

# WHPP EARLY LUNG CANCER DETECTION PROGRAM

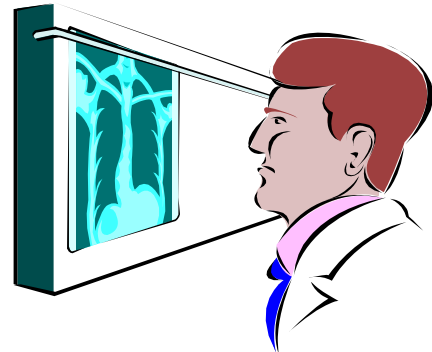
## LUNG CANCER SCREENING USING LOW-DOSE CT

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### What is cancer screening?

Screening is the use of tests or examinations to detect a disease in people without symptoms of that disease. For example, the Pap test is used for cervical cancer screening. **Screening for some cancers is important because it can help the doctor discover cancer early and treat it successfully.** Because lung cancer usually spreads beyond the lungs before causing any symptoms, an effective screening program for early detection of lung cancer has the potential to save many lives.

The use of chest x-rays was evaluated several years ago. Most studies concluded that these tests could not find many lung cancers early enough to improve a patient's chance for a cure. For this reason, lung cancer screening is not a routine practice for the general public or even for people at increased risk, such as smokers.



Recently, a new technique of x-ray called spiral or helical low-dose computerized tomography (CT) scanning has been successful in detecting early lung cancers in smokers and former smokers. Because this technology may be useful for high risk populations, the Worker Health Protection Program is offering this lung cancer screening to gaseous diffusion plant workers aged 50 to 85 who have a history of smoking and/or occupational exposure to known lung cancer risk factors, such as asbestos, radiation and beryllium. Gaseous diffusion plant workers age 45 to 85 are also eligible if the medical screening results show asbestos-related findings on the chest x-ray or an abnormal beryllium lymphocyte proliferation test (Be LPT).

### Why is screening for lung cancer in a high risk population so important?

Lung cancer is the leading cause of cancer death for both men and women. About 160,000 people in the United States will die of lung cancer each year. The five-year survival rate for lung cancers found at all stages is 15% meaning 15 of every 100 people diagnosed survive at least five years. On the other hand, if lung cancer is found and treated by surgery early, before it has spread to lymph nodes or other organs, the five-year survival rate increases dramatically – as high as 70%. This means that 70 out of 100 of these patients will survive for at least five years.

## **Why is screening for lung cancer in a high risk population so important? (Continued)**

Unfortunately, few lung cancers are currently found at an early stage. In fact, only 15% of lung cancers are found in early stages before their spread. Low-dose computerized tomography (CT) may change this. In a large study done of 1000 smokers and former smokers low-dose CT found 27 tumors while conventional x-ray found only 7. Of the 27 tumors the CT scan identified, 23 (85%) were in the early stages. The x-rays only found four of these early tumors.

## **What is spiral, low-dose CT?**

Low-dose spiral CT is a simple procedure in which a special imaging machine rotates rapidly around the body taking over 100 pictures in sequence. This information is processed by a computer to produce a cross-section of a specific area. The spiral CT scan uses less radiation than a standard CT and yet is sensitive enough to detect abnormalities that are too small to be seen on a conventional set of chest x-rays.

## **How is the low-dose CT procedure done?**

Throughout the low-dose CT scanning procedure, the patient lies very still on a table. The patient passes through the x-ray machine, which is shaped like a doughnut with a large hole. The machine rotates around the patient and a computer creates images from the scan that can be reconstructed into a 3-dimensional model of the lungs. When the picture is taken you will be asked to hold your breath for 15-20 seconds. The amount of radiation (an estimated average of 170 mrem for most people) is significantly less than that absorbed during a diagnostic CT scan of the chest (an estimated average of 800 mrem). As further comparison, the estimated average annual exposure from natural and man-made sources in soil and air is 360 mrem/year.

## **What will happen if the CT scan shows an abnormality in my lung?**

If an abnormality is detected on the CT scan, it may or may not be cancer. If there is suspicion of a lung cancer, you will be notified within 10 working days of the screening. At that time, we will advise you to see your personal physician, who may recommend diagnostic testing. We do not pay for any such diagnostic testing or any treatment that may follow. Those expenses are normally covered by health insurance including Medicaid. Sometimes the doctor will be able to tell from the CT scan that the lung nodule is not cancerous. In this case, or if the CT scan shows no nodule at all, you will be notified within 3 weeks of the screening and no follow-up will be needed.

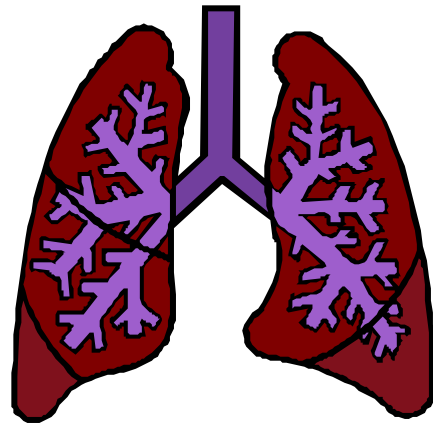
## LUNG CANCER FACTS

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### What is lung cancer?

Cancer is a disease marked by the uncontrolled growth of abnormal cells. The abnormal cells no longer do the work of normal cells, and they crowd out and destroy healthy tissue. Most types of cancer cells form a lump or mass called a tumor. Another word for cancerous is malignant, so a cancerous tumor is referred to as malignant.

Lung cancer begins in the lungs. Many lung cancers start in the lining of the air tubes (bronchi) but they can also begin in other areas such as the smaller branches of the air tubes (bronchioles) or the air sacs at the ends of these smaller branches (alveoli.) Cells from a tumor can break away and travel to other parts of the body where they can continue to grow. This spreading process is called metastasis. Lung cancer is a life-threatening disease because it often spreads in this way before it is found by conventional exams.



### What causes lung cancer?

A risk factor is something that increases a person's chance of getting a disease. The two most significant risk factors associated with lung cancer are:

- **Cigarettes:** Smoking cigarettes can cause lung cancer. Harmful substances, called carcinogens, in tobacco damage the cells in the lungs. Over time, the damaged cells may become cancerous. The more a person smokes and the longer the person smokes, the greater the risk of developing lung cancer.
- **Occupational exposures:** Certain substances (such as asbestos, nickel compounds and beryllium) and radiation have been shown to increase the risk of lung cancer for workers. With certain substances, such as asbestos, the risk of lung cancer is multiplied if the worker also smokes.

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## What are the signs and symptoms of lung cancer?

Although most lung cancers do not cause any symptoms until they have spread, symptoms can occur in some patients with early lung cancer. You should report any of the following symptoms to your doctor right away. If lung cancer is found, prompt treatment can lead to a cure for some people and extend the life of others.

- a cough that doesn't go away and gets worse over time
- constant chest pain
- weight loss and /or decreased appetite
- coughing up blood
- shortness of breath or wheezing
- hoarseness
- a fever for an unknown reason
- recurring infections, such as bronchitis and pneumonia
- fatigue

The best time to diagnose lung cancer is **before** there are symptoms, when it is easier to treat.

## What are the chances of surviving lung cancer?

When lung cancer is diagnosed following the development of symptoms, just 15 of out of 100 people diagnosed will survive at least five years, for all lung cancers combined. If you only look at lung cancers **detected in the early stages** before they have spread to the lymph nodes and other organs, the survival rate increases dramatically to as high as 70%. In other words, 70 of every 100 people diagnosed at an early stage will survive for at least five years.

At the current time, organizations such as the American Cancer Society, do not advise against or recommend the use of chest x-ray, computed tomography (CT scan), or sputum cytologic examination to look for lung cancer in people who have no symptoms to suggest the disease. Studies have shown that lung cancer can be detected at an early stage with low-dose CT scanning, but there are no definitive studies showing that screening helps people live longer. You should also be aware that false-positive test results sometimes occur and may lead to anxiety, testing, and surgery.

The Worker Health Protection Program is pleased to be able to offer low-dose, spiral CT scans to both hourly and salaried workers. The attached factsheet explains how spiral CT can help to detect lung cancer in the early stages when it is most likely to be treatable. Your decision to participate in the program is entirely voluntary.