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## Apartment-Dwelling Children in Nonsmoking Units Still Exposed

*Children living in apartments are exposed to secondhand smoke even when no one smokes inside their own unit. This study, released online December 13 by the journal Pediatrics, strongly suggests that housing type contributes to children's exposure to tobacco smoke, despite the best intentions of parents.*

This new study from the University of Rochester Medical Center, MassGeneral Hospital for Children and the American Academy of Pediatrics' Julius B. Richmond Center for Excellence is the first to show significant evidence of increased tobacco smoke exposure in the blood of children who live in multi-unit housing. It will appear in the January 2011 issue of Pediatrics.

The U.S. surgeon general has said that there is no safe level of exposure to tobacco smoke. Children exposed to secondhand tobacco smoke are at greater risk for a variety of illnesses, such as respiratory infections, asthma and sudden infant death syndrome. In this study, researchers measured blood levels of cotinine, a chemical commonly used to test for tobacco exposure. Overall, using the most sensitive cutoff for tobacco smoke exposure, more than 84 percent of children in multi-unit housing had been exposed to tobacco smoke, compared to almost 80 percent of children living in attached houses and 70 percent of children in detached houses. At every cutoff level of cotinine, children living in apartments had higher rates of exposure.

"Parents try so hard to protect their children from dangers, such as tobacco smoke. It's surprising to see these results and realize that too many parents have no control over whether their children are exposed to secondhand smoke in their own homes," said Karen Wilson, MD, MPH, an assistant professor of Pediatrics at the University of Rochester Medical Center's Golisano Children's Hospital and lead author of the paper.

Controlling for other factors such as poverty and age, children living in apartments had an increase in cotinine of 45 percent over those living in detached houses. While some of the tobacco exposure may have come from family members who only smoke outside, but carry in tobacco residue on their clothes, study authors suggest this is unlikely to explain all of the difference since there are many more exposed children than adult smokers. Instead they conclude tobacco smoke may have seeped through walls or shared ventilation systems. Earlier studies have shown that tobacco smoke contaminates non-smoking units of multi-unit dwellings.

The study analyzed data from more than 5,000 children ages

6 to 18 in a national database (National Health and Nutrition Examination Survey 2001-2006) to see if there was any relationship between their smoke exposure and their housing type. Cotinine levels were highest for children who were under 12, black and living below the federal poverty level. Previous studies have shown that children with cotinine levels indicating even very low amounts of tobacco smoke exposure have delayed cognitive abilities and decreased antioxidant levels.

"This study is an important piece of evidence supporting universal smoke-free multi-unit housing," said Jonathan Winickoff, MD, MPH, of the MassGeneral Hospital for Children and the senior author of the study. "More and more landlords, in all 50 states, know that they can set the smoke-free policy for their buildings, and with 80 percent of the population not smoking, market demands strongly favor smoke-free status. When landlords set a completely smoke-free policy they will enjoy lower fire risk and insurance costs, lower clean up costs between tenants, and they will be fostering a healthier home for everyone in the building."

"In general, people who smoke are very respectful of not exposing children and non-smokers to tobacco smoke in indoor environments. This research will help promote the notion that it is never acceptable to smoke indoors, even in your own unit, because the smoke get into the bodies of children in other units," said Winickoff, who is also an associate professor of Pediatrics at Harvard Medical School.

The authors also stress the importance of making sure that tobacco cessation resources are provided for smokers whose buildings become smoke-free. "Hopefully this research and the movement towards smoke-free housing will open up programs and opportunities for more folks to quit smoking. Promoting the use of the free quitlines in every state is a great way to facilitate these efforts," Wilson said.

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