

study design, their findings support the potential benefit of air pollution reduction for asthma control.

REVIEWER COMMENTS. With this study, the authors confirm the association of air pollution with impaired respiratory health in children, both with and without asthma. Regulations for clean air are good policy for children's health.

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The Independent Role of Prenatal and Postnatal Exposure to Active and Passive Smoking on the Development of Early Wheeze in Children

Vardavas CI, Hohmann C, Patelarou E, et al. *Eur Respir J*. 2016;48(1):115-124

PURPOSE OF THE STUDY. To examine the association of maternal passive smoking during pregnancy and wheezing in children up to 2 years.

STUDY POPULATION. The authors of this study included 15 cohorts in the European project Environmental Health Risks in European Birth Cohorts. The cohorts were recruited from 1990 to 2008. A total of 37 459 mother-child pairs were available, and 27 993 had complete data on secondhand smoke exposure and wheeze.

METHODS. Active and passive smoke exposure was obtained from questionnaire data submitted by each cohort. Four exposure definitions were created: prenatal active smoking, prenatal passive smoking, postnatal passive smoking, and unexposed. Eight exclusive exposure groups were created from these definitions. The primary outcome variable was any wheezing during the first 2 years of life by parental self-report. Other variables assessed included sex, family history of atopy, birth weight, gestational age, siblings, and parental education. Multilevel mixed-effects logistic regression was used to examine the effect of exposure to tobacco smoke on the development of wheeze. The model was adjusted for sex, family history of atopy, parental education, birth weight, gestational age, and siblings. Stratified analyses were performed for sex, family history of atopy, and geographic location of the cohorts. A meta-analysis was performed to take into account the heterogeneity between the cohorts.

RESULTS. Compared with the unexposed children, children with maternal prenatal passive exposure to smoking had an 11% increased risk of wheezing up to the age of 2 years (odds ratio [OR] 1.11; 95% confidence interval [CI] 1.03-1.20). Children with maternal prenatal passive smoking and postnatal passive smoking had a 29% increased risk of wheezing compared with unexposed children (OR 1.29; 95% CI 1.19-1.40). The most significant risk was found in children with active prenatal maternal smoking, passive prenatal maternal smoking, and postnatal passive smoking (OR 1.73; 95% CI 1.59-

1.88). The risk of wheezing with smoke exposure was higher among children with a parental history of allergy.

CONCLUSIONS. Maternal passive prenatal smoke exposure is an independent risk factor for the development of wheeze in children up to the age of 2 years. The association was stronger in children with a family history of atopy.

REVIEWER COMMENTS. The authors of this study expand our current understanding of exposure to tobacco smoke and the associated risk of wheeze in children. The authors assessed the type (active versus passive) and time frame (prenatal versus postnatal) of smoke exposure and evaluated the independent and combined effects of these variables. The risk of developing wheezing was highest in children exposed to active and passive smoking both prenatally and postnatally. These findings support the need to protect pregnant women and young children from passive smoke exposure and to further focus efforts on smoking cessation interventions for pregnant women and their partners.

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Perceptions of e-Cigarettes and Noncigarette Tobacco Products Among US Youth

Amrock SM, Lee L, Weitzman M. *Pediatrics*. 2016;138(5):e20154306

PURPOSE OF THE STUDY. Electronic cigarettes are the most commonly used tobacco product among youth in the United States, and the authors of this study sought to determine the perception of youth regarding their harm and addictiveness versus other tobacco products.

STUDY POPULATION. A cross-sectional survey of students in grades 6 to 12 was performed.

METHODS. Data from the 2012 and 2014 National Youth Tobacco Survey were analyzed to describe correlates of perceptions of harm and addictiveness of e-cigarettes, cigars, and smokeless tobacco compared with cigarettes and to assess trends in perceptions of e-cigarettes' harm among different demographic groups.

RESULTS. In 2014, the majority of students (73%) believed that e-cigarettes were less harmful than cigarettes, compared with 20% for smokeless tobacco and 25.8% for cigars. In addition, 47% postulated that e-cigarettes were less addictive than cigarettes, compared with only 14% for smokeless tobacco and 31.5% for cigars. Factors associated with perception of decreased harm and addictiveness included the use of the product, being a boy, being non-Hispanic white, and having a household member who used the product. Between 2012 and 2014, youth increasingly believed that e-cigarettes were less harmful than cigarettes.

CONCLUSIONS. The majority of US youth perceive e-cigarettes as less harmful and addictive than cigarettes. Perceived safety parallels the rise in the use of e-cigarettes.

REVIEWER COMMENTS. There are a number of original research articles in *Pediatrics* this year dealing with the meteoric rise in the use of e-cigarettes by children. The authors of this study are limited in their conclusions by the study's cross-sectional nature, reliance on self-reported data, and the lack of individual-level investigation of alterations in the perception and use of e-cigarettes over time. Nonetheless, the conclusion still stands that children in grades 6 to 12 perceive e-cigarettes as safer than their counterpart tobacco products, which is likely contributing to the rapid rise in e-cigarette use. Additional contributors include the low cost of these products and the ability to use them anywhere, as is demonstrated in another study (Bold KW et al. *Pediatrics*. 2016;138[3]:e20160895); these factors may also influence use in adolescents who would not have used tobacco products otherwise (Barrington-Trimis JL et al. *Pediatrics*. 2016;138[2]:e20153983).

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ANAPHYLAXIS

Increasing Emergency Department Visits for Anaphylaxis, 2005-2014

Motosue MS, Bellolio G, Van Houten HK, Shah ND, Campbell RL. *J Allergy Clin Immunol Pract*. 2017;5(1):171-175

PURPOSE OF THE STUDY. To identify trends regarding anaphylaxis-related emergency department (ED) visits from 2005 to 2014.

STUDY POPULATION. Population data were drawn from OptumLabs Data Warehouse, a national administrative claims database of >100 000 000 pediatric and adult patients in the United States (including those with Medicare Advantage and private insurance) and with a higher representation from the Midwest and the South.

METHODS. ED visits between 2005 and 2014 were included if patients had medical insurance for at least 30 days before the visit. *International Classification of Diseases, Ninth Revision, Clinical Modification* diagnosis codes for anaphylactic shock, as well as for symptom combinations consistent with anaphylaxis, were used as inclusion criteria, taking care to avoid duplication. Annual rates were expressed as the number of ED visits per 100 000 enrollees. Linear regressions analysis was used to assess for trends by year.

RESULTS. A total of 56 212 ED visits for anaphylaxis were identified. Most visits were for women (57.5%) between 35 and 64 years of age (42.8%) and were caused

by unidentified triggers (56.9%). Overall, 27.1% of visits were associated with food, 12% with medications, and 4% with insect venom reactions. Over the 10-year period, the rate of anaphylaxis-related ED visits increased from 14.2 to 28.6 per 100 000 enrollees (101%). This rate increase was seen across all age groups, with the highest increase in children aged 5 to 17 years (196%). Food-related anaphylaxis increased by 124% overall and by 285% in children aged 5 to 17 years. Medication-related anaphylaxis increased by 212%, with the highest rate of increase in children aged 0 to 4 (479%).

CONCLUSIONS. From 2005 to 2014, there was a 101% increase in ED visits for anaphylaxis, with the greatest increase in children <17 and in adults >65 years old. The highest rate increase for both food-related anaphylaxis and anaphylaxis overall was in children aged 5 to 17; for medication-related anaphylaxis, it was in children aged 0 to 4.

REVIEWER COMMENTS. This is an eye-opening study whose authors demonstrate the striking and disproportionate increase in the risk (196%) of anaphylaxis in the pediatric population. Although the authors of this retrospective study only used *International Classification of Diseases, Ninth Revision, Clinical Modification* codes to identify anaphylaxis cases, they highlight the need for continued advances in recognition and treatment of pediatric anaphylaxis. Of concern is the dramatically increasing rates of anaphylaxis triggered by foods (5-17 years) and medications (0-4 years), a trend that mirrors the increasing prevalence of food allergy in children and the challenges of diagnosing anaphylaxis in the preschool-aged group.

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The Risk of Recurrent Anaphylaxis

O'Keefe A, Clarke A, St. Pierre Y, et al. *J Pediatr*. 2017;180:217-221

PURPOSE OF THE STUDY. To prospectively evaluate the risk and management of recurrent anaphylaxis in children and assess factors associated with recurrences.

STUDY POPULATION. The study included 292 children who were treated for anaphylaxis at participating Canadian emergency departments.

METHODS. Patients were prospectively recruited at presentation for an index anaphylactic reaction. Anaphylaxis was defined as a reaction involving at least 2 organ systems and/or hypotension in response to a potential allergen and was diagnosed by the treating physician. A 12-item survey was given to the care provider in which baseline characteristics of demographics, medical history,

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