

## Understanding Lung Cancer

- Risk Factors
- Diagnosing Lung Cancer
- Questions to Ask

## Understanding Lung Cancer

Lung cancer is the second most common cancer and the leading cause of cancer-related death in men and women in the United States. Lung cancer tumors stem from the uncontrolled, rapid growth of abnormal cells inside the lung. Repeated exposure to carcinogens (substances known to cause cancer; for example, tobacco smoke) can trigger such changes, or mutations, in lung cells.

### Lung Cancer Basics

An estimated 173,000 Americans are diagnosed with lung cancer annually. Although lung cancer has steadily declined in men, the disease has risen at an alarming rate in women, mirroring increases in smoking during and after World War II. This trend, however, may be changing.

In 2001, lung cancer cases in women leveled off for the first time. Still, lung cancer accounts for one of every four cancer deaths and one of every eight newly diagnosed cancers among women. Women who smoke are estimated to be 12 times more likely to get lung cancer than those who don't, yet more than one in five women continue to smoke.

There are two main types of lung cancer, non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). Each develops and spreads differently. The majority of people diagnosed with lung cancer (80 to 85 percent) have NSCLC. There are three subtypes of NSCLC: squamous cell, adenocarcinoma and large cell carcinoma. While SCLC is considerably less common, it is a much more aggressive form of the disease and frequently spreads (metastasizes) to the liver, bone and brain.

Women who smoke are more likely to be diagnosed with SCLC than are men who smoke. Women also are at greater risk for adenocarcinoma.

Recommended treatments differ depending on the type of lung cancer diagnosed.

### Risk Factors

Smoking tobacco—cigarettes, cigars or pipes—remains the leading cause of lung cancer, accounting for nearly nine out of 10 cases. The longer and more frequently someone uses tobacco, the greater their risk of developing lung cancer. Quitting smoking at any age reduces the likelihood of lung cancer, allowing the damaged lung tissue to begin recovery. The degree of risk reduction depends on the length of time since quitting and how heavily the person smoked.

*What about people who have no history of smoking?*

Simply breathing other people's smoke

(secondhand smoke) can cause lung cancer. Studies show spouses of smokers have a 20 to 30 percent greater chance of developing the disease than those of nonsmokers. Other recognized causes of lung cancer include exposure to harmful substances in the home or workplace, such as radon or asbestos.

A personal history of lung cancer, radiation exposure, air pollution and certain lung diseases, such as tuberculosis, may also heighten a person's risk. A very small percentage of people—mainly younger patients—may be genetically susceptible to lung cancer.

Aside from quitting or never starting to smoke, it is important to take appropriate precautions to minimize exposure to these substances. Radon levels in the home can be measured with test kits available at most hardware stores.

### Diagnosing Lung Cancer

All too often, symptoms of lung cancer are not evident until the disease has progressed, making early detection and treatment difficult. Symptoms of lung cancer include:

- Persistent cough
- Blood-stained phlegm, or spit
- Shortness of breath
- Chest pain
- Recurring pneumonia or bronchitis
- Loss of appetite or unexplained weight loss

Unlike screenings for breast, colon, prostate and cervical cancers, routine screening has not been recommended for lung cancer by any of the leading organizations that typically issue screening guidelines, such as the American

### Questions to Ask Your Health Care Professional

1. Would quitting smoking actually improve my odds of not getting lung cancer?
2. What type of lung cancer do I have and what are the best treatment options?
3. How long will I have to go through treatment?
4. What are the most common side effects? Can anything be done to manage or prevent them?
5. Should I consider participating in a clinical trial?

Cancer Society. This is due to inconclusive evidence about whether lung cancer screenings can actually save lives by detecting cancers at the earliest, most treatable stage.

## Resources

### The Lung Cancer Alliance

1-800-298-2436 (hotline)  
[www.lungcanceralliance.org](http://www.lungcanceralliance.org)  
 Hosts a referral and support hotline for lung cancer patients and caregivers, and other educational resources.

### The American Cancer Society

1-800-227-2345  
[www.cancer.org](http://www.cancer.org)  
 Offers cancer patients information and support services at the community level through its 3,400-plus chapters nationwide.

### The National Cancer Institute

1-800-422-6237  
[www.cancer.gov](http://www.cancer.gov)  
 Provides detailed information about lung cancer, detection and diagnosis, available treatment options, clinical trial enrollment and research.

### CancerCare

1-800-813-4673  
[www.cancercare.org](http://www.cancercare.org)  
 Offers support, counseling and information to cancer patients and caregivers.

### The American Lung Association

1-800-586-4872  
[www.lungusa.org](http://www.lungusa.org)  
 Provides information about lung cancer and other lung diseases, the impact of tobacco use and other environmental factors.

Before recommending a specific treatment regimen, health professionals will perform tests to confirm the diagnosis and determine the stage (extent) of the disease. This involves a full physical exam, medical history, including an assessment of risk factors and symptoms, as well as x-rays, scans and other tests to examine the fluid or tissue of the lung. These examinations may include analysis of cells in phlegm coughed up from lungs, bronchoscopy to look in the airway passage and lung, lymph node biopsy to examine tissue in the chest or sometimes sampling of fluid from around the lung.

It is important to talk with a health care professional about screening and diagnosis, keeping your personal health history in mind.

## Treatment Options

Recent advances in lung cancer treatments have contributed to improved patient survival and quality of life.

Treatment plans are devised based on the type and stage of lung cancer and the patient's age, overall health and preferences. Patients are cared for by a multidisciplinary cancer team, which typically includes an oncologist, surgeon, radiation oncologist, oncology nurse, social worker and primary care physician.

Conventional cancer treatments include surgery, radiation and chemotherapy. Nearly all lung cancers are treated using more than one approach.

Treatments may be administered simultaneously or in sequence. Each therapy has its own benefits and side effects.

- **Surgery** is used to remove the cancer, either by removing a small part of the lung, a section (lobe) or the entire lung. Lobectomy is the most common procedure.
- **Radiation** uses high-energy rays to kill or shrink rapidly reproducing cancer cells. It is used before surgery to reduce tumor size or after surgery to kill any remaining cancer cells.
- **Chemotherapy** is systemic therapy in which anti-cancer drugs are circulated throughout the body to reach cells that may have metastasized, as well as cells in the primary tumor.
- **Newer, targeted therapies** are designed to kill or prevent the growth of cancer cells by interfering with specific proteins or "molecular targets" promoting cancer growth.

Surgery followed by chemotherapy is recommended for early stage NSCLC; radiation combined with chemotherapy is the treatment of choice for inoperable localized disease; and targeted therapies are often introduced in combination with chemotherapy when treating advanced-stage NSCLC that has spread elsewhere. SCLC is responsive to chemotherapy and is treated with chemotherapy alone or in combination with radiation.

## References

American Cancer Society. "Cancer Facts & Figures 2006." [www.cancer.org](http://www.cancer.org). Copyright 2006.

National Cancer Institute. "What You Need to Know About Lung Cancer." [www.cancer.gov](http://www.cancer.gov). Last updated Sep 2002.

National Cancer Institute. "Non-Small Cell Lung Cancer (PDQ®): Treatment." [www.cancer.gov](http://www.cancer.gov). Last updated Mar 1, 2006.

American Cancer Society. Lung Cancer Fact Sheet. [www.cancer.org](http://www.cancer.org). Created 2005.

Dobson R. "Exposure to spouse's smoking increases risk of lung cancer by over 20 percent."

British Medical Journal, 10:328(7431): 70, Jan 2004.

American Cancer Society. "What Causes Non-Small Cell Lung Cancer?" [www.cancer.org](http://www.cancer.org). Copyright 2006.

American Cancer Society. "American Cancer Society Responds to the Death of Dana Reeve." [www.cancer.org](http://www.cancer.org). Mar 7, 2006.

Agency for Healthcare Research and Quality. U.S. Preventive Services Task Force. "Screening for Lung Cancer." May 2004.

National Cancer Institute. "What is NLST?" [www.cancer.gov](http://www.cancer.gov).

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, U.S. Department of Health and Human Services. "Women and Smoking: A Report of the Surgeon General 2001." [www.cdc.gov](http://www.cdc.gov). Last reviewed Jan 31, 2005.

Baldini EH, Strauss GM. "Women and lung cancer: waiting to exhale." *Chest*, 112(4):229S-234S, Oct 1997.

Brownson RC, Remington PL, Davis JR (eds.). *Chronic Disease Epidemiology and Control. "Tobacco Use"* by Novotny TE, Giovino GA. Washington, DC: American Public Health Association; 1998. p.117-148.