

14 ways you can help prevent cancer



Recommendation 14 for Individuals on Organized cancer screening programmes

Take part in organized cancer screening programmes, as recommended in your country, for:

- Bowel cancer
- Breast cancer
- Cervical cancer
- Lung cancer

What is screening? Cancer screening involves regularly inviting people to take a test to detect and treat early to reduce the harmful impacts of cancer. Screening detects signs or abnormalities that might be associated with the presence of cancer in people who do not yet have any symptoms. Only a very small number of people who have been screened will receive a cancer diagnosis.

What happens after I am screened? Shortly after screening, you will receive your result. If the result is negative, there are no additional steps, and you will be offered screening again when you are next due. If the result shows something that needs to be checked, you will be invited for a further test before your next routine screen. A small number of people who are screened receive a cancer diagnosis. In most cases, cancer that is detected through screening is curable. This means that most screen-detected cases are caught before the disease spreads further and threatens your life. Screening must be planned and delivered in an effective way, ensuring that the screening test is linked to high-quality diagnosis and treatment.

Types of screening programmes

Opportunistic screening: Screening tests may be recommended by health-care professionals during routine medical consultations for unrelated conditions, or if an individual has a possible increased risk (e.g. due to family history or other risk factors) or has symptoms. Screening tests can also be performed as a result of self-referral by interested individuals.

Organized screening: All eligible people are actively invited for screening, following an explicit and pre-specified protocol that stipulates testing and assessment procedures, that is usually offered free of charge within an established and organized setting, such as an established and ongoing screening programme. The criteria of organized screening programmes vary between different countries.

What are the benefits and harms of cancer screening?

The potential benefits of cancer screening are:

- Screening can help to detect cancer at an early stage (before symptoms arise), which means that treatment is less aggressive and more likely to be successful and more people are likely to survive the cancer diagnosis, and have a better quality of life.
- Some forms of screening, such as bowel and cervical cancer screening, can prevent cancer by identifying and treating pre-cancerous lesions known to lead to cancer, such as bowel polyps and cervical lesions.
- Most people who are screened have a negative result, and screening has little impact on their lives.

The potential harms of cancer screening include:

- If a screening test suggests an increased risk of cancer, it may cause anxiety that can persist for some time, before further tests confirm with certainty the presence or absence of cancer.
- Sometimes the results from further assessment, done after a positive screening result, may turn out to be negative. These are known as false positive results and may cause anxiety and discomfort.

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- Some cancer cases detected through screening grow very slowly and might have never progressed and caused any health problems during the person's lifetime, even if they had remained undetected. This is called overdiagnosis, because detecting and treating these non-progressive cancers does not provide any benefit. However, knowing what would have happened without screening is impossible.

Screening programmes are offered when there is evidence that the benefits outweigh the harms for citizens. However, it is your choice whether you agree to take part in screening.

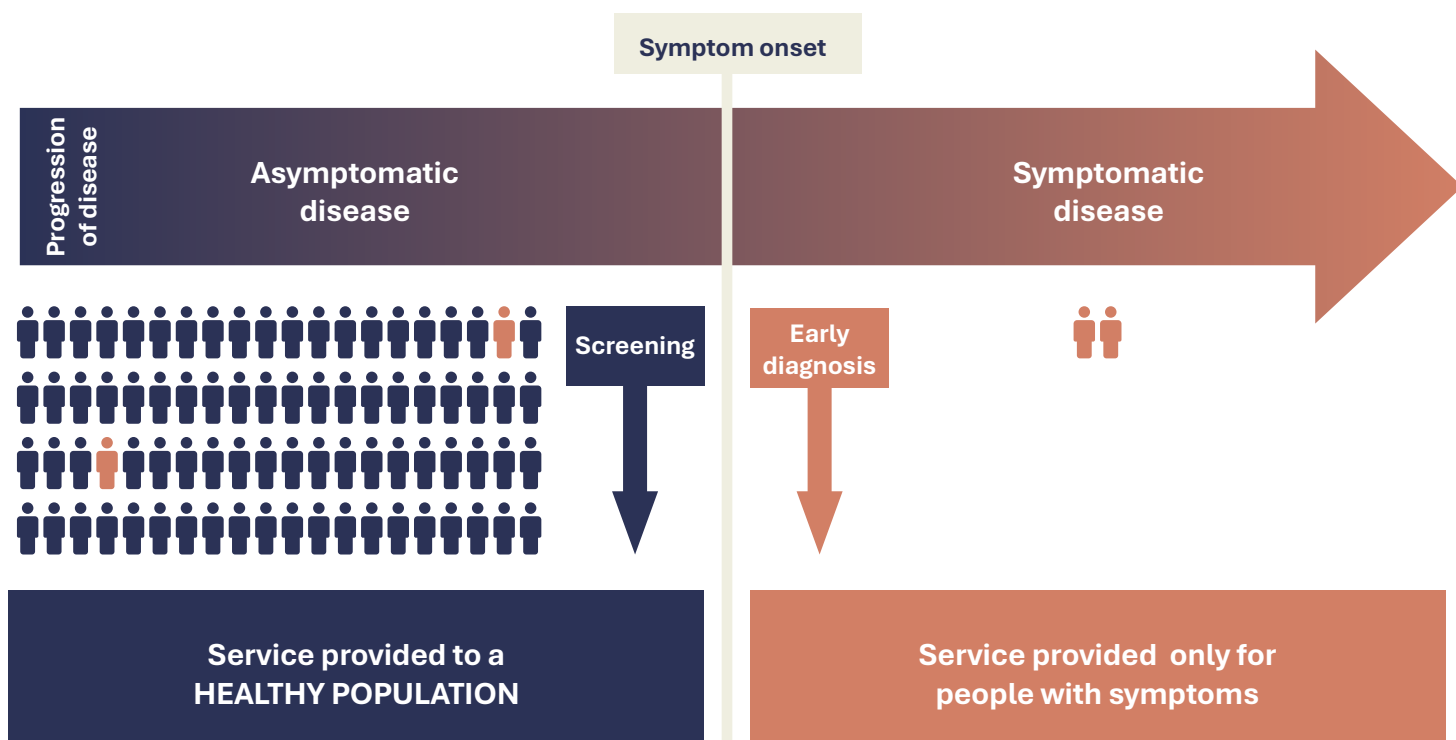


Figure 1: Distinguishing screening from early diagnosis in cancer according to symptom onset. Source: World Health Organization. Regional Office for Europe. (2020). Screening programmes: a short guide. Increase effectiveness, maximize benefits and minimize harm. World Health Organization. Regional Office for Europe. <https://iris.who.int/handle/10665/330829>. License: CC BY-NC-SA 3.0 IGO



Learn about policies that support screening programmes for bowel, breast, cervical and lung cancer

Most, but not all, EU Member States offer evidence-based organized population-based cancer screening programmes that have a potential to play a significant role in reducing the risk of cancer and related death. Some examples are:

- Programmes should be organized and implemented to reach a high coverage of the target population, as well as those that are hard-to-reach.
- Programmes should be sustainable, cost-effective and integrated into health systems.

Annex 1: Bowel cancer screening

Key summary

- Globally, bowel cancer is the second most frequent cause of death from cancer. It is the third most common cancer in men and the second most common cancer in women.
- Screening tests are effective in detecting cancer early or in removing precancerous disease.
- Recommended screening methods for bowel cancer include faecal immunochemical test (FIT) followed by a colonoscopy, or endoscopy (colonoscopy or sigmoidoscopy).
- Early detection leads to less-invasive treatments and a reduction in risk of dying of bowel cancer. Removing precursor lesions reduces both the risk of dying of bowel cancer and the risk of getting the disease.

Screening and bowel cancer

Europe is among the regions with the highest rates of bowel cancer cases and death. In 2022, bowel cancer was the second most commonly diagnosed cancer in the European Union (EU) (11.9% of all new cases) and the second most common cause of cancer death (12.2% of all cancer deaths).

Why is bowel cancer screening important? Screening can lower the risk of dying of bowel cancer or of getting the disease by identifying cancer at an early stage or removing pre-cancerous lesions (polyps) in people who do not yet have any symptoms.

What does bowel cancer screening involve? FIT is used in most population-based programmes as a screening test for bowel cancer. It tests for hidden (occult) blood in the stool, which can be an early sign of the disease. If the test result is positive, a colonoscopy examination is required to examine the bowel, to diagnose cancers (mainly at an early stage), or to detect and remove pre-cancerous lesions, if present. Endoscopy screening can be performed using either sigmoidoscopy or colonoscopy. Both tests are highly accurate in detecting early-stage bowel cancers and precancerous lesions.

What is the protective effect of screening for bowel cancer? FIT screening is linked with a decrease in bowel cancer cases and deaths. Finding blood in stools before symptoms appear may allow detecting early-stage cancers, which require less-invasive treatments and show a favourable prognosis, or it may decrease the risk of getting the bowel cancer if polyps are removed by colonoscopy.

A single sigmoidoscopy screening has a protective effect that lasts more than 20 years, with a 32% reduction of bowel cancer occurrence and a 36% reduction of death from bowel cancer among the people screened. A single colonoscopy screening has been shown to result in a

31% reduction of bowel cancer occurrence and a 50% decrease in deaths from bowel cancer at 10 years among the people undergoing the test.

What are the benefits and harms? Screening has some drawbacks, such as anxiety when having bowel cancer screening or waiting for the results, potential complications from endoscopy procedures, and the potential for false-positive results leading to further examinations. These harms are usually minor compared with the benefits of early detection of bowel cancer through screening.

Actions to reduce your cancer risk

If you are aged 50–74 years, participate in the bowel cancer screening programme offered in your country.

To achieve the expected benefit of FIT screening, you should respond to programme invitations, repeating the test at regular intervals, usually every 2 years. The benefit of endoscopy screening can be achieved by performing the test once in the lifetime. Ask your health-care professional for more information about the screening programme and the reasons for having screening.

Co-benefits for the prevention of non-communicable diseases (NCDs) with similar risk factors and opportunities for health promotion

Bowel cancer screening is not only about checking for bowel cancer; it also provides an opportunity to learn about lifestyle changes that can lower your risk of bowel cancer, such as exercising more and eating better (reducing the amount of red meat and alcohol consumed, and increasing your intake of vegetables and fibres). These healthy behaviours also reduce your risk of other types of cancer and NCDs and early death.

Check out the **Overweight and obesity, Diet, and Physical activity Fact Sheets** to learn more about bowel cancer.

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Annex 2: Breast cancer screening

Key summary

- Globally, breast cancer is the most commonly diagnosed cancer, and it has been the most common cause of cancer death in women in the past decades.
- Early detection of breast cancer through organized mammographic screening leads to less-aggressive treatment, resulting in fewer side-effects and better quality of life, increased survival, and reduced death from the disease.
- There is strong evidence that the benefits outweigh the harms for screening women aged 50–69 years with mammography. Women aged 45–49 years and 70–74 years should attend mammographic screening, if it is available.

Screening and breast cancer

In 2022, breast cancer was the most commonly diagnosed cancer in the EU (12.5% of all new cases) and the most common cause of cancer death in women (16.5% of all cancer deaths). Half of all the breast cancers diagnosed occurred in women aged 45–69 years. The incidence, survival, and mortality rates vary by age and between countries. Although breast cancer incidence is increasing, survival rates are improving, especially in northern and western Europe.

What causes breast cancer? The cause of breast cancer is not known, but there are some known risk factors. These include age, mammographic breast density, previous breast disease, hormonal factors, family history of breast cancer, genetics, weight, and alcohol consumption.

Why is breast cancer screening important? Mammographic screening can detect breast cancer at an early stage and thereby reduce mortality from the disease.

What does breast cancer screening involve? Mammographic screening every 2 years is beneficial for women aged 50–69 years, and also for women aged 45–49 years and 70–74 years. Sometimes additional examinations or other screening tests may be considered for women with increased risk of breast cancer, for example, for women with dense breasts.

What is the protective effect? Mammographic screening has been shown to reduce breast cancer mortality by 30–40% among women who attend screening programmes. The benefits are higher for those who attend regularly. The reduction in the risk of dying from breast cancer is greatly influenced by having treatment that is targeted to the individual woman and the type of breast cancer.

What are the benefits and harms? Early detection leads to less-aggressive treatment, resulting in fewer side-effects and better quality of life, increased survival, and fewer deaths from breast cancer. The harms of

mammographic screening include anxiety about the results and the stress caused by being recalled for further assessments that do not result in cancer being diagnosed. Other possible harms of screening are overdiagnosis and overtreatment, the detection and treatment of slow-growing cancers that probably would not have been detected if the women had not taken part in the screening. Although mammography uses X-rays, the radiation dose is very low.

Actions to reduce your cancer risk

If you are aged 50–69 years, participate in a breast cancer screening programme. To achieve the protective effect of breast cancer screening, respond to programme invitations and repeat the test regularly, around every 2 years. If you are aged 45–49 years or 70–74 years, take part in organized screening if this is available in your country.

Not all women have the same risk of breast cancer. Some women have high risk of breast cancer and may be invited for more frequent screening or offered additional tests. Visit your doctor if you notice a lump or other possible symptoms of breast cancer. Speak to your health-care professional if you have questions about the risk factors for breast cancer, and to learn more about the benefits and harms of screening and the reasons for having screening.

Co-benefits for the prevention of non-communicable diseases (NCDs) with similar risk factors and opportunities for health promotion

Breast cancer screening is not only about checking for breast cancer; it also provides an opportunity to learn about lifestyle changes that can lower your risk of breast cancer, such as maintaining a healthy body weight by eating a healthy diet and engaging in physical activity and avoiding alcohol consumption. These healthy behaviours also reduce your risk of several other types of cancer and NCDs.

Check out the **Overweight and obesity, Diet, Physical activity, Alcohol** and **Breastfeeding Fact Sheets** to learn more about breast cancer.

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Annex 3: Cervical cancer screening

Key summary

- Cervical cancer is caused by infection with any of 12 types of human papillomavirus (HPV) that are carcinogenic to humans.
- Girls and young women should be vaccinated against HPV. Adult women should regularly participate in cervical cancer screening.

Screening and cervical cancer

In 2022, an estimated 28 224 women were diagnosed with cervical cancer and 13 600 died from the disease. In eastern Europe, cervical cancer is the fifth most common cancer in women; in the other parts of Europe, it is ranked at position 13–15.

Why is cervical cancer screening important? Cervical cancer can be prevented most effectively by screening before the disease progresses in women who do not yet have any symptoms, because the precancerous lesions are on the surface of the cervix, and cervical cells can be easily collected for examination with a screening test.

What does cervical cancer screening involve? A health-care professional takes a sample by scraping cells from the surface of the cervix. The collected cervical cells can be either transferred onto a glass slide using the older Pap smear method or placed into a vial containing a preservative liquid for the newer liquid-based cytology [LBC] method. The slide or the vial is then sent to a laboratory for microscopic detection of abnormal cells or for molecular testing with an HPV assay. Pap smear can be used for cytological examination, whereas the LBC specimen can be used for cytological examination and HPV testing. HPV testing can also be performed on a sample taken by the woman herself. The self-sample will then be sent to a laboratory for detection of the virus.

A positive result is followed by a referral for diagnostic tests typically carried out by a gynaecologist, who will use a colposcope (a device that visualizes and magnifies the surface of the cervix) to take a biopsy. Often a triage test is done before referral to colposcopy. The treatment (by ablation or removal of the lesion) will be determined by the result of the biopsy.

What is the protective effect? High-quality screening followed by treatment of high-grade pre-cancerous lesions can reduce the number of cases of cervical cancer by about 66–75% among people who take part in screening.

HPV-based screening is more effective than cytology-based screening in preventing future pre-cancer and cancer of the cervix.

What are the benefits and harms of cervical cancer screening? Screening and treatment of pre-cancerous lesions has the advantage of protecting against cervical cancer and cervical cancer-related death. Screening is also associated with possible harms. Receiving a positive screening test result can cause anxiety and psychological stress, and there may be concerns about how, and from whom, the HPV virus was transmitted. Surgical treatment of cervical precancer can increase the risk of pre-term delivery and other adverse pregnancy outcomes if women become pregnant after such treatment.

Actions to reduce your cancer risk

If you are aged 30–64 years, participate in cervical cancer screening programmes at intervals no shorter than 5 years. If you are younger (aged 25–29 years), HPV testing may also have some advantages. You should participate in well-organized screening programmes to make sure you have access to appropriate screening methods, offered at the right age and time, which reduce the risk of overdiagnosis and unnecessary treatment. You can take your own sample at home, if this option is available in your country.

Speak to your health-care professional for more information about cervical cancer screening programmes, and to find out about the follow-up procedures if your screening test is positive

Co-benefits for the prevention of non-communicable diseases (NCDs) with similar risk factors and opportunities for health promotion

Offering cervical cancer screening to adult women can be an opportunity to promote healthy lifestyle and to recommend HPV vaccinations for their teenage children, if any. For people younger than 35 years who have not been vaccinated against HPV, an HPV vaccine can be offered when they are being screened. Other sexually transmitted infections and other anogenital lesions can be detected when a cervical sample is being collected.

Check out the **Smoking, Overweight and obesity, Diet, Physical activity, Alcohol** and **Cancer-causing infections Fact Sheets** to learn more about cervical cancer.

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Annex 4: Lung cancer screening

Key summary

- Lung cancer is most often diagnosed at a late stage, when treatment is less effective. This is one of the reasons why lung cancer is the most common cause of death from cancer globally.
- Screening with low-radiation-dose computed tomography (LDCT) scans often detects lung cancer at an early stage, before symptoms occur and when treatment is much more effective. This saves lives and prevents death from lung cancer in 1 out of 4 people in whom lung cancer has been detected.
- Screening is currently recommended for people with a high risk of developing lung cancer, that is people who currently smoke or have smoked in the past.

Screening and lung cancer

In 2022, lung cancer accounted for 11.6% of all new cancer cases and with 19.5% of cancer-related deaths. Lung cancer is the leading cause of cancer deaths in European Union (EU) Member States.

Why is lung cancer screening important? Without screening, people with lung cancer are usually diagnosed at a later stage. Although treatment is improving, few people can be cured at later stages and treatment has significant side-effects. The 5-year survival rates are poor (generally < 5%) when lung cancer is diagnosed at a later stage. With screening, more lung cancers are diagnosed at earlier stages. Lung cancer screening is targeted to people who have a higher risk and who have not yet had symptoms, so that lung cancer can be caught sooner. This includes mainly people who have ever smoked or continue to smoke tobacco.

What does lung cancer screening involve? LDCT screening is painless, and fast (5–10 minutes) and does not require any preparation.

What is the protective effect of screening? LDCT screening helps detect and treat lung cancer early in people with a higher risk. This has prevented death from lung cancer in about 1 in 4 people in whom it was detected.

What are the benefits and harms of screening? The benefits of lung cancer screening outweigh the harms. Screening increases the possibility of detecting lung cancer early in people with a high risk of developing lung cancer. Detecting early-stage lung cancer gives better treatment options and reduces the risk of dying from lung cancer. Although LDCT uses X-rays, the radiation dose is very low.

The possible harms of screening can be either physical (as further tests or treatment may be needed) or psychological (from anxiety related to the results). LDCT screening can also detect other diseases that might be present in the heart, lungs, or upper abdomen. This may require further tests and treatment that may be of benefit but can also cause harm, such as detecting cancers or other diseases that would not have progressed and for which treatment would not have been necessary.

Actions to reduce your cancer risk

Participate in organized lung cancer screening if you are identified as having a higher risk of lung cancer. It is recommended that people aged 55–74 years who have a higher risk of lung cancer participate in organized lung cancer screening programmes. This typically includes people who have a history of smoking tobacco. Other factors, such as chronic obstructive pulmonary disease (COPD), a family history of lung cancer, or exposure to air pollution, may contribute to an increased risk.

Having a scan every year is best. However, extending the screening interval to two years, if the previous scan showed no or a small abnormality suggesting possible lung cancer, will likely become an option in the near future. It is not recommended to have more than 2 years between screens.

If the LDCT screen is negative, participants are encouraged to attend the next screen in 1 or 2 years. If the result is uncertain, an additional LDCT scan may be needed. A positive screen will result in referral for further tests to confirm whether lung cancer is present.

Speak to your health-care professional about your eligibility for lung cancer screening. The eligibility criteria include age, history of tobacco smoking, family history of lung cancer, and exposure to air pollution. You should discuss the benefits and harms of screening.

Support to quit smoking may be available for people who smoke alongside the offer of LDCT screening, which can increase the chances of successfully quitting smoking.

Visit your doctor if you have possible symptoms of lung cancer. Although a negative LDCT screen is reassuring, it is still important to check with your doctor if you have possible symptoms of lung cancer, which can sometimes appear between rounds of screening. Lung cancer can develop quickly, so seek medical help if you have one or more of the following symptoms: persistent cough, shortness of breath, coughing up blood or rust-coloured sputum, unexplained weight loss, or loss of appetite.

Co-benefits for the prevention of non-communicable diseases (NCDs) with similar risk factors and opportunities for health promotion

In high-income countries, such as those in the EU, about 85% of lung cancer cases are caused by smoking. Smoking is the strongest risk factor for lung cancer. Other risk factors may be related to smoking, such as having a history of COPD and living in more disadvantaged areas, or may not be related to smoking, such as having a family history of lung cancer and being older. Air pollution and exposure to asbestos are other risk factors that may or may not be related to smoking. Due to historical smoking patterns, more men than women are diagnosed with lung cancer, although lung cancer rates in women are increasing and in some countries are similar to those in men.

Participation in screening is a good motivator to quit smoking. Stopping smoking reduces your risk of several serious diseases, such as lung cancer, chronic lung diseases, and heart diseases.

Check out the **Smoking, Exposure to other people's tobacco smoke, Cancer-causing factors at work, Indoor radon gas, and Air Pollution Fact Sheets** to learn more.

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