What is lung cancer screening?

Lung cancer screening is for people who are at high risk of lung cancer and have no current symptoms. We use advanced medical imaging equipment (a low-dose CT scanner) to take detailed “pictures” or scans of your lungs once a year. A doctor will then examine these pictures to look for changes in your lungs that could be possible signs of cancer, such as a nodule. While almost all nodules in the lungs are OK, a few represent cancer.

The images of your lungs allow doctors to identify signs of cancer, such as the above nodule circled in red, before it spreads.

Who should consider screening for lung cancer?

People who are at high risk of lung cancer should consider screening for lung cancer. We screen only those people who will most benefit – those who are at highest risk. As one of the first institutions in the country to do this kind of screening, Dartmouth-Hitchcock Medical Center (DHMC) has more than ten years experience performing this exam. Dartmouth was a pioneer in a national study that proved this technique (the National Lung Screening Trial or NLST). DHMC now offers annual screening for adults who meet all of the following criteria:

- 55-80 years old
- Current or former smokers who quit less than 15 years ago
- 30 or more pack-years history of smoking
- No major health problems or conditions that might interfere with cancer treatment such as surgery

If you have worsening cough, chest pain, unexpected weight loss, or are coughing up blood, talk to your health care provider. You might require different diagnostic tests.

HOW TO FIND YOUR PACK YEARS OF SMOKING

\[
\text{number of years you have smoked} \times \text{average number of packs per day} = \text{pack years}
\]

Sample:
- 15 (insert the number of years you have smoked)
- 2 (insert the average number of packs you have smoked per day)
- 30 (multiply the two to find your pack years)
What if I do not meet the criteria for lung cancer screening?

If you don’t meet these criteria and you believe you are at risk for lung cancer, tell your health care provider about your concerns. Then you can discuss the benefits and harms of screening, given your medical history.

Benefits of lung cancer screening

The sooner you find lung cancer, the easier it is to treat. Early diagnosis of lung cancer has many benefits:

- **Treatment may be more successful**
  Research studies show that finding lung cancer at the earliest stages improves your chances of survival. The NLST found 20 percent fewer deaths from lung cancer when study participants were screened with a low-dose CT scan.

- **You may have more treatment options**
  Patients with the earliest stages of lung cancer often have surgery, radiation, and chemotherapy as options. When lung cancer is more advanced, there are fewer treatment options available. Late stage lung cancer is often inoperable.

Potential harms of lung cancer screening

It is important to consider both the benefits and harms before deciding to be screened. While there are definite benefits, there are also possible harms:

- **False alarm**
  A false alarm is something that looks like lung cancer—but is actually not cancer. Based on scientific reports, we expect about one in four people undergoing their first screening to have a false alarm. Proving that a nodule of concern is a false alarm will often require further CT scans. Many health care providers will watch the nodule of concern with regular annual screenings to look for changes. But sometimes additional imaging is not enough to rule out cancer, and your doctor may recommend additional procedures, such as a biopsy.

- **Over-diagnosis**
  “Over-diagnosis” is when a condition that would never cause illness or death during a patient’s lifetime is diagnosed. For example, screening may lead to a diagnosis and treatment of a small, slow growing lung cancer that would not have caused symptoms or death. This is a confusing topic. You may want to talk to your health care provider to learn more about over-diagnosis.
Radiation

Radiation, depending on the amount you receive, can potentially pose a slight risk of developing cancer. For lung cancer screening, we minimize this risk by using the “low-dose” CT technique, which uses much less radiation than the standard CT technique. For heavy former or current smokers, the benefit of screening is probably much greater than the harm from radiation.

How is lung cancer screening done?

Screening for lung cancer is done with a low-dose CT scan. Screening with chest X-ray has been repeatedly shown to be ineffective.

The lung cancer screening exam is brief and painless, requiring no fasting, needles, injections, or any special preparations or precautions. You will lie on a table and raise your arms above your head while the table slides into the CT scanner. You will be asked to hold your breath for just a few seconds during the scan. You will probably be in the CT room for about five minutes.

During a low-dose CT-scan, you will relax on an open bed just like this one for a quick pass through an imaging ring. It’s fast and painless.
The best place to be screened for lung cancer

Major medical societies recommend that annual lung cancer screening tests be conducted at medical centers with access to resources that will help you make a decision about whether or not to be screened. Since the first scan can lead to other testing, guidelines stress the importance of being screened at a center that has a comprehensive process for the interpretation, evaluation, and treatment of any potential findings, including lung cancer.

Exploring your options with experts in lung cancer

Talk to your provider about the potential benefits and harms of lung cancer screening. Consider what is most important to you and your family, and develop a plan of action.

We offer unique decision-support tools to help patients make informed and personalized decisions about lung cancer screening with their health care provider. Start the process now visiting cancer.dartmouth.edu/lungscreening.

How to arrange a screening CT scan

You will need to talk to your health care provider to decide if screening is right for you. If you decide to be screened, your provider will arrange the CT scan.

William C. Black, MD, a Professor of Radiology at The Geisel School of Medicine at Dartmouth, played a major role in clinical research to develop lung cancer screening.
Screening results and future screening

Your provider will have access to your test results within one day. It will be sent to you as a written report via U.S. Mail. Patients with a myD-H account will have access to their results within three days.

Most people screened will not have lung cancer. To monitor your lungs for any signs of a change, we usually ask for you to be screened once a year.

About one in four people who are screened will have a finding, such as a nodule, requiring further evaluation. This may require additional tests including:

- **Scans:** Depending on the results of the screening CT, you may be advised to have a repeat CT scan or a different kind of scan three to 12 months later. Follow up can involve multiple scans over several years.

- **Biopsy:** A biopsy is an invasive procedure to obtain a sample of a suspicious nodule. A biopsy can be done with a needle or with surgery depending on each individual's situation. A biopsy introduces risks including but not limited to bleeding, pain, infection, collapsed lung, or a prolonged hospital stay. If a biopsy is necessary, you will have an in-depth discussion with one of our physicians about the procedure and potential risks specific to you.

Sometimes lung cancer screening reveals signs of another medical issue not related to lung cancer. If this happens, your doctor may refer you for further evaluation and/or consultation to the proper specialist.

If your screening test indicates you need further evaluation

DHMC offers a range of services for lung diseases including:

- **Advanced Thoracic (Chest) Radiology**
  DHMC has a specialized team of thoracic radiologists who can conduct and evaluate advanced thoracic images. This includes contrast CT scans of the chest, PET scans, and needle biopsies using the CT scanner for accuracy.

- **Pulmonary Nodule Clinic**
  Our pulmonologists and thoracic surgeons offer follow-up consultations and workup of significant findings on the lung cancer screening results. Nodules are followed by one of our providers as needed. Most lung nodules are non-cancerous. Rarely, they can be early lung cancers or cancers that may have spread from other sites. Depending on the appearance of the lung nodules, a decision may be made to do follow-up imaging or a biopsy. If you have multiple lung nodules, especially if they are in both lungs, our team will work with you to develop a management plan that is specific to your case.
Interdisciplinary Lung Cancer Clinic

If a diagnosis of lung cancer is made, we use a team approach to provide state-of-the-art and personalized care. Our team includes:

- Pulmonologists
- Thoracic surgeons
- Medical oncologists
- Radiation oncologists
- Chest radiologists
- Thoracic pathologists
- Cytopathologists
- Nurse practitioners
- Molecular biologists
- Nutritionists
- Palliative care providers
- Certified tobacco treatment specialists
- Social workers

The team comes together at weekly meetings where each member offers his or her unique perspective for the development of a comprehensive treatment plan for each patient.

What does it cost? Is this covered by insurance?

Lung cancer screening, for those who meet the criteria, is covered by some insurance programs. Since lung cancer screening is still a new approach, not all insurance carriers have established coverage policies. Check with your health plan to find out if you have coverage.

If you are worried about bills, don’t have insurance, or want to apply for financial assistance, contact Patient Financial Services.

- Call (800) 368-4783 or (603) 653-1047 Monday through Friday from 8 am to 12 pm and 1 pm to 5 pm.
- You can also email questions to: patient.accounts@hitchcock.org

Anxiety, stress, and worry

Thinking about lung cancer and screening tests can cause anxiety, stress, and worry. If you decide to be screened you may feel stressed while waiting for results. The best way to avoid anxiety is to understand the facts and how they relate to you. Talk to your primary care provider, one of our lung cancer screening specialists, or contact our office for information and consultation.
Don’t smoke

The best way to protect yourself from lung cancer is by not smoking. Avoiding cigarettes is the most powerful way to lower your chance of dying or suffering from lung cancer, emphysema, and heart attacks. We understand quitting is very difficult. It takes the average person five tries before successfully quitting. We have certified tobacco treatment specialists to help you quit smoking.

The advantages of quitting tobacco begin right away. Within minutes of quitting you will experience benefits.

- **20 minutes**: Your heart rate and blood pressure drop
- **3 months**: Your lung function begins to improve
- **1 year**: Your risk of a heart attack drops sharply
- **10 years**: Your risk of dying from lung cancer is cut in half
- **15 years**: Your risk of coronary heart disease is back to that of a nonsmoker’s

There are many effective treatments available today that can help you manage an addiction to nicotine. Ask your doctor about what supports and medications are available to make it easier for you to stop using tobacco.

For help, call 1-800-QUIT-NOW.

About Dartmouth-Hitchcock Norris Cotton Cancer Center

Norris Cotton Cancer Center combines world-class cancer research at The Geisel School of Medicine at Dartmouth with patient-centered cancer care at Dartmouth-Hitchcock. We are one of only 41 Comprehensive Cancer Centers designated by the National Cancer Institute. Through research, new treatments, clinical trials, prevention programs, and community outreach, Norris Cotton Cancer Center provides the highest level of compassionate care for patients within our communities and contributes to the advancement of cancer medicine around the world.