

# Lung cancer screening: Should you participate or not?

Decision aid



## SHOULD YOU PARTICIPATE OR NOT? IT'S UP TO YOU!

If you are eligible for lung cancer screening, you can choose whether or not to participate. The purpose of this decision aid is to provide you with the information you need to make an informed decision that best matches your values and preferences.

### Produced by

This publication was produced by the Sous-ministériat à la prévention et santé publique in collaboration with the Direction des communications of the Ministère de la Santé et des Services sociaux.

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Bibliothèque et Archives nationales du Québec, 2026  
ISBN 978-2-555-03901-8 (Print)  
ISBN 978-2-555-03899-8 (PDF)

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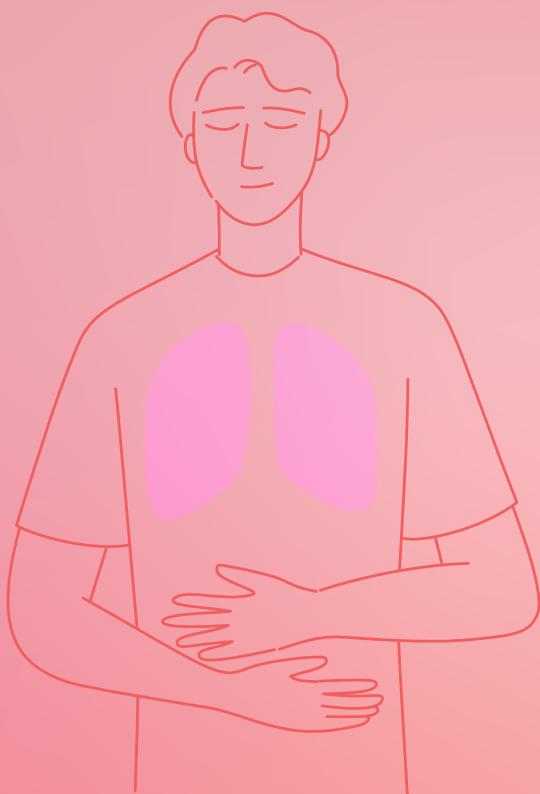
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Screening is not indicated for people who have symptoms of lung cancer:

- ▶ a new or unusual cough;
- ▶ coughing up blood;
- ▶ new and persistent shortness of breath;
- ▶ new chest pain;
- ▶ new debilitating pain or pain that wakes you up at night (for example, in the chest, ribs or shoulders);
- ▶ unintentional weight loss of more than five kilograms in the last 12 months.

If you have one or more of these symptoms, consult a health professional as soon as possible.

Quitting smoking significantly reduces the risk of developing many diseases, including many cancers, and dying prematurely. It can also help improve overall health and quality of life. To find out more, go to: [Québec.ca/QuittingSmoking](https://Quebec.ca/QuittingSmoking).



## What is lung cancer?

Lung cancer is a multiplication of abnormal cells in the lung, which can spread to other organs. It usually presents in the form of a lung nodule, a small area of abnormal tissue observed in the lung.



## What is the leading cause of lung cancer?

Tobacco use is responsible for the vast majority of lung cancer cases, that is, more than 8 out of 10. Quitting smoking reduces this risk significantly.

## How prevalent is lung cancer in Quebec?

Lung cancer causes more deaths than any other type of cancer, in both women and men.

The Canadian Cancer Society estimated that for 2024, in Quebec alone:

- 9,900 people would be diagnosed with lung cancer;
- 6,100 people would die from lung cancer.

One of the main reasons for this large number of deaths is that lung cancer is often diagnosed late, when it has started to spread to other organs. This often reduces the chances of being cured, despite the treatments.

## Who can participate in lung cancer screening?

Only people at high risk of lung cancer are eligible for screening, generally people who:

- ▶ are between 55 and 74 years old;
- ▶ are smokers or were smokers for at least 20 years (continuously or on and off).

Even if you meet these criteria, you may not be eligible for screening. Someone in charge of screening will contact you to check if you are at high risk, assess your overall health and ensure that screening is suitable for you. You will then be told if you are eligible.

## What is lung cancer screening?

The aim of screening is to look for cancer before the symptoms of the disease appear. It consists of doing, for people at high risk, an examination to detect any abnormal image in the lungs, such as a nodule. If an abnormal image is observed, other examinations will be necessary to determine if it is lung cancer.

As part of the screening process, people who smoke or who quit within the last six months are referred to support services to quit smoking, whether or not they participate in screening.<sup>1</sup>

## What is the screening test?

The test to screen for lung cancer is a low dose computed tomography (LDCT) scan. It takes less than five minutes, is painless and does not require an injection. A medical imaging technologist performs the test and then a radiologist analyzes the images.

This technology uses X-rays to produce detailed images of the lungs in three dimensions. During a LDCT scan, organs other than the lungs (liver, heart, thyroid, breast, etc.) can be observed at the same time.

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1 You will be able to participate in screening even if you do not wish to receive smoking cessation support services.



Image credit: Institut universitaire de cardiologie et de pneumologie de Québec - Université Laval

## What are the possible results?

### Negative or benign result

Most people receive a negative or benign result (860 in 1,000 people).

A negative result means that no nodules were found in your lungs or that one or more nodules were found, but do not show any signs of cancer.

A benign result means that one or more nodules were found in your lungs, but the risk of them being cancerous is very low.

Even if your result is negative or benign, it is still possible that cancer was not detected on the examination or that you will develop it later. For this reason, it is recommended that you repeat the examination every year, as long as the result remains negative or benign and you are still eligible for screening.

## Positive result

Around 140 in 1,000 people receive a positive result.

This result means that one or more nodules were found in your lungs that need further monitoring or examination. The risk of them being cancerous can be low or high.

- **Low risk:** the nodules are probably benign, i.e., there is probably no lung cancer.
- **High risk:** the nodules are suspicious or very suspicious. It could be lung cancer.

The nodules are not necessarily cancerous. Further tests must be done to confirm whether or not there is cancer.

The additional tests proposed vary depending on the case:

- ▶ if it is unlikely that the nodule(s) are cancerous, a repeat LDCT scan is offered six months later. In general, this situation occurs in around 90 out of 1,000 people who participate in screening;
- ▶ if the probability of the nodule(s) being cancerous is higher, a repeat LDCT scan is offered three months later or further investigation is recommended by the radiologist. In general, this situation occurs in around 50 out of 1,000 people who participate in screening.

## If you are eligible for lung cancer screening, what are your options?

- ▶ You can choose to participate.
- ▶ You can choose not to participate.
- ▶ You can choose to postpone your decision.

Each option has benefits and harms. It is important to understand them in order to make an informed decision. Your participation is voluntary and must fully respect your values and preferences, that is, what is most important to you.

## What are the benefits of participating in screening?

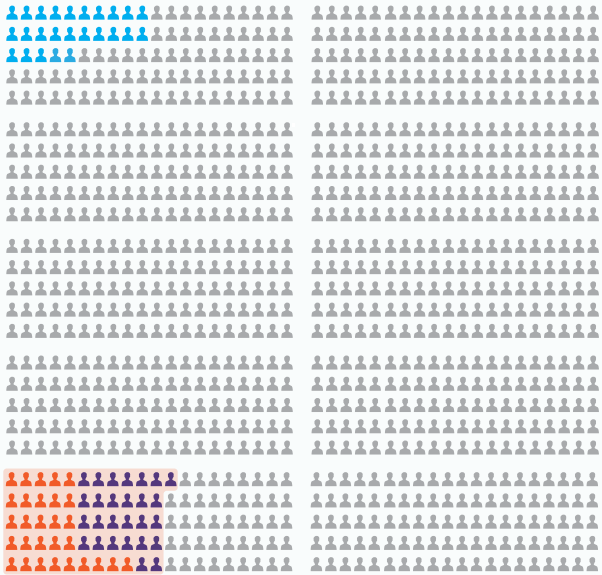
- ▶ You can **increase your chances of cancer being found early**, before it has begun to spread to other organs. This increases the chances of being able to treat and cure it. According to one study<sup>2</sup>, 16 more cases of lung cancer are found early enough in the development of the disease to be successfully removed out of 1,000 people who participated in screening (see the diagram on page 10).
- ▶ You can **reduce your risk of dying from lung cancer** compared with people who do not participate in screening. According to the same study, 8 out of 1,000 deaths are prevented by screening.

On the next page, two diagrams show the results for 1,000 people who did and did not participate in screening. The numbers come from a study<sup>2</sup> that compared options with and without screening over a 10-year period in people at high risk of lung cancer.

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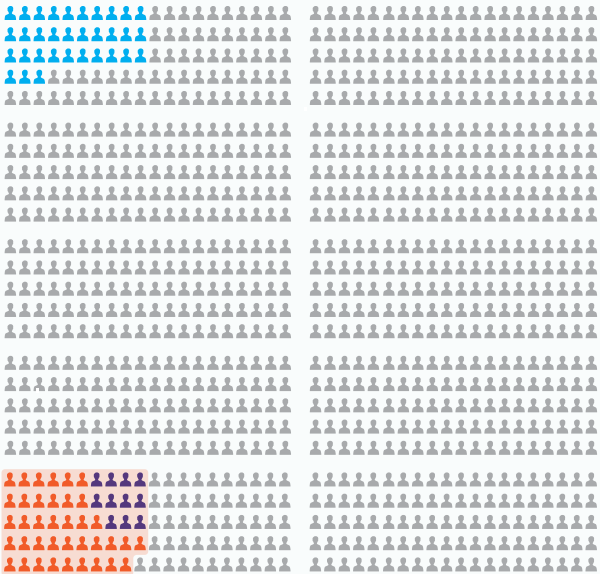
2 de Koning et al., *New England Journal of Medicine*, 2020

## WITH SCREENING • Out of 1,000 people:



**56** cases of lung cancer found, **27** of which were found early  
**25** lung cancer deaths.

## WITHOUT SCREENING • Out of 1,000 people:



**49** cases of lung cancer found, **11** of which were found early  
**33** lung cancer deaths.

So, **16** more cases of lung cancer were found early and  
**8** lung cancer-related deaths were prevented by screening.

- ▶ As other organs in the chest can be observed during the LDCT examination, a **health problem unrelated to lung cancer may be discovered** during the examination. This happens especially in older people. The most common are problems in the heart, lungs, blood vessels, kidneys, thyroid gland and breasts. In Quebec, out of 1,000 people who participate in screening, 250 may need follow-up after an abnormality is discovered during screening. If you are not already aware of this health problem, follow-up with a health professional would be proposed.
- ▶ You can **access support services to quit smoking** and quickly start, with the support of a professional, the process of quitting smoking and thus reduce your risk of developing lung cancer.

## What are the harms of participating in screening?

- ▶ You may **get a false positive result or a false alarm**. This means that the LDCT examination shows nodules in the lungs that might look cancerous, but are actually not. In this case, you would have to undergo other examinations, which would not have been necessary. These additional examinations can sometimes cause complications.

In Quebec, out of 1,000 people who have an LDCT scan:

- about 120 will receive a false positive result;
  - of these, 3 might have a biopsy;
  - and 1 might undergo surgery without having cancer.

- ▶ **Lung cancer may be found during screening that would never have caused a problem in the person's lifetime.** This is called overdiagnosis. Some lung cancers develop very slowly. In the long term, they will not cause health problems or death. According to American data, this situation occurs in 4 out of 1,000 people who participate in screening over a period of 6.5 years.

It is impossible to predict whether a cancer detected by screening will cause problems or not. This is why they are all treated. People who are overdiagnosed are treated unnecessarily. Treatment could include lung surgery, radiation therapy, chemotherapy and immunotherapy.

- ▶ You will be exposed to medical radiation. This exposure can, over a prolonged period, promote the development of cancer. This risk is extremely low with the LDCT examination. Over a period of 10 years, less than 1 cancer in 1,000, among people who participate in screening annually, is caused by medical radiation.

## What are the benefits of not participating in screening?

You avoid experiencing its harms, i.e.:

- ▶ having tests and living with the anxiety of waiting for the results;
- ▶ getting a possible false positive result and having the additional examinations that may follow;
- ▶ receiving a possible overdiagnosis, which can lead to unnecessary tests and treatments;
- ▶ being exposed to medical radiation.

## What are the harms of not participating in screening?

Without screening, you will not know if you have lung cancer.

If you have cancer, it may be diagnosed at a more advanced stage, possibly when it has already spread to other parts of your body. It will be more difficult to treat and cure then.

## What are the limitations of screening?

Lung cancer screening has limitations:

- ▶ no screening is perfect. Cancer may not be detected during the LDCT scan or may appear during the year following a negative or benign result;
- ▶ screening does not prevent all lung cancer deaths;
- ▶ it is impossible to know in advance which participants will experience the benefits or harms of screening.

## What are your values and preferences regarding the consequences of participating or not participating in lung cancer screening?

Doing this exercise will help you think about what matters most to you so that you can make an informed decision. Circle the number that best corresponds to the importance you give to the statements. The number **0** means that it is not important to you. The number **5** means that it is very important to you.

Reasons to participate in screening	
1. I want to know my risk of developing lung cancer.	0 1 2 3 4 5
2. I want to reduce my risk of developing lung cancer.	0 1 2 3 4 5
3. I want to reduce my risk of detecting lung cancer at an advanced stage.	0 1 2 3 4 5
4. I want to reduce my risk of dying from lung cancer.	0 1 2 3 4 5
5. Other reason(s) Specify:	0 1 2 3 4 5
Reasons to not participate in screening	
1. I would not want to be given a false alarm.	0 1 2 3 4 5
2. I would not want to be given false reassurance, if I have cancer that is not detected during the examination.	0 1 2 3 4 5
3. I would not want to go to the hospital to have tests, live with the anxiety of waiting for the results and the possible complications of additional tests.	0 1 2 3 4 5
4. I would not want to experience discomfort during tests.	0 1 2 3 4 5
5. Other reason(s) Specify:	0 1 2 3 4 5

## Your decision

- Participate in screening.
- Not participate in screening.
- Postpone my decision.

This document does not replace a discussion with a health professional. If you have concerns, you can talk to a health professional or discuss them with someone you trust, who will support you in your decision.

## How can I go about quitting smoking?

Talk to someone in charge of screening. Using support services combined with medication to quit smoking increases your chances of success. Visit the Tobacco-Free Quebec website to find out more about **I QUIT NOW** services. These support services are free.

[Tobaccofreequebec.ca/iquitnow](http://Tobaccofreequebec.ca/iquitnow)

To learn more about lung cancer screening, go to:

[Quebec.ca/LungCancerScreening](http://Quebec.ca/LungCancerScreening)