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Embargoed until Sunday, May 3rd, 2009

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Future Climate Change Likely to Cause More Respiratory Problems in Young Children

(New York, NY – May 3, 2009) More children will end up hospitalized over the next decade because of respiratory problems as a result of projected climate change, according to a new study from Mount Sinai School of Medicine. The abstract was presented on Sunday, May 3, 2009 at the Pediatric Academic Societies Annual Meeting in Baltimore, Maryland. The lead author of this research is Perry Elizabeth Sheffield, MD, Pediatric Environmental Health Fellow in the Department of Community and Preventive Medicine and the Department of Pediatrics at Mount Sinai School of Medicine. Mount Sinai worked with Natural Resources Defense Council and the Columbia University Mailman School of Public Health on this eye-opening research that finds a direct connection between air pollution and the health of children.

Ozone has many known negative respiratory health effects to which children are particularly vulnerable. An important projected consequence of climate change is the increase in ground-level ozone. Urban areas such as the New York City metropolitan area are at a higher risk of increasing temperature compared to rural areas. However, while more ozone is formed in higher temperatures, the downwind suburban areas are predicted in some of the models to experience higher ozone levels.

For this study, Dr. Sheffield and her colleagues created a model describing future projected rates of respiratory hospitalizations for children less than two years of age using baseline NYC metropolitan area hospitalization rates from publicly available corresponding state Department of Health databases. These hospitalization rates were then compared to a previously developed dose-response relationship between ozone levels and pediatric respiratory hospitalizations, and the expected New York City eight-hour daily maximum ozone levels for the 2020s, as projected by a regional climate model created by the NY Climate and Health Project, supported by a grant from the US Environmental Protection Agency. Two separate future scenarios were used. The two

scenarios differed by the amount of projected ozone precursor emissions (chemicals that are converted to ozone by light and heat).

In both scenarios, ozone levels rise by 2020. The study found that by 2020, respiratory hospitalizations are projected to rise between four and seven percent for children under two years old because of projected air pollution (ozone) increases. The scenario with increased ozone precursors showed less of an overall increase in hospital admissions because of a paradoxical reduction in ozone due to the effects of air pollutant interactions, sometimes referred to as the scavenger molecule effect. These are likely conservative estimates because population was held constant, a single dose response function was used for the entire area, and most counties were not weighted by race and ethnicity. "These significant changes in children's hospitalizations from respiratory illnesses would be a direct result of projected climate-change effects on ground-level ozone concentrations," said Dr. Sheffield. "This research is important because it shows that we as a country need to implement policies that both improve air quality and also prevent climate change because this could improve health in the present and prevent worsening respiratory illness in the future."

"Our study supports the necessity of improving air pollution around the world. We need to begin to make these improvements through industry emission controls, traffic reduction policies, and increased enforcement of traffic regulations," said study co-author Dr. Philip Landrigan, Professor and Chair of Community and Preventive Medicine, and Director of the Children's Environmental Health Center, at Mount Sinai School of Medicine.

About The Mount Sinai Medical Center

The Mount Sinai Medical Center encompasses The Mount Sinai Hospital and Mount Sinai School of Medicine. The Mount Sinai Hospital is one of the nation's oldest, largest and most-respected voluntary hospitals. Founded in 1852, Mount Sinai today is a 1,171-bed tertiary-care teaching facility that is internationally acclaimed for excellence in clinical care. Last year, nearly 50,000 people were treated at Mount Sinai as inpatients, and there were nearly 450,000 outpatient visits to the Medical Center.

Mount Sinai School of Medicine is internationally recognized as a leader in groundbreaking clinical and basic-science research, as well as having an innovative approach to medical education. With a faculty of more than 3,400 in 38 clinical and basic science departments and centers, Mount Sinai ranks among the top 20 medical schools in receipt of National Institute of Health (NIH) grants.

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