

# Lung Cancer Screening

## Information for clinicians

### Why is lung cancer screening important?

Lung cancer is the most common cause of cancer death for both men and women. The ability to cure lung cancer increases significantly when it is found in earlier stages. Unfortunately, less than 15 percent of lung cancers are found at an early stage.

### Why hasn't lung cancer screening been performed in the past?

The interest in an effective method for lung cancer screening goes back many decades, given the poor prognosis of late-stage disease. Large studies performed in the 1970s and 1980s using varying combinations of serial chest X-rays and sputum cytology showed improved survival in the screened group, but no decrease in lung-cancer-specific mortality. Epidemiologists attributed this discrepancy to various biases, including lead-time bias, length bias and potentially over-diagnosis bias. The recent publication of the Prostate, Lung, Colon and Ovarian (PLCO) trial has convincingly shown that yearly screening chest X-rays do not decrease lung cancer mortality.

### What was the National Lung Screening Trial (NSLT)?

This was a large study of over 50,000 patients sponsored by the National Cancer Institute. Patients were screened with annual chest X-rays or low-dose chest CT scans for three years. Patients considered to be at increased risk for lung cancer were enrolled. This included:

- Patients who were 55 to 77 years of age
- Patients who had at least a 30 pack year smoking history (pack year = number of packs smoked per day x number of years smoked)
- Patients who were current smokers, or former smokers who had quit smoking less than 15 years prior to the study

The results were published in the *New England Journal of Medicine* in 2011. Patients followed by annual CT scan were 20 percent less likely to die of lung cancer than patients followed with an annual chest X-ray. The number needed to screen was 1 in 320, meaning 320 patients needed to be screened to save one life. This compares favorably with other screening tests that are widely accepted and covered by third-party payers.

On the basis of this study, a number of national groups, such as the American Lung Association and the National Comprehensive Cancer Network, have recommended yearly lung cancer screening tests in high-risk patients. Other organizations, such as the American Thoracic Society, have recommended that it be offered as an option to high-risk patients. Additionally, after reviewing evidence the U.S. Preventive Services Task Force recommends annual screening for lung cancer with low-dose CT scans in a selective group of asymptomatic high-risk patients.

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## Are there risks associated with screening?

As with any medical test, there are risks as well as benefits associated with lung cancer screening. These include:

- **False positive results.** This means that a patient has an abnormal screening test but is ultimately proven not to have cancer. In the NSLT, 25 percent of patients undergoing their first CT scan had an abnormal result. Over 95 percent of these results were proven not to be due to cancer. Sometimes biopsies or surgeries were required to exclude cancer.
- **False negative results.** This is when the test is normal but the patient actually has lung cancer. Patients may fail to follow up with their physicians even if they have concerning symptoms because they have been told that their CT scan does not show any abnormal findings.
- **Radiation risks.** Although the benefits of the chest CT are felt to outweigh the risk of the radiation required for the scan, there is a small, long-term cancer risk associated with imaging tests themselves.

## Is lung cancer screening too costly?

Determination of the cost effectiveness of annual CT screening for lung cancer is in its infancy. The most accurate numbers will come out of a secondary analysis of the NSLT data, which is ongoing. However, modeling studies have suggested that lung cancer screening will be comparable — and perhaps more cost effective — than other commonly used screening tests.

## What is the next step if I'm interested in having my patient screened?

First, you should confirm that they are in the high-risk group that was studied in the NSLT. Next, you should discuss the benefits and risks with your patients. Although screening seems efficacious based on the NSLT data, it represents a new practice and one cannot guarantee that your patient's results will be identical to the NSLT results. Once the decision is made to pursue screening, an order for a low-dose lung cancer screening CT is placed. If you prefer, you can refer high-risk patients to the MultiCare Health System lung nodule clinic where specialists can review the program with your patient before the CT scan, or evaluate your patient for an abnormality after the CT scan is performed.

**Most insurers do not pay for lung cancer screening CT scans at this time.** MultiCare Health System has set up a reduced-cost CT for \$300 to make the screening available for more individuals. Careful follow-up is imperative to avoid missing early cancers. Starting January 1, 2015, the Affordable Healthcare Act requires all cancer screening tests endorsed by the U.S. Preventive Services Task Force be covered by commercial insurance. A ruling on this coverage by medicare is under consideration.

## How do I prevent lung cancer?

Although screening can prevent deaths due to lung cancer, it is always better to prevent a disease rather than treat it once it is present. The most important thing that individuals can do to prevent lung cancer is to quit smoking. MultiCare Health System makes its employee web-based smoking cessation program available to the public at a small cost.

## Lung cancer screening registry

In order to assure proper selection of patients and to follow the results, a registry including all patients will be kept and regularly reviewed. A summary of the findings will be available.

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**Please call 253.403.6850 if you would like more information on the lung cancer screening program, the lung nodule clinic at MultiCare Health System or additional resources for smoking cessation for your patients.**