

# What you need to know about **LUNG CANCER**

**Lung cancer** is the second most common cancer in the United States. An estimated 169,400 people will be diagnosed and 154,900 will die from lung cancer in 2002. Smokers are about nine times more likely to develop lung cancer than nonsmokers.

Small cell and nonsmall cell are the most common types of lung cancer. Nonsmall cell lung cancer, the most common, accounts for 75 to 80 percent of all lung cancers. This type of lung cancer generally grows and spreads more slowly than small cell lung cancer. The three main types of nonsmall cell lung cancer are squamous cell carcinoma, adenocarcinoma and large cell carcinoma. Small cell lung cancer, sometimes called oat cell cancer, grows more quickly and is more likely to spread to other organs in the body than nonsmall cell lung cancer.

## **WHO is at RISK?**

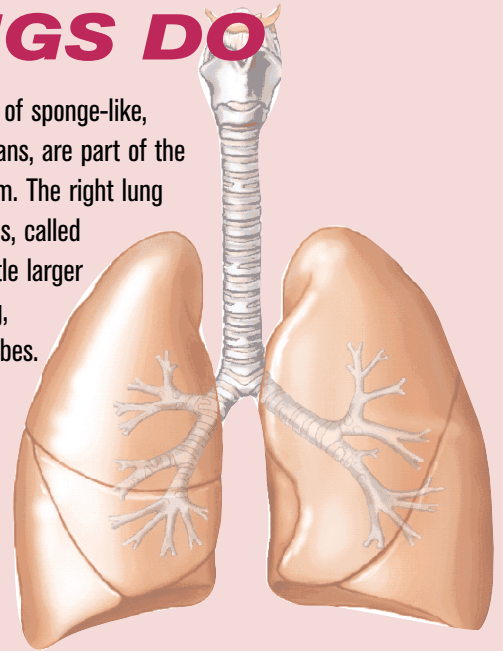
A risk factor is something that increases a person's chances of getting a disease such as lung cancer. Smoking is by far the leading risk factor for lung cancer. More than 80 percent of lung cancers are thought to be caused by smoking. The longer a person has smoked and the more packs smoked per day, the greater the risk. If a person stops smoking before lung cancer develops, the lung tissue slowly returns to normal. Stopping smoking at any age lowers the risk of lung cancer, heart disease and stroke. Even after a diagnosis of lung cancer, quitting smoking can help improve a person's breathing and general health. Nonsmokers who breathe the smoke of others (secondhand smoke) also are at increased risk. Nonsmoking spouses of smokers, for example, have a 30 percent greater risk of developing lung cancer than do spouses of nonsmokers. Nonsmokers exposed to secondhand smoke in the workplace also are more likely to get lung cancer.

Other risk factors for lung cancer include:

- Exposure to radon, an invisible, odorless and tasteless radioactive gas which is found naturally in soil and rocks.
- Exposure to asbestos, a group of minerals which is formed into fibers and has been used in industries such as shipbuilding, insulation work and brake repair.
- Air pollution, such as by-products of the combustion of diesel and other fossil fuels, increases the risk of developing lung cancer very slightly and is responsible for less than one percent of cases.
- Lung diseases, such as tuberculosis, increase a person's chance of developing lung cancer.

## **what our LUNGS DO**

The lungs, a pair of sponge-like, cone-shaped organs, are part of the respiratory system. The right lung has three sections, called lobes and is a little larger than the left lung, which has two lobes.



## **LUNG CANCER TREATMENT**

Lung cancer treatment is very complex. Treatment options include surgery, radiation therapy, chemotherapy, and photodynamic therapy, either alone or in combination, depending on the stage of the disease. A multidisciplinary team should be available to discuss all of the options.

### **SURGERY**

Surgery is commonly used to remove lung cancer. The type of surgery depends on the size and location of the cancer in the lung. An operation to remove only a small part of the lung is called a segmental or wedge resection. When the surgeon removes an entire lobe of the lung, the

(Continued on back)

## LUNG CANCER TREATMENT (continued)

procedure is a lobectomy. Pneumonectomy is the removal of an entire lung. Some tumors are inoperable because of the size or location and some patients cannot have surgery for other medical reasons.

Video-Assisted Thoracic Surgery (VATS), a new minimally invasive surgical technique available at Roswell Park, is described below.

### CHEMOTHERAPY

Chemotherapy is the use of anticancer drugs to kill cancer cells throughout the body. Even after the cancer has been removed from the lung, cancer cells may still be present in nearby tissue or elsewhere in the body. Chemotherapy also may be used to control cancer growth or to relieve symptoms.

### RADIATION THERAPY

Radiation therapy directs high-energy rays to a limited area to kill cancer cells only in that area. Radiation therapy may be used before surgery to shrink a tumor or after surgery to destroy cancer cells that remain in the treated area. Physicians also may use radiation therapy in combination with chemotherapy as a primary treatment instead of surgery.

### PHOTODYNAMIC THERAPY

Photodynamic therapy, developed at Roswell Park, was first approved by the U.S. Food and Drug Administration for the treatment of early-stage lung cancer in 1998. The treatment involves the use of a special photosensitizing drug, which is injected into the bloodstream and absorbed by cells. The drug rapidly leaves normal cells but remains in cancer cells for a longer period of time. A laser light is pointed at the cancer, activating the drug and killing the cancer cells.

### CLINICAL TRIALS

Clinical trials, studies to evaluate new ways to treat cancer, are an option for many lung cancer patients. In some studies, all patients receive the new treatment. In others, doctors compare different therapies by giving the new treatment to one group of patients and the standard treatment to another group. Through research, doctors learn new, more effective ways to treat cancer. For information about clinical trials at Roswell Park, call 1-877-275-7724.

## Video-Assisted Thoracic Surgery (VATS)

By Todd Demmy, MD, Chair, Division of Thoracic Surgery, Roswell Park

Each year, more than one million surgical chest procedures are performed in the United States for heart and lung diseases and other serious illnesses. Although surgery may be the best way to treat the disease, patients can face a long recovery because traditional *open* thoracic surgery is highly invasive. Patients may spend up to a week in the hospital and up to four to six weeks recovering at home.

### WHAT IS VATS?

Video-assisted thoracic surgery (VATS) is a new minimally-invasive surgical technique available at Roswell Park, which enables the surgeon to remove tumors close to the outer edges of the lung and test them for cancer.

With VATS, surgeons operate through two to four tiny openings between the ribs. A tiny camera on a tube, called a thoracoscope, is inserted through the openings. The surgeon can view the patient's internal organs on a television monitor. Each opening is less than one inch in diameter, whereas six- to 10-inch incisions are common in open thoracic surgery. A variety of instruments are used to remove a section of the lung, burn away scar tissue, and remove small biopsy samples, such as lymph nodes, from the chest. Small staples are used to seal the openings.

### WHAT ARE THE ADVANTAGES OF VATS?

Many VATS patients experience less pain, less scarring, shorter hospital stays and, in many cases, return to work and other normal activities. Most VATS patients are out of the hospital in one to three days, and fewer than 10 percent require intensive care. In comparison, most patients who undergo traditional procedures spend five to seven days in the hospital.

As with any procedure, there are potential risks. Some patients develop air leaks from the lung that do not heal quickly, about one percent of the patients require a blood transfusion. Either can lengthen the patient's hospital stay.

### WHO IS ELIGIBLE FOR VATS?

VATS is a consideration for all diseases formerly treated by standard (open) chest operations. Some tumors are too large, too deep, or too close to some vital organs to be removed with this method; however, when appropriate, many cases may be safely biopsied by VATS. As technology improves, more patients will be eligible for this less invasive procedure.

