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# CANCER FACTS

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National Cancer Institute • National Institutes of Health  
Department of Health and Human Services

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## 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, esophagus, and bladder (see Question 1).
- Secondhand smoke is responsible for an estimated 3,000 lung cancer deaths among 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).
- Smokers can decrease their risk of developing cancer by quitting smoking (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 contributes to lung disease, heart disease, stroke, and the development of low birth weight babies (2). Quitting smoking can significantly reduce a person's risk of developing heart disease, stroke, and diseases of the lung, and can limit adverse health effects on children.

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

Cigarette smoking causes 87 percent of lung cancer deaths. Lung cancer is the leading cause of cancer death in both men and women (1). Smoking is also responsible for most cancers of the larynx, oral cavity, esophagus, and bladder. In addition, it is highly associated with the development of, and deaths from, kidney, pancreatic, and cervical cancers (2, 3).



**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 a nonsmoker’s risk of developing lung cancer (1, 2). (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.) According to the Centers for Disease Control and Prevention (CDC), exposure to secondhand smoke causes about 3,000 lung cancer deaths among nonsmokers and is responsible for lower respiratory tract infections in an estimated 300,000 children each year (3). The U.S. Environmental Protection Agency (EPA) released a risk assessment report in December 1992 that classified secondhand smoke as a Group A (known human) carcinogen—a category reserved for only the most dangerous cancer-causing agents (4, 5).

**3. What harmful chemicals are found in cigarette smoke?**

Cigarette smoke contains about 4,000 chemical agents, including over 60 substances that are known to cause cancer in humans (carcinogens) (3). 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 (6).

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

The risk of developing smoking-related diseases, such as lung and other cancers, heart disease, stroke, and respiratory illnesses, is related to 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?**

Smokers who quit live longer than those who continue to smoke. In addition, the earlier smokers quit, the greater the health benefit (1). Quitting smoking reduces a person’s risk of dying from smoking-related cancers and other diseases (1). The extent to which this risk is reduced depends on the number of years a person smoked, the number of cigarettes smoked per day, the age at which smoking began, and the presence or absence of illness at the time of quitting. Research has shown that people who quit before age 35 reduce their risk of developing a tobacco-related disease by 90 percent (1). Even smokers who quit before age 50 significantly reduce their risk of dying from a tobacco-related disease (1).

For additional information on quitting smoking, see the NCI fact sheet *Questions and Answers About Smoking Cessation*, which can be found at [http://cis.nci.nih.gov/fact/8\\_13.htm](http://cis.nci.nih.gov/fact/8_13.htm) 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/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:

Office on Smoking and Health (OSH)  
National Center for Chronic Disease Prevention and Health Promotion  
Centers for Disease Control and Prevention  
Mail Stop K-50, 4770 Buford Highway, NE.  
Atlanta, GA 30341-3717  
National phone number: 1-800-CDC-1311 (1-800-232-1311)  
Local phone number: 770-488-5705  
Fax: 1-888-CDC-FAXX (1-888-232-3299)  
FAX Information Service: 770-332-2552  
Web site: <http://www.cdc.gov/tobacco>  
E-mail: [ccdinfo@cdc.gov](mailto:ccdinfo@cdc.gov)

## References

1. American Cancer Society. *Cancer Facts and Figures 2003*. Atlanta, GA: American Cancer Society, 2003.
2. 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.
3. 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](http://www.cdc.gov/tobacco/overview/tobus_us.htm).
4. U.S. Environmental Protection Agency. *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*. Washington, DC: U.S. Environmental Protection Agency, 1992.

5. 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.
6. 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.
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, 2003 (in press).

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### **Related Topics**

#### **Publications (available on <http://cancer.gov/publications>)**

- Cancer Facts 3.74, *The Truth about "Light" Cigarettes: Questions and Answers*
- Cancer Facts 3.9, *Environmental Tobacco Smoke*
- Cancer Facts 8.13, *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://cancer.gov>

*LiveHelp*, NCI's live online assistance:

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

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