

What can country of birth tell us about childhood asthma?

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Researchers from Tufts University pooled data from five previous epidemiological studies to investigate the prevalence of asthma in children in the Boston neighborhoods of Chinatown and Dorchester. Among children born in the United States, low socioeconomic status (SES) and exposure to pests (mice and cockroaches) were both associated with having asthma. Neither association was present in children born outside of the United States. The study was published online in advance of print in the *Journal of Immigrant and Minority Health*.

"In earlier studies, we found that country of birth was associated with [asthma](#) risk, which led us to the current analyses. Our current findings may help bring a new perspective to asthma research as they highlight the importance of studying foreign-born [children](#). Much of the existing research follows U.S.-born children from birth to see if, and potentially why, they develop asthma. It might add to our understanding of what causes asthma if we knew why foreign-born children seem to be less likely to develop asthma," said Doug Brugge, PhD, MS, senior author and professor of public health and community medicine at Tufts University School of Medicine. Brugge co-authored the five previous studies that were analyzed for this study.

"Pooling data from these studies gave us a larger sample size and allowed us to conduct additional analyses. We found that, in addition to an association with place of birth; both low SES and exposure to pests are associated with asthma in U.S.-born children but not in foreign-born

children," said first author Mark Woodin, ScD, MS, senior lecturer in the department of civil and environmental engineering at Tufts University School of Engineering and senior lecturer in the department of public health and community medicine at Tufts University School of Medicine.

"While this type of [epidemiological study](#) cannot establish causation, our findings may be explained by the fact that certain pathogens common in the developing world are nearly nonexistent in the U.S. If exposure to such pathogens confers some sort of protection against developing asthma, foreign-born children may be less susceptible than children born in the U.S.," Brugge said.

This idea, called the "hygiene hypothesis," suggests that children born in less-developed countries may have early exposure to intestinal worms, viruses and bacteria that affects immunity and makes them more resistant to asthma than U.S.-born children.

"There are other hypotheses that could also help to explain the differences between the prevalence of asthma of U.S.-born and foreign-born children, including the vitamin D hypothesis which posits that greater sunlight exposure in the country of origin increases vitamin D to levels that are protective against asthma. It could also be that families who immigrate tend to be healthier people," speculated Brugge.

The five studies Brugge and colleagues examined were conducted from 2002 to 2007, sampling a total of 962 children aged 4 to 18 years. There did not initially appear to be a significant relationship between pest exposure and asthma; but when the researchers took birthplace into account, they found that U.S.-born children who were exposed to pests were 60 percent more likely to have asthma than U.S.-born children not exposed to pests. Pest exposure had no statistically significant impact on asthma risk in foreign-born children. Similarly, U.S.-born children with

low SES were two times more likely to have asthma than U.S.-born children without low SES, while low SES had no statistically significant effect on [asthma risk](#) in foreign-born children.

More information: Woodin M, Tin AH, Moy S, Palella M and Brugge D. Journal of Immigrant and Minority Health "Lessons for Primary Prevention of Asthma: Foreign-Born Children Have Less Association of SES and Pests with Asthma Diagnosis." Published online October 16, 2010, [doi:10.1007/s10903-010-9407-8](https://doi.org/10.1007/s10903-010-9407-8)

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