



## A DECISION GUIDE AND PROCESS FOR

# Lung Cancer Screening

The U.S. Preventative Services Task Force (USPSTF) recommends annual lung cancer screening for adults who have no signs or symptoms of lung cancer but who are at high risk for developing the disease because of age and smoking history.<sup>USP</sup> Based on this recommendation and studies from the National Institute of Health (NIH)<sup>NLST</sup>, Intermountain Healthcare established the Lung Cancer Screening Program with the support of the Oncology Clinical Program, the Division of Pulmonology and Critical Care Medicine, and Department of Imaging. This screening program facilitates annual screening (and more frequent diagnostic testing when indicated) for patients who meet criteria for high risk of developing lung cancer.

### ► Why Focus ON LUNG CANCER SCREENING?

- **Lung cancer is common.** According to the American Cancer Society (ACS), nearly 225,000 cases of lung cancer are diagnosed annually. The ACS estimates that over 155,000 people will die from lung cancer in 2017, representing the leading cause of cancer-related mortality in both men and women.<sup>ACS</sup> A major barrier to reducing mortality is early detection. Only 16% are diagnosed at an early stage.<sup>ALA</sup>
- **Most high-risk patients can be identified through a simple history.** About 85% of lung cancer diagnoses are related to or caused by **smoking**, and the risk increases with smoking duration and frequency. The risk of lung cancer also increases with **age**, with most lung cancer occurring in patients 55 and older.<sup>USP</sup> In addition, several other risk factors increase the risk for lung cancer and make patients eligible for screening. (See [page 2](#) sidebar.)
- **Screening high-risk patients with low-dose CT (LDCT) reduces mortality.** The National Lung Screening Trial (NLST) found a 20% reduction in deaths from lung cancer among current or former heavy smokers who were screened with low-dose helical CT versus those screened with a chest x-ray.<sup>NLST</sup>
- **LDCT successfully identifies other abnormalities, leading to appropriate treatment.** The NLST found that screening with LDCT identified a clinically significant abnormality not suspicious for lung cancer more than three times more often than chest x-ray. Overall, all-cause mortality was reduced by 6.7%.<sup>NLST</sup>

#### WHY THE NEED FOR AN ORGANIZED PROGRAM?

We know that lung cancer screening results in false positives, but a careful diagnostic pathway limits harm to patients by reducing unnecessary procedures that may themselves result in complications. About 75% of patients screened for lung cancer will have a normal CT, and up to 25% will have a “positive finding.” However, more than 95% of these “positive findings” are benign and are usually resolved with further imaging only. Fewer than 5% of patients with a positive CT will be diagnosed with cancer.<sup>NLST</sup> Proceeding through this careful diagnostic pathway limits harm to patients and results in early treatment when appropriate.

Intermountain’s Oncology Clinical Program, Division of Pulmonology and Critical Care Medicine, and Department of Imaging developed the **Lung Screening Tracking System (LSTS)** to track lung cancer screening for patients who meet the criteria defined on [page 3](#). A regional nurse navigator (**NN**) uses the system to track and communicate with patients, schedule annual appointments, and send follow-up letters with results. Communication letters are stored and printed from within the LSTS.

### ► GOALS

The goals of the Lung Cancer Screening Program are as follows:

- Identify appropriate patients for screening through **primary care providers (PCPs)** and other clinicians
- Track appropriate patients long term to ensure that they receive annual screening and appropriate follow up when applicable
- Assess and refine criteria for screening within the Intermountain population

### ► OUTCOMES

Intermountain will measure the success of the Lung Cancer Screening Program (and adjust the process as needed) by tracking these critical statistics:

- The number of people screened
- The number of diagnoses (cancer and other findings, such as COPD and non-cancer nodules)
- The cancer stage / grade
- The number of unnecessary procedures

#### A NOTE ABOUT COVERAGE

Coverage for lung cancer **screening** is rapidly evolving. CT screening for lung cancer is for asymptomatic patients only. If all criteria are met, Medicare coverage may provide for annual screening as a preventative service. Patients or the PCP should check with insurers or the Nurse Navigator (NN) prior to screening.

### ALGORITHM NOTES

**(a) Identifying patients.** Primary care providers (PCPs) are responsible for identifying patients for the program. In the future, patients will also be able to call and request consideration for the program.

**(b) Pack year.** A “pack year” is smoking an average of 1 pack of cigarettes per day for 1 year. A person could have a 30 pack-year history by smoking 1 pack a day for 30 years or 2 packs a day for 15 years. A high-risk patient is defined as having a history of 30 pack years or more.<sup>USP</sup>

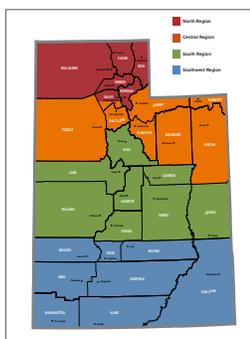
**(c) Referral to the screening program:**

1. PCP recognizes a patient who may benefit from screening.
2. After counseling patient and assuring all criteria are met, provider completes attestation form and power plan in iCentra.
3. Provider either places screening order in iCentra, or the provider completes the Counseling and Decision making order/Short Interim Follow order and faxes it to the appropriate number (see below).
4. The **nurse navigator** or support staff validates that the patient is appropriate for the Screening Program and enters the patient’s information into the DIG (Digital Integrated Grease board) scheduling tool.

**(d) Patients who don’t meet criteria.**

If patients request screening but don’t meet the criteria, they will be referred back to the PCP.

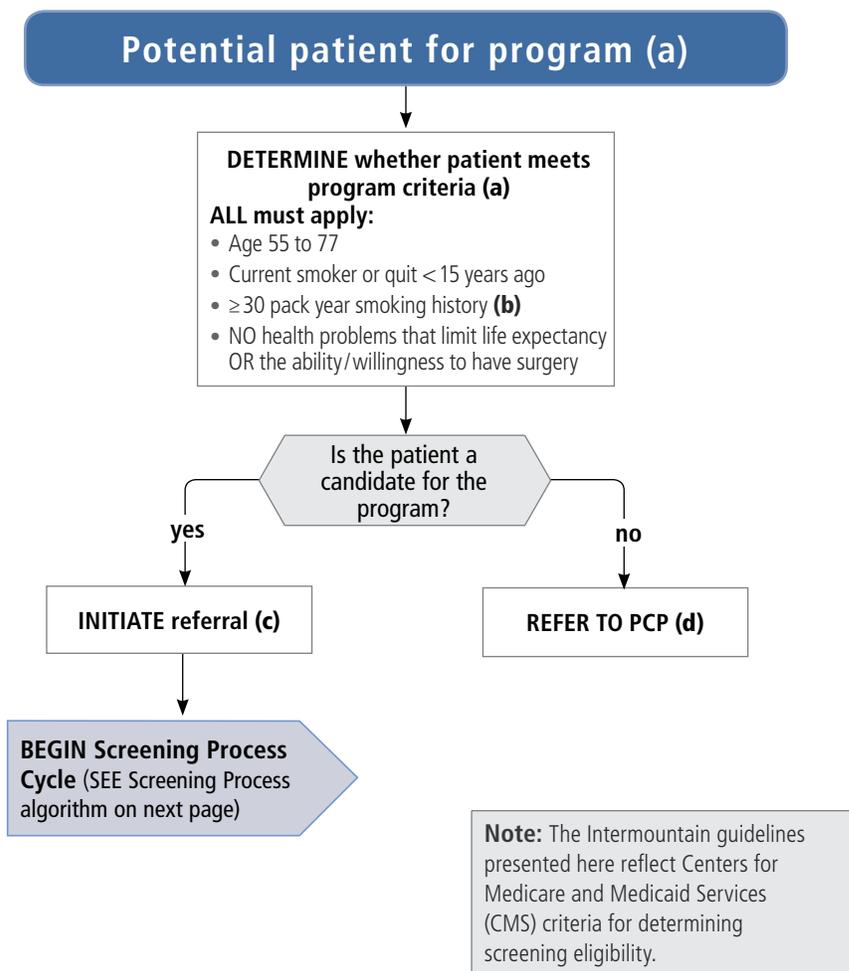
Screening program referral contacts:



Who to call for each region:

- Annette Wendel, 801-507-3998
- Cheryl Shepherd, 801-855-4101
- Amber Gurchiek, 801-387-7425
- Celeste Adams, 435-688-4901

## ▶ ALGORITHM 1: DECISION GUIDE



### Who participates in the Lung Cancer Screening Program?

In general, a **nurse navigator (NN)** facilitates and coordinates the screening process. For other incidental findings, the NN coordinates with other specialists. The NN enters patients into the Lung Cancer Tracking System (LCTS), mails letters to the patient, and follows up. In addition, the following team members may be involved:

- **Primary care physician (PCP).** Identifies patients qualified for screening. Provides counseling and facilitates shared decision making according to patient needs.
- **Radiologist.** Performs the screens and diagnostic tests (if applicable). Reads the scans and results into the patient’s electronic medical record.
- **Pulmonary clinic.** Evaluates and treats patients with abnormal CT results.
- **Thoracic oncologist.** Evaluates and treats patients with lung cancer.
- **Support staff.** Office managers, administrative staff, and other team members schedule appointments and submit results in the electronic medical record.
- **Thoracic tumor conference.** Reviews imaging results and provides recommendations about next steps for patients who fall into a high-risk category.

### ALGORITHM NOTES

**(a) Criteria for Screening Program.**

Patients in queue should be continually reassessed to ensure that they meet the program criteria. Patients should no longer be followed when they:

- Have not smoked for 15 years.
- Develop health problems that significantly limits life expectancy or the ability or willingness to have curative lung surgery.
- Pass age 77.<sup>USP</sup>

**(b) Risk Classification:**

- **Low risk or normal:** Annual LDCT
- **Intermediate risk:** Follow-up or additional chest CT in 3 or 6 months
- **High risk or other:** Immediate follow up in appropriate clinic

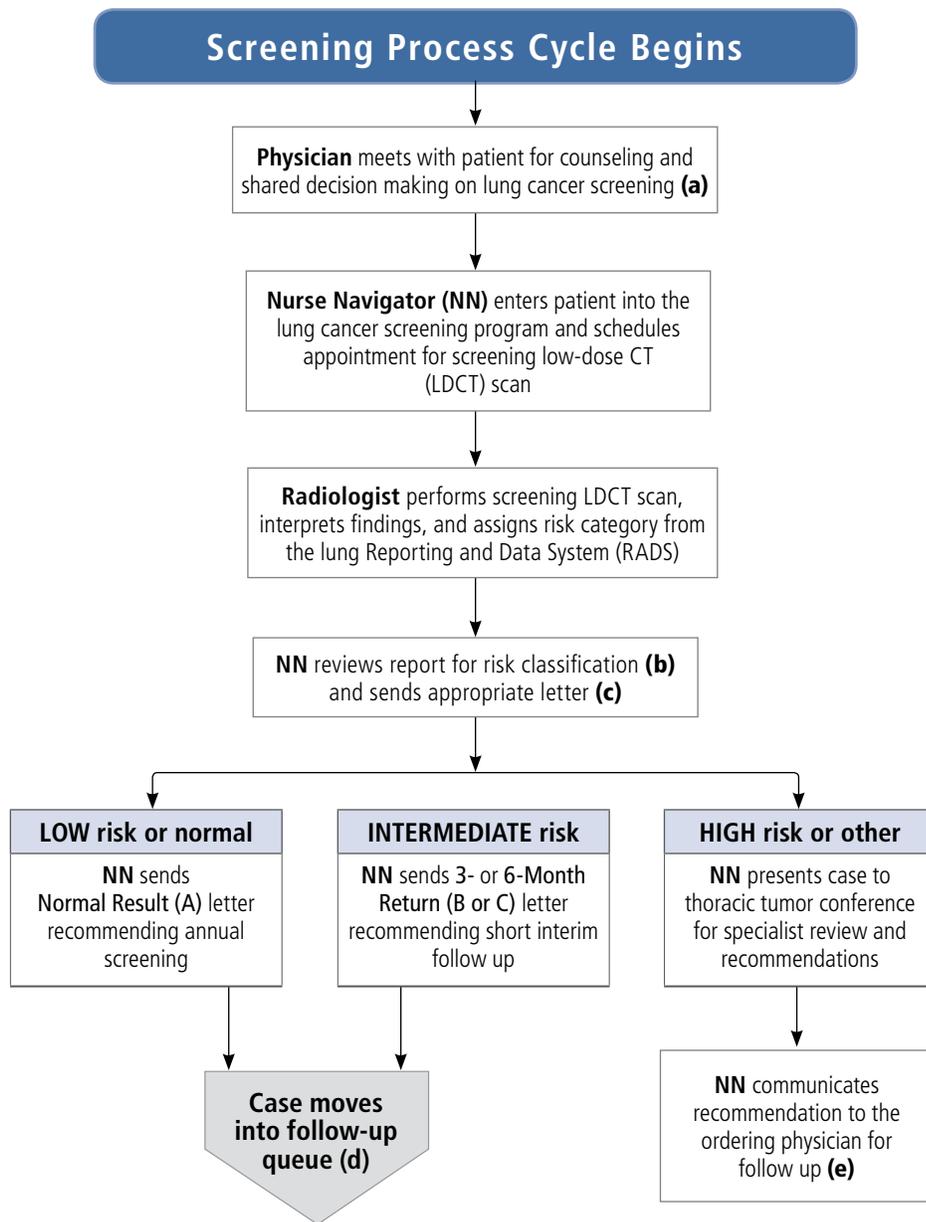
**(c) Letters in the Lung Screening Tracking System (LSTS).** The NN prints the letters directly from the LSTS.

- Normal Result (A)
- 3-Month Return (B)
- 6-Month Return (C)
- Immediate Nodule Center (D)  
Recommendation to refer at the discretion of provider
- Immediate Other (E)
- Annual Reminder (F)
- Follow-up Reminder (G)
- Second Reminder (H)

**(d) See box below algorithm.**

**(e) Some patients** may re-enter the Screening Program (e.g., if an abnormality identified on CT is diagnosed as benign).

## ▶ ALGORITHM 2: LUNG CANCER SCREENING PROGRAM PROCESS



### HELPING PATIENTS QUIT

Throughout the process, encourage patients to quit smoking. These tools and resources can help your patients quit:

- Intermountain's [Quitting Tobacco](#) booklet
- Quit for Life Program: 866-784-8454, [quitnow.net](#)
- Freedom from Smoking: [ffsonline.org](#)
- Smokefree: 800-QUIT-NOW, [smokefree.gov](#)
- [utah.quitnet.com](#)
- [cdc.gov/tobacco](#)
- [nicotine-anonymous.org](#)
- [www.tobaccofreeutah.org](#)



### (d) Follow-up queue

Patients in the follow-up queue fall into one of the following categories. Patients move in and out of the **Screening Process Cycle** above as applicable:

- **Low risk or normal:** Patients continue to receive annual screening LDCT until they no longer meet the criteria or have an abnormal screen.
- **Intermediate risk group:** Patients are flagged for follow up in 3 or 6 months, depending on screening LDCT result. A follow-up or additional chest CT is performed at 3 or 6 months. At that time, the patient is reassessed. The patient may move back into annual screening or be referred for further testing or treatment.
- **High risk or other:** Patients presented in the thoracic tumor conference are referred to the appropriate clinic for diagnostic testing and treatments. They may return to annual screening if appropriate.

## REFERENCES

- ACS American Cancer Society. What are the key statistics about lung cancer? <http://www.cancer.org/cancer/lungcancer-non-smallcell/detailedguide/non-small-cell-lung-cancer-key-statistics>. Updated February 10, 2014. Accessed October 19, 2017.
- ALA American Lung Association. Lung cancer fact sheet. <http://www.lung.org/lung-disease/lung-cancer/resources/facts-figures/lung-cancer-fact-sheet.html>. Accessed October 19, 2017.
- NLST The National Lung Screening Trial Research Team, Aberle DR, Adams AM, Berg CD, et al. Reduced lung-cancer mortality with low-dose computed tomographic screening. *N Engl J Med*. 2011;365(5):395-409.
- USP U.S. Preventative Services Task Force. Understanding Task Force Recommendations: Screening for Lung Cancer. <http://www.uspreventiveservicestaskforce.org/uspstf13/lungcan/lungcanfact.pdf>. Published December 2013. Accessed October 19, 2017.

## ► RESOURCES AND REFERENCES

### Intermountain patient resources

Clinicians can order Intermountain patient education booklets and fact sheets for distribution to their patients from Intermountain's Online Library and Print Store, [iprintstore.org](http://iprintstore.org).



#### Fact sheets:

- [Lung Cancer Screening](#)
- [Secondhand Smoke and Your Child's Health](#)
- [E-Cigarettes: Questions and Answers](#)



#### Other patient education:

- [Quitting Tobacco: Your journey to freedom](#)

### Provider resources

To find this and other related provider materials, clinicians can go to [intermountainphysician.org/clinicalprograms](http://intermountainphysician.org/clinicalprograms) and select Lung Problems from the topic list on the right side of the screen.



This process model presents a model of best care based on the best available scientific evidence at the time of publication. It is not a prescription for every physician or every patient, nor does it replace clinical judgment. All statements, protocols, and recommendations herein are viewed as transitory and iterative. Although physicians are encouraged to follow the CPM to help focus on and measure quality, deviations are a means for discovering improvements in patient care and expanding the knowledge base.