Tobacco and Air Pollution

Prenatal and Passive Smoke Exposure and Incidence of Asthma and Wheeze: Systematic Review and Meta-analysis

PURPOSE OF THE STUDY. To determine estimates of the prospective impact of smoking by parents or household members on the risk of wheeze and asthma at various childhood stages.

STUDY POPULATION. Children up to age 18 years exposed to environmental tobacco smoke

METHODS. Search of Medline, Embase, and conference abstracts to characterize cohort investigations of the incidence of asthma or wheeze in association with exposure to prenatal or postnatal maternal, paternal, or household smoking in individuals up to 18 years of age.

RESULTS. The authors identified 79 prospective studies. Exposure to pre- or postnatal passive smoke was associated with a 30% to 70% increased risk of incident wheezing (strongest effect from postnatal maternal smoking on wheeze in children aged ≤2 years, odds ratio [OR] = 1.70, 95% confidence interval [CI] = 1.24–2.35, 4 studies) and a 21% to 85% increase in incident asthma (strongest effect from prenatal maternal smoking on asthma in children aged ≤2 years, OR = 1.85, 95% CI = 1.35–2.53, 5 studies).

CONCLUSIONS. Exposure to passive smoking increases the incidence of wheeze and asthma in children and young people by at least 20%. Preventing parental smoking is crucially important to the prevention of asthma.

REVIEWER COMMENTS. The study is limited by inclusion of atopic pediatric populations and the difficulty in establishing asthma in young children, as well as confounding impact of smoking of mother, father, and or other household members. However, the authors demonstrate, using 9 times more articles than previous studies, that passive smoking has a devastating effect of 28% to 70% enhanced risk of incidence of wheeze and/or asthma. Clearly, action to limit exposure to passive smoke in pediatric populations with chronic respiratory conditions is imperative.


Christopher Randolph, MD
Waterbury, CT

Parental Stress Increases the Detrimental Effect of Traffic Exposure on Children’s Lung Function

PURPOSE OF THE STUDY. Recent evidence indicates that the susceptibility to the adverse effects of air pollution is greater in the lower socioeconomic population. This may be as a result of increased psychosocial stress. This study hypothesized that psychosocial stress modifies the effect of traffic exposure on lung function.

STUDY POPULATION. Studied were 1399 children in the Southern California Children’s Health Study who were undergoing lung function testing. The study population came from 8 communities in southern California; these communities were selected to reflect a broad range of regional air pollutant exposures and large gradients in traffic exposure within communities.

METHODS. All children involved in the study underwent spirometric lung function testing during the 2008–2009 school year. Information regarding respiratory illnesses and environmental exposures was collected via a questionnaire. Sociodemographic characteristics (ie, race, income, insurance, tobacco smoke exposure) were assessed via a questionnaire at time of enrollment into the study in 2002–2003. The perceived stress scale, a 4-item questionnaire, was used to measure parental stress at time of enrollment. Exposure to nitric oxide, nitrogen dioxide, and total oxides of nitrogen...
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Christopher Randolph

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