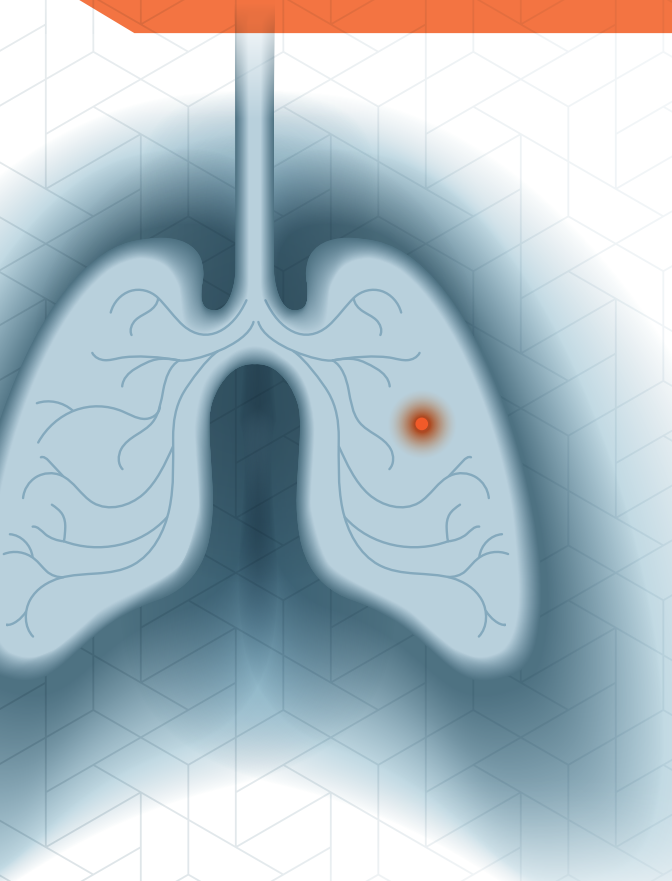
Lung Cancer Screening

Demonstration Project

Decision aid tool



Votre gouvernement

Québec

If you are reading this decision aid tool, it is because you are interested in screening for lung cancer using low-dose computed tomography (low-dose CT), also known as computed axial tomography (CAT scan) or computed tomography (CT). If you are eligible for screening, you can choose to participate or not. The purpose of this decision aid tool is to provide you with the information you need to make an informed decision.

What is lung cancer?

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

Healthy lung

Lung with tumour

What is the significance of lung cancer in Quebec?

Lung cancer is one of the most common cancers. In both women and men, it causes more deaths than any other cancer.

In Quebec in 2020, there were approximately:

- 9,000 new lung cancer cases;
- 7,000 deaths from lung cancer.

One of the main explanations for this high number of deaths is that lung cancer is often diagnosed late, after it has started to spread. This spread often reduces the chance of cure, even with treatment.

What is the main cause of lung cancer?

The main cause of lung cancer is tobacco smoking. Smoking is responsible for more than 8 out of 10 lung cancers.

Who is at high risk of developing lung cancer?

People at highest risk of developing lung cancer are:

- those aged 55 to 74 who have been smoking for at least 20 years; or,
- who have quit for less than 15 years **AND** who have smoked cigarettes for at least 20 years.

A questionnaire measuring the risk of lung cancer, called the “PLCO”, will be used to assess if you are eligible for screening based on a high risk of developing lung cancer.

What is lung cancer screening?

Lung cancer screening primarily involves performing a CT scan for people at high risk, but who show no symptoms of the disease. This test aims to detect a multiplication of abnormal cells in the lungs at an early stage and helps to determine if they are cancerous.

What is the screening test for lung cancer?

It is the low-dose computed tomography (low-dose CT). This type of CT scan emits 5 times less radiation than a traditional CT scan. This scan provides three-dimensional images of the lung.

WHAT ARE YOUR OPTIONS FOR LUNG CANCER SCREENING?

You or your healthcare provider are considering participating in the lung cancer screening. You have two options:

1. **You can choose to participate in the screening with the low-dose computed tomography (low-dose CT);**
2. **You can choose not to participate in the screening.**

Each option has benefits and harms. Knowing these benefits and harms can help you make your decision, while taking into account what is most important to you.

THE BENEFITS OF

PARTICIPATING in the screening

Participating in lung cancer screening increases your chances that lung cancer will be found early enough in its development, allowing treatment to be more effective. This does not mean that lung cancer cannot be detected in time in people who do not get screened.

There is no data on lung cancer screening using low-dose CT in Quebec. However, data from a European study compared the two options over a 10-year period in people at high risk.

Lung cancers detected

Out of 1,000 people who participate in the screening, 52 cases of lung cancer will be detected. Of these 52 cases, 26 will be detected early enough in the development of the disease to be removed and cured.

Out of 1,000 people who do not participate in the screening, 46 cases of lung cancer will be detected. Of these 46 cases, 11 will be detected early enough in the development of the disease to be removed and cured.

Therefore, **15 more cases of lung cancer will be detected early enough in the development of the disease to be removed and cured** in 1,000 people screened, compared to those not screened.

Deaths from lung cancer

People who participate in the screening have a lower risk of dying from lung cancer than those who do not:

Out of 1,000 people, 23 deaths will occur in people screened compared with 31 deaths in those not screened. T**hus, 8 deaths are prevented.**

Screening, therefore, does not prevent all deaths from lung cancer.

Possible discovery of diseases other than lung cancer

Some diseases unrelated to lung cancer are detected with the Low-dose CT, especially in older people. The most common are heart, blood vessel, kidney, thyroid, and breast diseases. When these are seen on your scan follow-up medical evaluations may be necessary.

NOT PARTICIPATING in the screening

If you do not participate in the screening, you are less likely to experience the harms associated with participation in the screening.

THE HARMS OF

PARTICIPATING in the screening

As a result of screening for lung cancer, you may experience the following harms:

- false alarm or false positive result;
- discovery of lung cancer that would never have caused problems in your lifetime;
- the occurrence of lung cancer due to radiation.

False positive results

Because screening with low-dose CT alone is not enough to confirm if you have lung cancer or not, further examinations or procedures may be necessary.

If the result of the screening is a false alarm, these procedures will not provide you with any benefit and they are associated with the same risk of complications. Out of 1,000 people screened with low-dose CT, 34 people will have a false positive result, and up to 6 people will require a needle biopsy. Out of 1,000 people screened with low-dose CT, 5 to 13 will need surgery, which will cause major complications in less than 1 of these people.

Overdiagnosis

Sometimes, lung cancer that would never have caused problems is discovered using low-dose CTs. Some lung cancers grow very slowly. In the long run, they will not be the cause of health problems or cause death. According to United States data, using a specialized reporting system, lung cancers that may never have caused problems are detected in 4 out of 1,000 people screened and followed over a period of 6.5 years.

Medical radiation

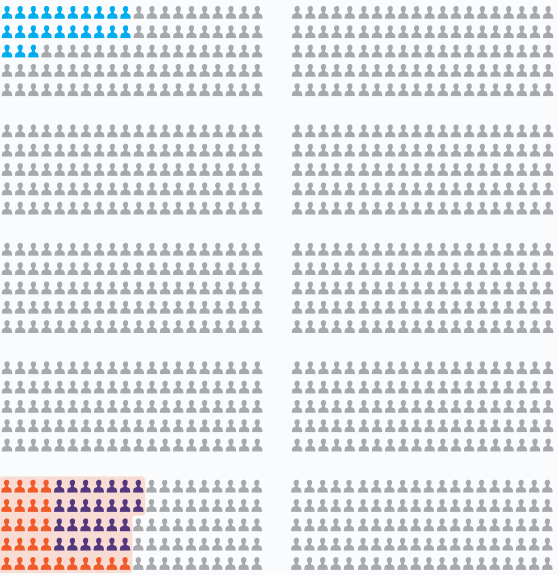
It is estimated that there is an extremely low risk that the radiation exposure from a low-dose CT will cause another type of cancer. However, the more CT scans you receive over a short time period, the greater your risk of lung cancer due to radiation.

NOT PARTICIPATING in screening

- Without screening, you cannot know if you have a lung cancer. It is therefore less likely that cancer will be detected early, when it is small.
- If a nodule is cancerous and is detected too late, it could have already spread in to other parts of your body. Out of 100 people who participate in the low-dose CT screening, 2 will have a cancer detected when it has spread outside the lungs, and it is too late to be removed.

WITH SCREENING:

Out of 1000 people

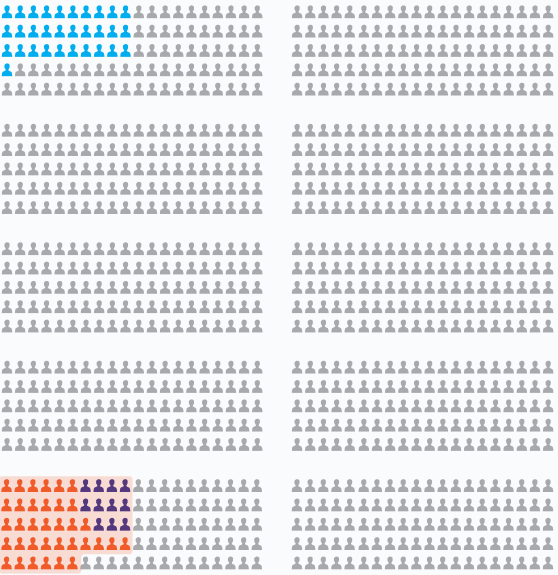


52 lung cancers detected
26 lung cancers detected early
23 deaths from lung cancer

8 deaths from lung cancer that are prevented by screening

WITHOUT SCREENING:

Out of 1000 people



46 lung cancers detected
11 lung cancers detected early
31 deaths from lung cancer

What are the consequences of overdiagnosis?

- It is not possible to predict whether the cancer will cause problems or not. That is why all cancers are treated. So, depending on the suspected cancer, treatment may be lung surgery, radiation therapy, and, rarely, chemotherapy. The medical team will present you with the treatments that best suit your situation.

What measures are in place to reduce the consequences of lung cancer screening?

- Every effort is made to ensure that the technical and interpretation procedures associated with the low dose CT are followed to reduce the number of false positives or false alarms. Therefore, the number of people for whom invasive procedures such as biopsy and surgery are unnecessarily requested, will also be reduced.
- If diseases are accidentally discovered during screening, such as heart, breast, thyroid or other non-cancerous lung problems requiring follow-up consultations, you will be referred to your family doctor or a designated doctor for investigations and management.
- Support to quit smoking is offered to all current smokers who participate in the screening.

Whether or not you decide to participate in the screening

- Watch out for suspicious symptoms of lung cancer:
  - a cough that gets worse and lasts longer;
  - coughing up blood;
  - the onset or worsening of shortness of breath
  - an unexplained weight loss or chest pain;

  and see a doctor as soon as possible to receive a diagnosis and treatment.
- You can decide not to participate in screening at this time. You can always participate at a later date if you are eligible.
- Quitting smoking considerably reduces the risk of developing many diseases, including several cancers and dying prematurely. Quitting smoking also improves overall health and quality of life. If you currently smoke, you can learn about the benefits of quitting smoking now. Consult the free resources available to help you: **Smoke Free Lifestyle | Government of Quebec** (quebec.ca).

What types of results can you receive from your screening test?

After undergoing the low-dose CT, you will receive one of the following three results:

- negative;
- indeterminate (requiring follow-up);
- positive or requiring further evaluation by a lung specialist.

Negative result

Most people receive a negative result. This is the case for 90 out of 100 people screened. A negative result signifies:

- there is no nodule detected;
- or, a nodule is detected, but the risk of it being cancerous is very low (less than 1%).

In this case, you will have another low-dose CT once a year.

Indeterminate result

Sometimes, the result is unclear. In this case, you should undergo a low-dose DCT within 2 to 6 months as recommended by the radiologist. This situation occurs in 5 out of 100 people screened.

After a negative or indeterminate result, annual screening may end if:

- you are no longer eligible for lung cancer screening, because of your age;
- your health condition would not allow for surgery if cancer was detected;
- your life expectancy is limited by a new disease.

Positive result or further evaluation required by a lung specialist

This result indicates the presence of one or more nodules suspected of being cancer. These nodules are not necessarily cancerous. Additional examinations need to be performed in order to confirm the presence or absence of cancer. The recommended examinations vary depending on the situation:

- When the nodule is unlikely to be cancerous, you will be offered a follow-up examination by low-dose CT according to the doctor's recommendations. In general, this happens to about 2 out of 100 people screened.
- When the nodule is more likely to be cancerous, further investigation is required. In general, this also happens to about 2 out of 100 people screened.

What is your decision?

a) **To participate in lung cancer screening with low-dose CT**

b) **Not to participate in screening**

c) **Not ready for a decision at this time**

If this tool is discussed with a healthcare professional and you have decided that you are "Not ready for a decision at this time", you will be contacted about a week later to finalize your decision about whether or not you should be screened.

How comfortable are you with your decision?

1. **Are you sure what is the best choice for you?**
   a) YES b) NO
2. **Do you know the benefits and harms of each of the options presented?**
   a) YES b) NO
3. **Do you feel that you know what is most important to you about the harms and benefits?**
   a) YES b) NO
4. **Did you have enough support to make your choice?**
   a) YES b) NO

If you answered NO to any of the previous questions, discuss your concerns with the healthcare professional who is assisting you in your decision.

Visit the *Gouvernement du Québec* website at: **Québec.ca/lungscreening** for more information on:

- the screening project and its services;
- low-dose computed tomography (low dose CT);
- additional examinations and their results.

For more information, call or write to the project coordination centre at

1 844 656-4312 or at
depistagecancerpoumon@ssss.gouv.qc.ca

Visit Québec.ca/lungscreening to learn more about the program and the development of this tool (authors, bibliographic references, the PLCO calculator, etc.)

This decision aid tool was developed by researchers from the Quebec SPOR Support Unit funded by the Canadian Institutes of Health Research and provincial partners including the *ministère de la Santé et des Services sociaux* and the *Fonds de recherche du Québec — Santé*. The tool is funded by the *ministère de la Santé et des Services sociaux du Québec*.

This decision aid tool was developed in June 2021 and will be updated over the next 12 months. Subsequent updates will be produced when:

- the Canadian Task Force on Preventive Health Care changes its recommendations on lung cancer screening;
- new data on lung cancer screening replaces current data;
- the Lung Cancer Screening Demonstration Project changes the support strategies for people eligible for screening.

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