible for activation of the epithelial cell, how it generates signals to recruit dendritic cells, and whether there is an interaction with common urban allergens such as cockroach antigen.

