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Particulate Air Pollution Boosts Risk of Asthma Attacks in Children, ADEQ Study Shows

PHOENIX (Dec. 30, 2008) – A study released today by the Arizona Department of Environmental Quality (ADEQ) shows that asthma attacks and other asthma symptoms in children aged 5-18 increased by nearly 14 percent on days with elevated levels of particulate matter pollution, called PM10, during 2005-2006.

ADEQ contracted with Arizona State University to conduct the study, which was funded by a grant from the U.S. Environmental Protection Agency, in conjunction with the Arizona Department of Health Services and Arizona State University.

The study analyzed over 5,000 asthma “events” occurring among children living in a selected study area between Jan. 1, 2005 and Sept. 30, 2006 by comparing hospital and emergency-room reports with air quality data during this time period. The study area covered 168 census tracts in a geographic area in metropolitan Phoenix generally bounded by Dunlap Road to the north, 52nd Street to the east, Elliot Road to the south and 75th Avenue to the west. The study area was designed based on the location of air quality monitors in the Phoenix area.

“The retrospective analysis of ambient PM10 concentrations and asthma incidence data showed a positive correlation between elevated levels of PM10 (i.e., poor air quality) and high asthma incidence in the metropolitan Phoenix area,” the report states.

“No one really knows what causes asthma in children, but we do know that air pollution can trigger asthma attacks and increase the risk of respiratory problems in children,” ADEQ Director Steve Owens said. “This study shows the connection between poor air quality and asthma attacks in children and underscores the importance of taking action to reduce particulate pollution in the Valley.”

The Phoenix metropolitan area is currently in violation of the federal health-based standard for PM10 and was required to submit a plan to EPA for reducing PM10 levels in the Valley by 5 percent each year until the standard is met. PM10 is particulate matter 10 microns or smaller in diameter. A human hair is roughly 70 microns in diameter. The sources of PM10 pollution in the Phoenix area include dust from unpaved roads and vacant lots, track out onto paved roads, off-highway vehicles, leaf blowers, disturbed areas on mining sites, construction sites, and windblown dust from agricultural fields, smoke and soot from fireplaces and outdoor burning and diesel exhaust and other vehicle emissions.

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ADEQ received funding from the EPA's Office of Environmental Information to conduct the study using the National Environmental Information Exchange Network to exchange, compare and analyze complicated data on childhood asthma maintained by ADHS and health care institutions with air quality data collected by ADEQ.