

Cigarette Smoking and Cancer: Questions and Answers

Key Points

- Cigarette smoking causes 87 percent of lung cancer deaths and is responsible for most cancers of the larynx, oral cavity and pharynx, esophagus, and bladder (see Question 1).
- Secondhand smoke is responsible for an estimated 3,000 lung cancer deaths among U.S. nonsmokers each year (see Question 2).
- Tobacco smoke contains thousands of chemical agents, including over 60 substances that are known to cause cancer (see Question 3).
- The risk of developing smoking-related cancers, as well as noncancerous diseases, increases with total lifetime exposure to cigarette smoke (see Question 4).
- Smoking cessation has major and immediate health benefits, including decreasing the risk of lung and other cancers, heart attack, stroke, and chronic lung disease (see Question 5).

Tobacco use, particularly cigarette smoking, is the single most preventable cause of death in the United States. Cigarette smoking alone is directly responsible for approximately 30 percent of all cancer deaths annually in the United States (1). Cigarette smoking also causes chronic lung disease (emphysema and chronic bronchitis), cardiovascular disease, stroke, and cataracts. Smoking during pregnancy can cause stillbirth, low birthweight, Sudden Infant Death Syndrome (SIDS), and other serious pregnancy complications (2). Quitting smoking greatly reduces a person's risk of developing the diseases mentioned, and can limit adverse health effects on the developing child.

1. What are the effects of cigarette smoking on cancer rates?

Cigarette smoking causes 87 percent of lung cancer deaths (1). Lung cancer is the leading cause of cancer death in both men and women (3). Smoking is also responsible for most cancers of the larynx, oral cavity and pharynx, esophagus, and bladder. In



addition, it is a cause of kidney, pancreatic, cervical, and stomach cancers (2, 4), as well as acute myeloid leukemia (2).

2. Are there any health risks for nonsmokers?

The health risks caused by cigarette smoking are not limited to smokers. Exposure to secondhand smoke, or environmental tobacco smoke (ETS), significantly increases the risk of lung cancer and heart disease in nonsmokers, as well as several respiratory illnesses in young children (5). (Secondhand smoke is a combination of the smoke that is released from the end of a burning cigarette and the smoke exhaled from the lungs of smokers.) The U.S. Environmental Protection Agency (EPA), the National Institute of Environmental Health Science's National Toxicology Program, and the World Health Organization's International Agency for Research on Cancer (IARC) have all classified secondhand smoke as a known human carcinogen—a category reserved for agents for which there is sufficient scientific evidence that they cause cancer (5, 6, 7). The U.S. EPA has estimated that exposure to secondhand smoke causes about 3,000 lung cancer deaths among nonsmokers and is responsible for up to 300,000 cases of lower respiratory tract infections in children up to 18 months of age in the United States each year (5). For additional information on ETS, see the NCI fact sheet *Environmental Tobacco Smoke*, which can be found at <http://www.cancer.gov/cancertopics/factsheet/Tobacco/ETS> on the Internet.

3. What harmful chemicals are found in cigarette smoke?

Cigarette smoke contains about 4,000 chemical agents, including over 60 carcinogens (8). In addition, many of these substances, such as carbon monoxide, tar, arsenic, and lead, are poisonous and toxic to the human body. Nicotine is a drug that is naturally present in the tobacco plant and is primarily responsible for a person's addiction to tobacco products, including cigarettes. During smoking, nicotine is absorbed quickly into the bloodstream and travels to the brain in a matter of seconds. Nicotine causes addiction to cigarettes and other tobacco products that is similar to the addiction produced by using heroin and cocaine (9).

4. How does exposure to tobacco smoke affect the cigarette smoker?

Smoking harms nearly every major organ of the body (2). The risk of developing smoking-related diseases, such as lung and other cancers, heart disease, stroke, and respiratory illnesses, increases with total lifetime exposure to cigarette smoke (7). This includes the number of cigarettes a person smokes each day, the intensity of smoking (i.e., the size and frequency of puffs), the age at which smoking began, the number of years a person has smoked, and a smoker's secondhand smoke exposure.

5. How would quitting smoking affect the risk of developing cancer and other diseases?

Smoking cessation has major and immediate health benefits for men and women of all ages. Quitting smoking decreases the risk of lung and other cancers, heart attack, stroke, and chronic lung disease. The earlier a person quits, the greater the health benefit. For example, research has shown that people who quit before age 50 reduce their risk of dying in the next 15 years by half compared with those who continue to smoke (3). Smoking low-yield cigarettes, as compared to cigarettes with higher tar and nicotine, provides no clear benefit to health (2). For additional information on quitting smoking, see the NCI fact sheet *Questions and Answers About Smoking Cessation*, which can be found at <http://www.cancer.gov/cancertopics/factsheet/Tobacco/cessation> on the Internet.

6. What additional resources are available?

For additional information about cancer or tobacco use, call 1-800-4-CANCER or visit the NCI's Web site about tobacco at <http://www.cancer.gov/cancerinfo/tobacco> on the Internet.

For help with quitting smoking, call NCI's smoking cessation quitline at 1-877-44U-QUIT or visit NCI's smoking cessation Web site at <http://www.smokefree.gov> on the Internet.

Information about the health risks of smoking is also available from Centers for Disease Control and Prevention's Office on Smoking and Health (OSH) at 1-800-CDC-1311 (1-800-232-1311) or via their Web site at <http://www.cdc.gov/tobacco> on the Internet.

Selected References

1. Ries LAG, Eisner MP, Kosary CL, et al. (eds). *SEER Cancer Statistics Review, 1975-2001*, National Cancer Institute. Bethesda, MD, 2004 (http://seer.cancer.gov/csr/1975_2001).
2. U.S. Department of Health and Human Services. *The Health Consequences of Smoking: A Report of the Surgeon General*. Rockville, MD: 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, 2004.
3. American Cancer Society. *Cancer Facts and Figures 2004*. Atlanta, GA: American Cancer Society, 2004.
4. U.S. Department of Health and Human Services. *Targeting Tobacco Use: The Nation's Leading Cause of Death*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2003.
5. U.S. Environmental Protection Agency. *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*. Washington, DC: U.S. Environmental Protection Agency, 1992.

6. U.S. Department of Health and Human Services. *Report on Carcinogens: Tenth Edition*. Research Triangle Park, NC: U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, 2002.
7. International Agency for Research on Cancer. *Tobacco Smoke and Involuntary Smoking*. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 83. Lyon, France, 2004.
8. Centers for Disease Control and Prevention. *Tobacco Use in the United States*. Retrieved September 30, 2003, from:
http://www.cdc.gov/tobacco/overview/tobus_us.htm.
9. U.S. Department of Health and Human Services. *Nicotine Addiction: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Health Promotion and Education, Office on Smoking and Health, 1988.

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Related Resources

Publications (available at <http://www.cancer.gov/publications>)

- National Cancer Institute Fact Sheet 10.17, *The Truth about "Light" Cigarettes: Questions and Answers*
- National Cancer Institute Fact Sheet 10.18, *Secondhand Smoke: Questions and Answers*
- National Cancer Institute Fact Sheet 10.19, *Questions and Answers About Smoking Cessation*

National Cancer Institute (NCI) Resources

Cancer Information Service (toll-free)

Telephone: 1-800-4-CANCER (1-800-422-6237)

TTY: 1-800-332-8615

Online

NCI's Web site: <http://www.cancer.gov>

LiveHelp, NCI's live online assistance:

<https://cissecure.nci.nih.gov/livehelp/welcome.asp>

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