

**THE HEALTH CONSEQUENCES OF INVOLUNTARY EXPOSURE TO TOBACCO SMOKE:
A REPORT OF THE SURGEON GENERAL, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
6 MAJOR CONCLUSIONS OF THE SURGEON GENERAL REPORT**

**SMOKING IS THE
SINGLE GREATEST AVOIDABLE
CAUSE OF DISEASE AND DEATH.**

In this report, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, the Surgeon General has concluded that:

1. Many millions of Americans, both children and adults, are still exposed to secondhand smoke in their homes and workplaces despite substantial progress in tobacco control.

Supporting Evidence

- Levels of a chemical called cotinine, a biomarker of secondhand smoke exposure, fell by 70 percent from 1988-91 to 2001-02. In national surveys, however, 43 percent of U.S. nonsmokers still have detectable levels of cotinine.
- Almost 60 percent of U.S. children aged 3-11 years—or almost 22 million children—are exposed to secondhand smoke.
- Approximately 30 percent of indoor workers in the United States are not covered by smoke-free workplace policies.

2. Secondhand smoke exposure causes disease and premature death in children and adults who do not smoke.

Supporting Evidence

- Secondhand smoke contains hundreds of chemicals known to be toxic or carcinogenic (cancer-causing), including formaldehyde, benzene, vinyl chloride, arsenic, ammonia, and hydrogen cyanide.
- Secondhand smoke has been designated as a known human carcinogen (cancer-causing agent) by the U.S. Environmental Protection Agency, National Toxicology Program and the International Agency for Research on Cancer (IARC). The National Institute for Occupational Safety and Health has concluded that secondhand smoke is an occupational carcinogen.

3. Children exposed to secondhand smoke are at an increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more severe asthma. Smoking by parents causes respiratory symptoms and slows lung growth in their children.

Supporting Evidence

- Children who are exposed to secondhand smoke are inhaling many of the same cancer-causing substances and poisons as smokers. Because their bodies are developing, infants and young children are especially vulnerable to the poisons in secondhand smoke.
- Both babies whose mothers smoke while pregnant and babies who are exposed to secondhand smoke after birth are more likely to die from sudden infant death syndrome (SIDS) than babies who are not exposed to cigarette smoke.
- Babies whose mothers smoke while pregnant or who are exposed to secondhand smoke after birth have weaker lungs than unexposed babies, which increases the risk for many health problems.
- Among infants and children, secondhand smoke cause bronchitis and pneumonia, and increases the risk of ear infections.
- Secondhand smoke exposure can cause children who already have asthma to experience more frequent and severe attacks.

4. Exposure of adults to secondhand smoke has immediate adverse effects on the cardiovascular system and causes coronary heart disease and lung cancer.

Supporting Evidence

- Concentrations of many cancer-causing and toxic chemicals are higher in secondhand smoke than in the smoke inhaled by smokers.
- Breathing secondhand smoke for even a short time can have immediate adverse effects on the cardiovascular system and interferes with the normal functioning of the heart, blood, and vascular systems in ways that increase the risk of a heart attack.
- Nonsmokers who are exposed to secondhand smoke at home or at work increase their risk of developing heart disease by 25 - 30 percent.
- Nonsmokers who are exposed to secondhand smoke at home or at work increase their risk of developing lung cancer by 20 - 30 percent.

5. The scientific evidence indicates that there is no risk-free level of exposure to secondhand smoke.

Supporting Evidence

- Short exposures to secondhand smoke can cause blood platelets to become stickier, damage the lining of blood vessels, decrease coronary flow velocity reserves,

and reduce heart rate variability, potentially increasing the risk of a heart attack.

- Secondhand smoke contains many chemicals that can quickly irritate and damage the lining of the airways. Even brief exposure can result in upper airway changes in healthy persons and can lead to more frequent and more asthma attacks in children who already have asthma.

6. Eliminating smoking in indoor spaces fully protects nonsmokers from exposure to secondhand smoke. Separating smokers from nonsmokers, cleaning the air, and ventilating buildings cannot eliminate exposures of nonsmokers to secondhand smoke.

Supporting Evidence

- Conventional air cleaning systems can remove large particles, but not the smaller particles or the gases found in secondhand smoke.
- Routine operation of a heating, ventilating, and air conditioning system can distribute secondhand smoke throughout a building.
- The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the preeminent U.S. body on ventilation issues, has concluded that ventilation technology cannot be relied on to control health risks from secondhand smoke exposure.

The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General was prepared by the Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (CDC). The Report was written by 22 national experts who were selected as primary authors. The Report chapters were reviewed by 40 peer reviewers, and the entire Report was reviewed by 30 independent scientists and by lead scientists within the Centers for Disease Control and Prevention and the Department of Health and Human Services. Throughout the review process, the Report was revised to address reviewers' comments.

Citation

U.S. Department of Health and Human Services. The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.