

## **Ambient air pollution and allergic disease among children**

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The prevalence of childhood eczema, allergic rhinitis, and asthma has been increasing worldwide. Air pollution related to allergic diseases has been an important public health issues, especially for highly sensitive group like children. Critical exposure window could occur for air pollution related to allergic diseases, especially during embryo, 0 to 1 years old, and 1-2 years old. The purpose of this study is to assess the potential adverse health effects of air pollution related to allergic diseases (eczema, allergic rhinitis and asthma). There are two databases used in this study: 1) Longitudinal Health Insurance Database 2005 (LHID2005) and 2) Environmental Protection Agency (EPA) air monitoring database. Geographic Information Systems (GIS) will be used in estimating air pollution exposure. Furthermore, Cox proportional hazard regression models will be used in adjusting sex, geographic area, urbanization level, household Environmental Tobacco Smoking (ETS) exposure and lead concentrations in air within three periods of exposure time, 10 months before birth, 0 to 1 years old, and 1 to 2 years old. All statistical analyses will be performed with the SAS version 9.3 (SAS Institute, Cary, NC, USA). In other study indicate that components of PM<sub>2.5</sub> were associated with hospitalization for several childhood respiratory diseases including pneumonia, bronchitis, and asthma. Therefore we find that long-term air pollution exposure not only associated with asthma, but also affect children's lung function and cause allergic disease.