



Frequently Asked Questions (FAQs) for Healthcare Providers: Lung Cancer Screening in Ontario for People at High Risk

Cancer Care Ontario recommends using low-dose computed tomography (LDCT) to screen people at high risk of getting lung cancer through an organized screening program.¹

Cancer Care Ontario based this recommendation on the evidence generated by the National Institute of Health's National Lung Screening Trial (NLST), a randomized controlled trial with over 50,000 participants. The trial demonstrated that people at high risk of lung cancer who got screened annually for three years with LDCT experienced a 20 percent relative reduction in lung cancer mortality over six years, compared to people who got screened annually for three years with chest X-ray.²

Although LDCT screening for people at high risk of developing lung cancer has the important benefit of reducing lung cancer mortality, screening also has potential harms.

Cancer Care Ontario is introducing a Lung Cancer Screening Pilot for People at High Risk in April 2017. Screening should only occur through this pilot because it provides the organized screening infrastructure needed to ensure greater protection against the potential harms of screening. Using LDCT to screen people on an opportunistic or ad hoc basis is not advised.¹

For more information the importance of organized lung cancer screening and the Cancer Care Ontario pilot, please see the FAQs below.

1. Why is lung cancer screening for people at high risk needed in Ontario?

Lung cancer is the leading cause of cancer death for women and men in Ontario. In 2016, an estimated 7,100 people died of lung cancer, which is more than the number of people who died of breast, colorectal and prostate cancer combined.³

The five-year relative survival ratio for people diagnosed with lung cancer in Ontario from 2008 to 2012 was 18 percent, showing little improvement over the past decade and has been much lower than breast (87.2 percent), colorectal (63.2 percent) and prostate (95.2 percent) cancer.⁴ Survival has been poor because people are usually diagnosed with lung cancer when the disease is at an advanced stage.

2. What is a low-dose computed tomography (LDCT) scan and why is it used for lung cancer screening for people at high risk?

LDCT screening can detect lung cancers at an early stage, when treatment is more likely to be successful. LDCT is a CT scan that uses approximately one-quarter the amount of radiation used in a diagnostic CT and does not require contrast.⁵ Therefore, it is safer in a screening environment, where participants are otherwise healthy. It is expected that people who are screened will have multiple scans over time, so minimizing their radiation dose is an important consideration. Although the lower dose of radiation in an LDCT scan produces lower quality images than a diagnostic CT, LDCT is good at detecting small lung nodules for preliminary assessment. However, a diagnostic quality CT and/or other tests are required to accurately diagnose and stage lung cancer.

3. What are the potential benefits and harms of screening with low-dose computed tomography (LDCT) for people at high risk of lung cancer?

The benefit of screening with LDCT is the reduction in lung cancer mortality resulting from finding lung cancer at an early stage when treatment is more likely to be successful.

The potential harms of screening with LDCT include radiation exposure, false-positive results (including unnecessary diagnostic assessments with the risk of complications) and over-diagnosis (i.e., identifying and treating a cancer that would not have come to attention had the person not been screened).

4. Why should lung cancer screening for people at high risk occur through an organized program?

Cancer Care Ontario recommends using low-dose computed tomography (LDCT) to screen people at high risk of getting lung cancer through an organized screening program. Organized screening provides important benefits, such as ensuring that appropriate populations are screened at the recommended interval, conducting appropriate and timely follow-up of abnormal findings, and implementing ongoing quality monitoring, reporting and performance management.

Implementing organized lung cancer screening will ensure greater protection against the potential harms of screening. Organized lung cancer screening includes mechanisms to ensure screening CTs use the appropriate low-dose of radiation and are done without contrast, ensures that scans are interpreted by radiologists who have received training to read screening LDCTs, and uses an algorithm for the management of people with screen-detected lung nodules to minimize the risks of unnecessary follow-up scans or invasive diagnostic testing.

5. What are the risks involved in opportunistic (ad hoc) screening?

Cancer Care Ontario advises against using low-dose computed tomography (LDCT) to screen people on an opportunistic or ad hoc basis. There are additional risks for people who are screened outside of an organized program in this manner.¹

To ensure the benefits of organized screening, it is important that people are screened at participating pilot sites. People referred for lung cancer screening outside of an organized program may receive a diagnostic CT, which exposes them to four times the amount of radiation in an LDCT or 60 times the radiation in a chest X-ray.^{5,6}

Additionally, people with incidentally detected pulmonary nodules may undergo too many follow-up or surveillance CT scans, which results in unnecessary radiation exposure.

Finally, organized screening provides important benefits, such as ensuring that appropriate populations are screened at the recommended interval, conducting appropriate and timely follow-up of abnormal findings, and implementing ongoing quality monitoring and management.

6. What action is Cancer Care Ontario taking to make organized lung cancer screening available for people at high risk?

Cancer Care Ontario has selected specific sites to participate in a pilot to help determine how to best implement organized lung cancer screening for people at high risk in Ontario. Pilot sites are aiming to begin screening in April 2017.

7. Why is Cancer Care Ontario doing a pilot instead of implementing organized lung cancer screening for people at high risk province-wide?

The primary purpose of the pilot is to determine how to best implement organized lung cancer screening in Ontario.

The pilot will be evaluated to assess key components of the screening pathway, including recruitment, navigation, retention, follow-up, cancer stage at diagnosis and treatment. The evaluation will also assess the outcomes of embedding smoking cessation services into the screening pathway. Results of the pilot evaluation will inform the design and implementation of a provincial lung cancer screening program.

8. Where are the pilot sites and how were they selected?

The pilots are based out of the following hospitals in Ontario: The Ottawa Hospital, Health Sciences North in Sudbury and Lakeridge Health in Oshawa.

A Request for Proposals from level 1 thoracic surgery centre hospitals with on-site Lung Diagnostic Assessment Programs interested in piloting lung cancer screening for people at high risk was issued on March 31, 2016.

An evaluation committee consisting of Cancer Care Ontario senior leaders and clinical experts from across Canada appraised and ranked the proposals based on pilot selection criteria that included the following:

- leadership, a multidisciplinary team and decision-making capacity;
- service capacity;
- demonstrated ability to serve the target population; and
- the ability to adhere to pilot minimum requirements.

Cancer Care Ontario selected pilot sites from the highest ranked proposals to ensure diversity based on geography and hospital type (academic versus community).

9. What are the key elements of Cancer Care Ontario's Lung Cancer Screening Pilot for People at High Risk?

The pilot will provide navigation support to participants throughout their screening journey. The pathway for lung cancer screening for people at high risk will include:

- risk assessments to determine eligibility for screening;
- informed decision-making about participating in lung cancer screening;
- smoking cessation support to all current smokers;
- low-dose computed tomography scans in accordance with radiology quality assurance;
- communication with referring providers and primary care physicians (if different) of screening results and next steps;
- facilitated participant recall and follow-up that is similar to the Ontario Breast Screening Program; and
- seamless transition to a Lung Diagnostic Assessment Program for assessment and/or surveillance of scans with suspicious findings.

10. Who is eligible to participate in Cancer Care Ontario's Lung Cancer Screening Pilot for People at High Risk?

People who are referred by a doctor or self-present for screening to a pilot site will undergo a risk assessment to determine whether they qualify for the pilot. People assessed as having a two percent or greater risk of developing lung cancer over the next six years will be considered eligible to participate in the Lung Cancer Screening Pilot for People at High Risk. The risk assessment takes into consideration age, smoking history and other risk factors, such as body mass index, personal history of cancer and family history of lung cancer.

People ages 55 to 74 who have smoked cigarettes daily for at least 20 years (not necessarily consecutive) may be referred to the Lung Cancer Screening Pilot for People at High Risk. Then, a risk assessment will be conducted to determine eligibility.

People should not be referred to the Lung Cancer Screening Pilot for People at High Risk if they:

- have previously been diagnosed with lung cancer;
- are under surveillance for lung nodules;
- have experienced hemoptysis of unknown etiology in the past year; or
- have experienced unexplained weight loss of more than five kilograms in the past year.

11. Why does the eligibility for Cancer Care Ontario's Lung Cancer Screening Pilot for People at High Risk differ from the National Lung Screening Trial (NLST)?

The risk assessment to determine eligibility for Cancer Care Ontario's Lung Cancer Screening Pilot for People at High Risk will be conducted using a risk prediction model, which predicts the probability of developing lung cancer over the next six years.⁷

The risk prediction model has been demonstrated to be more sensitive and more specific than the criteria used to determine eligibility in the NLST (which was based on age, pack-years and a maximum time since smoking cessation). By using this risk prediction model to select participants, the pilot will identify people who are most likely to develop lung cancer and who are therefore most likely to benefit from lung cancer screening.

12. How can people participate in the Lung Cancer Screening Pilot for People at High Risk?

People ages 55 to 74 who have smoked cigarettes daily for at least 20 years (current or former smokers) may be eligible to participate.

Physicians can refer their patients to a pilot site for a risk assessment that will determine if they are eligible for screening.

People can also self-present to a lung cancer screening pilot site. If a risk assessment determines that they are eligible to participate in lung cancer screening, the pilot site will contact a potential participant's primary care provider to get a referral. A physician's referral is necessary to authorize the use of low-dose computed tomography (LDCT) for screening and authorization of LDCT is not within the scope of practice for nurse practitioners or other non-physician clinicians who deliver primary care. However, all primary care providers can identify people who may be eligible for lung cancer screening and facilitate physician referrals for them.

As of April 2017, screening will be available at the following hospitals in Ontario: The Ottawa Hospital, Health Sciences North in Sudbury and Lakeridge Health in Oshawa.

13. What should physicians do if they have patients who might be at high risk of developing lung cancer and may be eligible for screening, but they are not located near a pilot site?

Cancer Care Ontario does not advise physicians to encourage patients to travel outside of their region to participate in the pilot for the following reasons:

- The full benefits of organized lung cancer screening are realized through end-to-end continuity of care, from confirmation of eligibility and completion of the baseline low-dose computed tomography through to any required follow-up of suspicious nodules, diagnostic testing and/or recall. This experience may require significant travel and participants who are not able to commit to the entire screening process will not receive the full benefits of this comprehensive care.
- Cancer Care Ontario has selected specific pilot sites. The demand for lung cancer screening within the pilot regions is unknown and it is possible that local demand will exceed available capacity. To ensure that the pilot can properly assess the effectiveness of recruitment and follow through of screening, it is critical that local, harder to reach populations are able to access the pilot sites.

All physicians are encouraged to take the opportunity to discuss smoking cessation with their patients. People who stop smoking greatly reduce their risk of disease and early death. Smoking cessation services can help reduce the burden of lung cancer and other chronic diseases associated with smoking, such as stroke or coronary heart disease.

14. What smoking cessation resources are available to healthcare providers and the public?

For information on Smokers' Helpline, a free, confidential service operated by the Canadian Cancer Society that offers support and information about quitting smoking and tobacco use, please visit SmokersHelpline.ca.

For additional healthcare provider resources, please visit:

- Brief Counselling for Tobacco Use Cessation: ptcc-cfc.on.ca/cms/One.aspx?portalId=97833&pageId=103373

For additional patient resources, please visit:

- One Step at a Time (Canadian Cancer Society)
 - For Smokers Who Want to Quit: cancer.ca/~media/cancer.ca/CW/publications/OSAAT%20for%20smokers%20who%20want%20to%20quit/OSAAT-Smokers-who-want-to-quit-EN.pdf
 - For Smokers Who Don't Want to Quit: cancer.ca/~media/cancer.ca/CW/publications/OSAAT%20for%20smokers%20who%20dont%20want%20to%20quit/OSAAT-Smokers-who-dont-want-to-quit-EN.pdf
 - Help a Smoker Quit: cancer.ca/~media/cancer.ca/CW/publications/OSAAT%20help%20a%20smoker%20quit/OSAAT-Help-a-smoker-quit-EN.pdf
- Journey 2 Quit (Ontario Lung Association): on.lung.ca/journey
- On the Road to Quitting (Health Canada): <http://healthycanadians.gc.ca/publications/healthy-living-vie-saine/non-smoker-adult-non-fumeur-adulte/index-eng.php>

15. Should physicians refer patients for lung cancer screening at a hospital outside of Cancer Care Ontario's pilot?

Cancer Care Ontario's position is that lung cancer screening for people at high risk using low-dose computed tomography should be conducted as part of an organized screening program¹. Screening performed outside of an organized program may not be able to ensure appropriate populations are screened at the recommended internal, appropriate and timely follow-up of abnormal findings and that there is ongoing quality monitoring and management.

Cancer Care Ontario can only ensure that organized lung cancer screening for people at high risk is available at the pilot sites.

16. What should radiologists from non-pilot hospitals do if they receive a requisition for a computed tomography (CT) scan for lung cancer screening?

Cancer Care Ontario advises against lung cancer screening of asymptomatic people on an opportunistic or ad hoc basis due to the additional risks posed to patients outside of an organized program. If radiologists receive a requisition for lung cancer screening, they may respond to the referring physician with the following message:

Your requisition for lung cancer screening has not been processed.

- Cancer Care Ontario recommends using low-dose computed tomography to screen people at high risk of getting lung cancer through an organized screening program.
- A Lung Cancer Screening Pilot for People at High Risk will be launched by Cancer Care Ontario, but organized screening is not currently available in Ontario or elsewhere in Canada.
- Organized cancer screening programs provide important benefits, such as ensuring that appropriate populations are screened with the right test, ensuring appropriate and timely follow-up of abnormal findings, and ongoing quality monitoring and management.

- Organized screening is expected to begin at pilot sites in April 2017; more information will be made available to the public in early 2017.
- Screening is **not** appropriate for people with suspected lung cancer. If a patient is demonstrating symptoms of lung cancer, follow the [Program in Evidence-Based Care's guidelines for referral of suspected lung cancer](#) and Cancer Care Ontario's [lung cancer diagnosis pathway](#).⁸
- If you have any questions regarding lung cancer screening for people at high risk, please contact screenforlife@cancercare.on.ca.

17. What should providers do if their patient has symptoms of lung cancer?

Screening is not appropriate for people with suspected lung cancer. If a patient is demonstrating symptoms of lung cancer, providers are advised to follow the Program in Evidence-Based Care's (PEBC's) [guidelines for referral of suspected lung cancer](#) and Cancer Care Ontario's [lung cancer diagnosis pathway map](#). For more information on the recommended next steps, refer to the [lung diagnosis pathway](#).⁸

18. Where should I direct questions regarding lung cancer screening for people at high risk?

Please direct questions to screenforlife@cancercare.on.ca.

References

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