

## Blood tests reveal tobacco smoke residues in non-smoking New Yorkers

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More than half of non-smoking New Yorkers have elevated levels of cotinine in their blood - meaning that they were recently exposed to toxic second-hand smoke in concentrations high enough to leave residues in the body. Cotinine, a by-product of nicotine breakdown, is not harmful itself but signals exposure to environmental tobacco smoke. A Health Department study, published online this week in the journal *Nicotine and Tobacco Research*, shows that 57% of adult New Yorkers (2.5 million) have elevated cotinine levels, compared to 45% of adults nationwide - a finding that may reflect the city's dense, urban character. Second-hand smoke contains many harmful chemicals. It is known to cause cancer and heart disease in adults, as well as serious health problems for children.

The data come from the New York City Health and Nutrition Examination Survey, which was conducted in 2004, one year after New York City's smoke-free air law took effect. Although the law protects non-smokers from the dangers of second-hand smoke at work and in some public places, this study shows that many non-smokers are not fully protected. Creating a smoke-free home is the most important step that New Yorkers can take to protect their families.

"[Tobacco smoke](#) is a toxic pollutant," said Dr. Thomas R. Frieden, New York City Health Commissioner. "Most New York City non-smokers are breathing in dangerous chemicals in second-hand smoke, potentially increasing the risk of cancer and heart disease. Households with a smoker should set a 'no smoking' policy at home to protect the family.

We encourage all New Yorkers who smoke to quit - this is the best way to protect yourself and others."

"The study provides more evidence of the pervasiveness of second-hand smoke," said Jennifer Ellis, PhD, a former Health Department epidemiologist and the study's lead author. "It's not clear why New Yorkers experience more exposure, despite the city's relatively low smoking rate. It may be that living and working in close quarters with one another puts us at higher risk."

On sidewalks, including near building and subways entrances, non-smokers are still exposed to tobacco smoke unavoidably. The federal government has adopted regulations prohibiting smoking within 25 feet of federal building entrances to address complaints and health concerns; other cities and states have similar regulations for all buildings.

Among non-smoking New Yorkers, Asian adults were the most likely to have elevated cotinine levels (69%). Studies from other parts of the country show that Asian Americans, particularly Chinese Americans, are more likely to smoke at home. Lower-income New Yorkers were also more likely to be exposed than those with higher incomes (63% versus 54%).

This is the first time researchers have used blood tests to gauge second-hand smoke exposure in New York City, so it is not possible to say whether cotinine levels have increased or decreased over time.

The Health Department is currently airing two educational public service announcements on television highlighting the effect of smoking on one's family. One campaign, called "Cigarettes Are Eating You and Your Kids Alive," depicts the effects of second-hand smoke on children. It was originally aired in 2008. The graphic images remind viewers that second-hand smoke makes children more susceptible to pneumonia and ear

infections, and contributes to lifelong health conditions such as asthma. The agency is simultaneously airing "Separation," which shows a little boy crying in a train station after momentarily losing his mother - a moment meant to give a glimpse at the pain of losing a parent for life from a smoking-related death.

## **The facts about second-hand smoke**

- Second-hand smoke is toxic. Non-smokers who live with second-hand smoke are more likely to suffer from cancer and heart disease. Women who live with second-hand smoke are more likely to have low-birth-weight babies, pre-term delivery and miscarriage.
- Second-hand smoke is especially bad for children. When parents smoke, babies are more likely to die from Sudden Infant Death Syndrome (SIDS). Children have more illnesses, including ear infections and asthma. Teens are more likely to become smokers themselves.
- There is no risk-free level of exposure to second-hand smoke.

## **What to do to reduce your exposure or protect your family**

- Make your home smoke-free. For more information, read [How to Make Your Home Smoke-Free](#).
- If you smoke, quit. This is the best way to protect your family. If you need help quitting, try nicotine replacement therapy (patches or gum), which can double your chances of quitting successfully. Call 311 for more help.

## **About the data**

Cotinine levels were assessed through the New York City Health and Nutrition Examination Survey, which is modeled after the National Health and Nutrition Examination Survey (NHANES). The Health Department assessed a variety of health issues, ranging from diabetes to depression, by visiting households to gather information. Researchers conducted face-to-face interviews, physical exams and laboratory tests. The survey was conducted in 2004 among a representative sample of New York City adults age 20 or older. Of the 1,999 people enrolled in the survey, 1,767 (88%) were tested for cotinine levels.

Cotinine is present in the blood of people who recently smoked or inhaled second-hand smoke; it is present in lower levels in non-smokers than smokers. People with a level greater than 10 nanograms per milliliter of blood (ng/mL) are considered smokers, while people with levels 10 ng/mL or less are considered non-smokers who were recently exposed to tobacco smoke. An elevated cotinine level is defined as .05 ng/mL or more.

Source: New York City Health Department

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