WE ARE MACMILLAN. CANCER SUPPORT

Breast cancer: English

Breast cancer

This fact sheet is about how breast cancer is diagnosed and treated.

Most people diagnosed with breast cancer are women. Men can get breast cancer too but it is rare.

We also have fact sheets in your language about surgery, radiotherapy, chemotherapy, side effects of cancer treatment, what you can do to help yourself, claiming benefits and end of life.

We hope this fact sheet answers your questions. If you have any more questions, you can ask your doctor or nurse at the hospital where you are having treatment.

If you would like to talk to our cancer support specialists about this information in your language, we have interpreters for non-English speakers. You can call the Macmillan Support Line free on **0808 808 00 00**, Monday–Friday, 9am–8pm. If you have problems hearing you can use textphone **0808 808 0121**, or Text Relay. Or you can go to our website **macmillan.org.uk**

This fact sheet is about:

- What is cancer?
- The breasts
- Causes and risk factors
- Symptoms
- Tests
- Types of breast cancer
- Staging and grading
- Treatment
- Clinical trials
- Follow up
- Your feelings
- More information in your language

What is cancer?

The organs and tissues of the body are made up of tiny building blocks called cells. Cancer is a disease of these cells.

Cells in each part of the body are different but most mend and reproduce themselves in the same way. Normally, cells divide in an orderly way. But if the process gets out of control, the cells carry on dividing and develop into a lump called a tumour.

Not all tumours are cancer. Doctors can tell if a tumour is cancer by removing a small sample of tissue or cells from it. This is called a biopsy. The doctors examine the sample under a microscope to look for cancer cells.

In a benign (non-cancerous) tumour, the cells may grow but cannot spread anywhere else in the body. It usually only causes problems if it puts pressure on nearby organs.

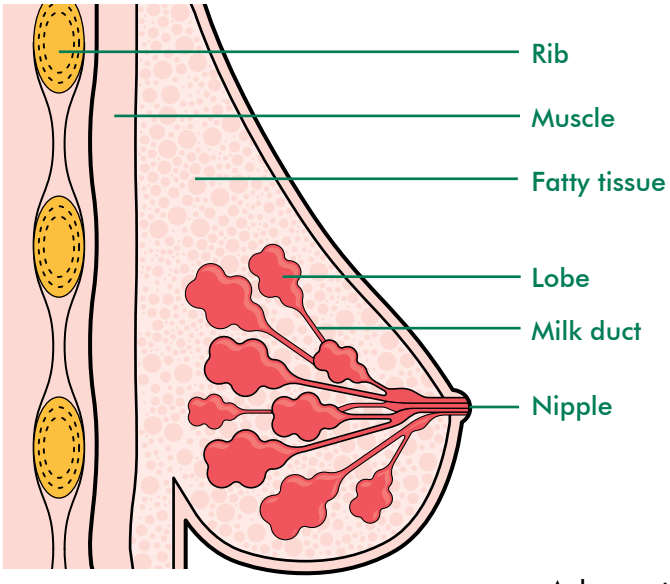
In a malignant (cancerous) tumour, the cells grow into nearby tissue. Sometimes, cancer cells spread from where the cancer first started (the primary site) to other parts of the body. They can travel through the blood or lymphatic system.

The lymphatic system helps to protect us from infection and disease. It's made up of fine tubes called lymphatic vessels. These connect to groups of bean-shaped lymph nodes (glands) all over the body.

When the cells reach another part of the body they begin to grow and form another tumour. This is called secondary cancer or a metastasis.

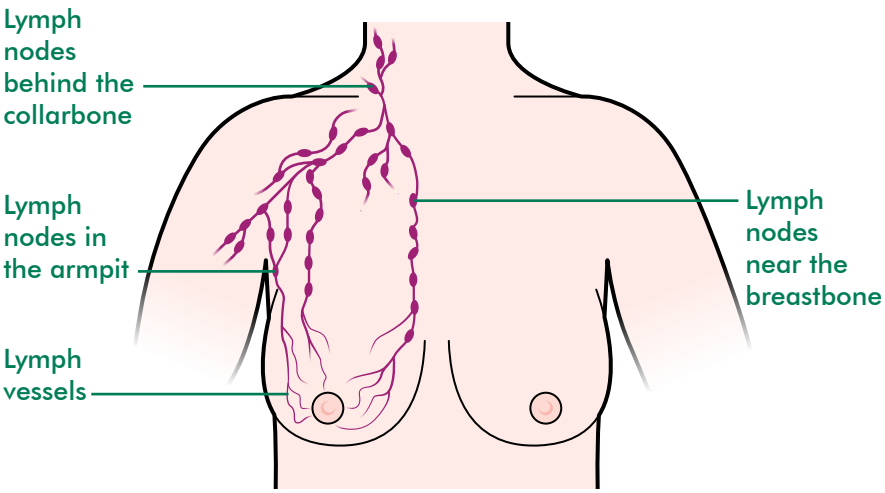
The breasts

The breasts are made up of fat, supportive tissue and glandular tissue that contains lobes. The lobes (milk glands) are where breast milk is produced. These are connected to the nipple by a network of milk ducts.



A breast

Under the skin, an area of breast tissue goes into the armpit (axilla). The armpits also contain a collection of lymph nodes (glands), which are part of the lymphatic system. There are also lymph nodes just by the breastbone and behind the collarbone.



The lymph nodes near the breast

Breast cancer occurs when cells within the breast ducts and lobes become cancerous.

Causes and risk factors

We don't know what causes breast cancer. There are some risk factors that can increase your chances of getting it.

- Age – The risk of developing breast cancer increases with age.
- If you have had cancer or other breast conditions before
- Hormonal factors – Exposure to the hormones oestrogen and progesterone for long periods can affect your breast cancer risk.
- Lifestyle factors – These include drinking more than two units of alcohol a day over many years, being overweight and smoking heavily.
- Family history – Only 5–10% of breast cancers are thought to be caused by an inherited breast cancer gene. Talk to your doctor if you are worried about your family history.

Breast cancer is not infectious and cannot be passed on to other people.

Symptoms

These can include:

- a lump in the breast
- a change in size or shape of the breast
- dimpling of the skin or thickening of breast tissue
- a nipple that is turned in (inverted)
- a rash on the nipple
- discharge from the nipple
- swelling or a lump in the armpit.

If you have any of these symptoms, get them checked by your GP. All of them can be caused by illnesses other than cancer.

Tests

You should see your GP if you are worried about breast cancer. They will refer you to a breast clinic to see a specialist doctor or nurse. Some women are referred through the breast screening programme.

At the breast clinic

In many clinics you can have tests and get the results on the same day. Sometimes you may need to come back for more tests and wait up to a week for the results.

At the clinic you will see a breast specialist (a surgeon). They will ask if you have had any breast problems before and about your family history of cancer.

The specialist will examine your breasts and under your arms. They will explain which tests you need.

A **mammogram** is a low-dose x-ray of the breast.

You'll be asked to take off your top and bra and may have to wear a gown before the mammogram. The radiographer (who takes the x-ray) will position you so your breast is against the x-ray machine. Your breast is then flattened and pressed with a flat, plastic plate. This keeps the breast still to get a clear picture. It can be uncomfortable and a little painful, but does not last long. You have two mammograms of each breast.

Mammograms are usually only done on women over 40.

A **breast ultrasound** uses sound waves to build up a picture of the breast.

You'll be asked to take off your top and bra, and lie down on a couch with your arm above your head. The person doing the scan puts a gel onto your breast and moves a small hand-held device around it. A picture of the inside of the breast shows up on a screen. It only takes a few minutes and doesn't hurt.

An ultrasound is more useful than a mammogram in women under 40.

Fine needle aspiration (FNA) is a simple test done in the x-ray department or the breast clinic. The doctor uses x-ray or ultrasound guidance to make sure the cells are taken from the right area. Using a fine needle, your doctor takes some cells from the lump into a syringe. The sample is sent to the laboratory to check for cancer cells.

It can be uncomfortable when the needle goes in, but it's usually over quickly. Your results may be ready on the same day. You may feel sore for a few days afterwards – taking some mild painkillers should help.

Ultrasound and FNA of the lymph nodes You'll also have an ultrasound of the lymph nodes in the armpit. If any of the nodes feel swollen or look abnormal on the ultrasound, the doctor will do an FNA on them.

Biopsy This is when a small piece of tissue is removed from the lump or abnormal area and looked at under a microscope. There are different types of biopsy. Your surgeon or breast care nurse can explain which type you will have.

After a biopsy your breast can be bruised and feel sore for a few days. You can take painkillers until it eases.

Further tests

If breast cancer is confirmed then you may have some other tests to prepare for an operation or to find out more about the cancer. These tests include:

- Blood tests
- Chest x-ray
- MRI scan
- CT scan

Your doctor or nurse will explain which tests you are having and what they involve.

Waiting for test results can be an anxious time for you. It may help to talk about your worries with a relative or friend. You could also speak to one of our cancer support specialists in your language on **0808 808 00 00**.

Types of breast cancer

The most common type of breast cancer is **invasive ductal breast cancer**. There are several other types of breast cancer but they are treated in similar ways.

Staging and grading of breast cancer

Knowing the stage and grade of your cancer helps doctors decide the right treatment for you.

Staging

Breast cancer can be divided into four stages:

- **Stage 1** The cancer is small and only in the breast
- **Stages 2** or **3** The cancer has spread into areas around the breast.
- **Stage 4** The cancer has spread to other parts of the body.

Grading

Grading shows how the cancer cells look under the microscope compared with normal breast cells.

- **Grade 1 (low-grade)** – The cancer cells look similar to normal cells and grow very slowly.
- **Grade 2 (moderate-grade)** – The cancer cells look more abnormal and are slightly faster growing.
- **Grade 3 (high-grade)** – The cancer cells look very different from normal cells and tend to grow quickly.

Hormone receptors

Hormones exist naturally in the body. They help to control how cells grow and what they do in the body. Some breast cancer cells have receptors which allow the hormones oestrogen and progesterone to attach to the cancer cell. If there are a large number of oestrogen receptors it is known as oestrogen receptor positive or ER positive breast cancer. If not, it's known as oestrogen-receptor negative or ER negative breast cancer.

Many ER positive breast cancers respond well to hormonal treatments.

Protein receptors

Some breast cancers have receptors for the protein HER2 (human epidermal growth factor 2). Cancers that have high levels of these receptors are called HER2 positive breast cancers. They respond well to treatment with trastuzumab, which is commonly called Herceptin®.

Treatment

Deciding on the best treatment isn't always easy. Your doctor will need to think about a lot of things. The most important of these are:

- your general health
- the stage and grade of the cancer
- the likely benefits of treatment
- the likely side effects of treatment
- your views about the possible side effects.

It's important to talk about any treatment with your doctor, so that you understand what it means. It's a good idea to take someone with you who can speak both your language and English. Interpreters may be available if you need one, but try to let the hospital know before if you would like one to be there.

The main treatment for breast cancer is surgery. Other treatments are also often given to reduce the risk of the cancer coming back. These can include radiotherapy, hormonal therapy, chemotherapy and biological therapy.

You may have a breast care nurse who can talk to you about treatment as well as help with any problems you may have in between appointments.

You will be asked to sign a consent form to show that you understand and agree to the treatment. You will not have any treatment unless you have agreed to it.

Surgery

Surgery is often used to remove the cancer and an area of healthy cells all around the cancer. Sometimes the whole breast may need to be removed (mastectomy) and sometimes just the cancer may be removed (lumpectomy or wide local excision).

If you have a lumpectomy, you will usually be advised to have radiotherapy to the remaining breast tissue afterwards. You may also need to have radiotherapy after a mastectomy.

Research has shown that in early breast cancer a lumpectomy followed by radiotherapy is as effective at curing cancer as a mastectomy. You may be asked to choose the treatment which suits you best. The different treatments have different benefits and side effects, so this can be a difficult decision to make. You can talk about both options with your doctor or nurse, or our cancer support specialists.

It's often possible for women who have a mastectomy to have their breast reconstructed. It can be done at the same time as the mastectomy. It can also be done months or years after the operation. There are different methods of breast reconstruction and your surgeon can discuss the options that may be suitable for you.

After a mastectomy, the doctor will give you an artificial breast, which you can put inside your bra. You can wear it straight away after the operation when the area feels tender. When your wound has healed, you will be fitted with a permanent prosthesis (false breast).

Checking the lymph nodes As part of any operation for breast cancer, the surgeon will usually remove some or all of the lymph nodes. They are taken from under your arm on the side of the cancer. The lymph nodes are looked at under a microscope. This is to check if there is cancer in them. They also give more information about the stage of the cancer. This helps the doctor decide if you need further treatment to reduce the risk of the cancer coming back.

If any of the nodes contain cancer cells, you may need an operation to remove all the lymph nodes. Some women may have radiotherapy to the lymph nodes instead of surgery. There is an increased risk of developing swelling of the arm called lymphoedema after all the lymph nodes are removed. Your doctor or nurse can talk to you about this in more detail.

We have more information in your language about how surgery is planned and what to expect after the operation.

Radiotherapy

Radiotherapy treats breast cancer by sending high-energy rays from outside the body to destroy the cancer cells, while doing as little harm as possible to normal cells. Radiotherapy is often used after surgery for breast cancer. It may also be used before, or instead of, surgery.

If part of the breast has been removed (lumpectomy), radiotherapy is usually given to the remaining breast tissue to reduce the risk of the cancer coming back in that area.

After a mastectomy, you may be given radiotherapy to the chest wall if your doctor thinks there is a risk that any cancer cells have been left behind.

If a few lymph nodes have been removed and cancer was found in them, or if no lymph nodes have been removed, you may be given radiotherapy to the armpit. This will treat the remaining lymph nodes.

If all the lymph nodes have been removed from under the arm, radiotherapy to the armpit is not usually needed.

We have more information in your language about how radiotherapy is planned and given, and some of its side effects.

External radiotherapy does not make you radioactive and it is safe for you to be with other people, including children, after your treatment.

We have more information in your language about how radiotherapy is given and some of the side effects you may have.

Chemotherapy

Chemotherapy is a treatment that uses anti-cancer (cytotoxic) drugs to destroy cancer cells. The drugs are usually given by injection into a vein or taken as a tablet. They are carried in the blood and can reach anywhere in the body.

It can be given to shrink a large cancer before surgery. If it shrinks the cancer successfully, only part of the breast may be removed.

Chemotherapy is often given after surgery to reduce the risk of breast cancer coming back.

We have more information in your language about how chemotherapy is given and some of the side effects you may have.

Hormonal therapies

Hormones help to control how cells grow and what they do in the body. Hormones, particularly oestrogen, can encourage some breast cancers to grow. Hormonal therapies reduce the level of oestrogen in the body or prevent it from attaching to the cancer cells. They only work for women with oestrogen-receptor positive cancers (see the section on Hormone receptors).

You may have hormonal therapy before surgery to shrink a large cancer.

You may also have it to reduce the risk of breast cancer coming back and to protect your other breast. You will usually have hormonal therapy for many years. Your cancer specialist will start your hormonal therapy after your surgery or chemotherapy.

The type of hormonal therapy you have depends on:

- whether you've been through the menopause or not
- the risk of the cancer coming back
- how the side effects are likely to affect you.

After the menopause, the ovaries no longer produce oestrogen. But women still make some oestrogen in their fatty tissue. If you have been through your menopause, your doctor may prescribe

- an anti-oestrogen drug (such as tamoxifen)
- an aromatase inhibitor (such as anatrozole, letrozole, exemestane)
- or a combination of the two.

Before the menopause, the ovaries produce oestrogen. If you haven't been through the menopause (pre-menopausal), your doctor may prescribe the anti-oestrogen drug tamoxifen. They may also prescribe Zoladex®, which stops the ovaries producing oestrogen and stops your periods. These effects usually stop when treatment ends. Zoladex is given as an injection under the skin of the tummy every month.

Hormonal therapies can cause side effects similar to menopausal symptoms, such as:

- hot flushes and sweats
- joint pain
- low sex drive.

Stopping the ovaries from working (ovarian ablation)

Another way to lower oestrogen levels is to stop the ovaries working. This is called ovarian ablation. It can be done with a small operation to remove the ovaries or, rarely, with a short course of radiotherapy to the ovaries.

Both methods cause a permanent menopause. It can be difficult to deal with a permanent menopause when you are already dealing with breast cancer. Becoming infertile can be very hard for women who were hoping to have children.

Targeted treatment

Trastuzumab (Herceptin®) is a type of biological therapy called a monoclonal antibody. It is used to reduce the risk of breast cancer coming back in women who have HER2 positive breast cancer (see the section on Hormone receptors).

The side effects of Herceptin are usually mild. Some you can get while you are having the drug or for a few hours after. Others happen a few days or weeks later. Your doctor or nurse can talk to you about these side effects before you start treatment.

Contraception – You should avoid getting pregnant for two years after breast cancer treatment. Your doctor will advise you not to use contraception that contains hormones. This includes the pill and some coils that release hormones.

Coils that don't contain hormones or barrier methods are usually the most suitable. These include condoms or the cap. Your breast care nurse can give you advice.

Hormone replacement therapy – Doctors don't recommend hormone replacement therapy (HRT) because it contains oestrogen. This could encourage breast cancer cells to grow. If your menopausal symptoms are severe and nothing else has helped, some doctors may occasionally prescribe HRT. You will need to talk to your doctor to understand the possible risks.

Clinical trials

Cancer research trials are carried out to try to find new and better treatments for cancer. Trials that are carried out on patients are called clinical trials. Many hospitals now take part in these trials. Speak to your doctor about current breast cancer research.

Follow up

After your treatment has finished you will have regular check-ups and mammograms. These will be every few months at first but eventually you may only have them once a year. Sometimes, instead of routine appointments, you will be asked to contact your specialist if there is anything you are worried about.

Your feelings

You may feel overwhelmed when you are told you have cancer and have many different emotions. These can include anger, resentment, guilt, anxiety and fear. These are all normal reactions and are part of the process many people go through in trying to come to terms with their illness.

More information in your language

- Chemotherapy fact sheet
- Claiming benefits fact sheet
- Large bowel cancer fact sheet
- Lung cancer fact sheet
- Prostate cancer fact sheet
- Radiotherapy fact sheet
- Side effects of cancer treatment fact sheet
- Surgery fact sheet
- What you can do to help yourself fact sheet

This fact sheet has been written, revised and edited by Macmillan Cancer Support's Cancer Information Development team. It has been approved by our medical editor, Dr Tim Iveson, Consultant Clinical Oncologist.

With thanks to Karen Sheen, Oncology UGI Nurse; Lynn Moffatt, CNS Breast Care; and the people affected by cancer who reviewed this fact sheet.

We have used information from many reliable sources to write this fact sheet. These include:

- *Early and localised breast cancer: diagnosis and treatment*. February 2009. National Institute for Health and Care Excellence (NICE).
- Primary breast cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. ESMO Guidelines Working Group. *Annals of Oncology*. 2013. 24 Supplement 6.