

Breast Cancer Care is the UK's leading provider of information, practical assistance and emotional support for anyone affected by breast cancer. Every year we respond to over two million requests for support and information about breast cancer or breast health concerns. All our services are free.

We are committed to campaigning for better treatment and support for people with breast cancer and their families.

For more information visit www.breastcancercare.org.uk or call the Breast Cancer Care helpline free on **0808 800 6000** (for Tynetalk prefix **18001**).

Understanding your pathology report

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For more information visit www.breastcancercare.org.uk or call the Breast Cancer Care helpline free on **0808 800 6000** (for Typetalk prefix **18001**). Calls may be monitored for training purposes. Confidentiality is maintained between callers and Breast Cancer Care.

A large print version of this booklet can be downloaded from our website, www.breastcancercare.org.uk. It is also available in Braille on request. Call 0845 092 0808 for more information.

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Introduction

A pathology report shows the results of any tests done on tissue removed from the body. This booklet tells you about the information in your pathology report when you have breast cancer, and explains the different terms and what your test results mean.

Your pathology report is one of the first pieces of information you'll get, and we hope this booklet helps you to understand your tissue results, and to ask questions if you need your doctors to explain anything more clearly.

If you have further questions or would like more information, please call our free helpline on **0808 800 6000** (for Typetalk prefix **18001**).

What is a pathology report?

Pathology is the branch of medicine that looks at how disease affects the body's cells and tissues. Each time you have tissue removed – for example, if you have a biopsy, breast-conserving surgery or a mastectomy (removal of the breast) – a report is written by a pathologist (a doctor who examines the tissue).

The information in these pathology reports helps your specialist team decide which treatments will work best for you. The amount of detail in each report will depend on what tissue you've had removed.

Not all the results will be included in every report. For example, a biopsy of a breast lump is much smaller and won't contain information about lymph nodes in the armpit. So in some cases you may need to wait for all your pathology reports from further surgery before a full treatment plan can be decided.

For more information on different types of surgery please see our **Treating breast cancer** booklet.

Waiting for your results

Waiting for your tissue results can be very hard. How long you have to wait depends on the type of surgery you've had and where you're treated. Some tests can take longer than others and different tests may be done in different laboratories.

Biopsy results may be ready in a few days (sometimes even the same day), while results from breast-conserving surgery or a mastectomy can take between one and two weeks. Your doctor or breast care nurse should be able to tell you when your results will be ready.

When you're first given your results you may find it hard to take it all in. If you're told anything about your test results that you don't understand, do ask your doctor or breast care nurse to explain. You may also want to ask for a copy of your pathology report to read later in your own time.

What's in a pathology report?

Not all pathology reports will look the same. Different hospitals will put the information in a different order, and may use different words and terms to explain the same thing.

Your pathology report starts with **general information** such as your name, date of birth and hospital number, as well as your doctor's name and the date of your surgery.

This is usually followed by a description of the breast tissue before it's looked at under a microscope. This section of the report is called the **gross** or **macroscopic description** and includes information about:

- the size, weight and appearance of the tissue
- where it was in the breast before it was taken out
- how it was prepared for the microscope.

Next follows the **microscopic description**, which points out all the features of the cancer seen under a microscope. Finally, there is a **summary** of the main points, sometimes in a list at the end of the report.

Remember that all the information in the pathology report is considered together when deciding about which treatments to offer you and their likely benefits. No one piece of information should be looked at on its own – it always needs to be related to all the other information in the report.

Information about your breast cancer

What type of breast cancer is it?

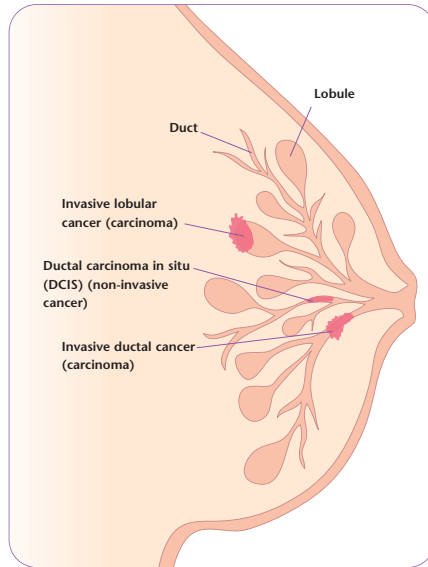
There are several different types of breast cancer. The breasts are made up of lobules (milk-producing glands) and ducts (tubes that carry the milk to the nipple). When the cancer cells start in the lobules it's called **lobular cancer** (or carcinoma). When the cancer cells start in the ducts it's called **ductal cancer** (carcinoma).

Most types of breast cancer are invasive (for example **invasive lobular cancer**, **invasive ductal cancer**). This means that they can spread to other parts of the breast or through the lymph system or bloodstream to somewhere else in the body. If you have invasive breast cancer it doesn't mean the cancer has or will spread, just that it has the potential to. When breast cancer has spread to other parts of the body it's called **secondary**, **advanced** or **metastatic** breast cancer.

Some breast cancers have not spread outside the walls of the ducts. This is called **non-invasive cancer**. Another term for non-invasive cancer is **in situ**. So if you're told you have **ductal carcinoma in situ (DCIS)** it means you have a cancer that has not yet spread within the breast tissue.

It's possible for someone to have areas of both non-invasive and invasive breast cancer at the same time.

Different types of breast cancer



Invasive ductal is the most common breast cancer and is sometimes called **no special type** (or **NST**) in the pathology report. The second most common type of breast cancer is invasive lobular.

There are other rare sub types of breast cancer that may also be named in the report. These sub types have patterns of cells that make them different from each other, and include **tubular**, **cribriform**, **mucinous** (also known as **colloid**), **medullary**, **papillary**, **micropapillary**, **inflammatory**, **metaplastic** and **Paget's disease**.

The different types may affect the features of your breast cancer and how it grows and so may also affect the treatments recommended for you.

Treatment options

Different treatments may be recommended depending on the type of breast cancer you have. Do ask your doctors if you want to know why they want you to have a particular treatment.

You may also find it useful to read our **Treating breast cancer** booklet.

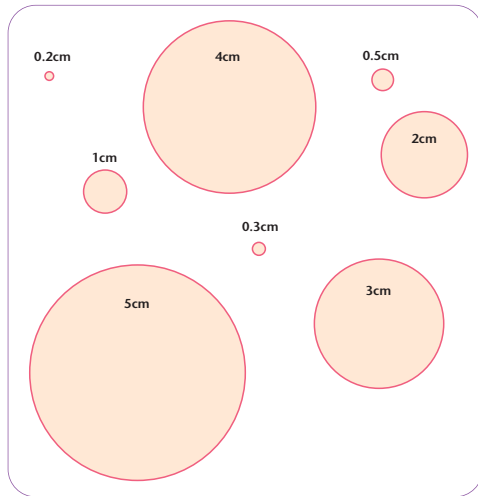
You may want to ask:

- Is the breast cancer invasive or non-invasive?
- What type of breast cancer do I have?

How big is the breast cancer?

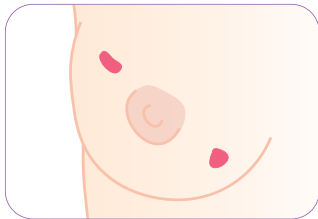
The **size** (diameter) of the breast cancer is usually measured in centimetres. Although in general smaller cancers may have a better outcome, size doesn't always give the whole picture – for example, how fast the cancer is growing. It's possible for a small cancer to grow very quickly, while a larger cancer may have been growing slowly over a long time.

Size in centimetres

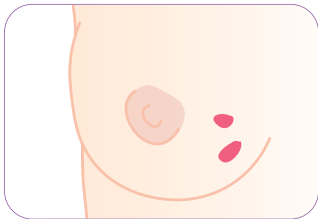


Sometimes there may be more than one area of breast cancer. In this case each area is measured. **Multi-centric** means there is more than one area of breast cancer in different quarters of the breast. **Multi-focal** means more than one area has been seen but only in one quarter of the breast.

Multi-centric breast cancer



Multi-focal breast cancer



Treatment options

You're more likely to have chemotherapy if your breast cancer is larger than 2cm, but this will also depend on the other results from the pathology report. This is because larger cancers may have been there longer before being found and so may have had more chance to spread.

You may also find it useful to read our **Chemotherapy for breast cancer** booklet.

You may want to ask:

- What size is the breast cancer?
- Is there more than one area of breast cancer?

What grade are the breast cancer cells?

Cancer cells are given a **grade** according to how different they are to normal breast cells and how quickly they are growing. In your pathology report this is called **differentiation**.

There are three grades:

- **grade 1 (well differentiated)** cancer cells look most like normal cells and are usually slow-growing
- **grade 2 (moderately differentiated)** cancer cells look less like normal cells and are growing faster
- **grade 3 (poorly differentiated)** cells look most changed and are usually fast-growing.

With ductal carcinoma in situ (DCIS) the three grades are usually called low, intermediate and high instead of 1, 2 or 3.

Treatment options

People with grade 3 invasive breast cancers are more likely to be offered chemotherapy to help destroy any cancer cells that may have spread as a result of the cancer being faster growing.

You may want to ask:

- What grade is the breast cancer?

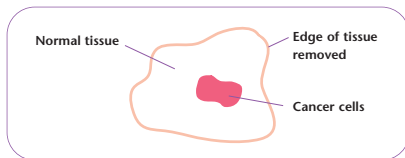
Has the breast cancer been completely removed?

Your pathology report will say how close the cancer cells are to the edges of the whole area of tissue that was removed. This is called the **surgical margin**.

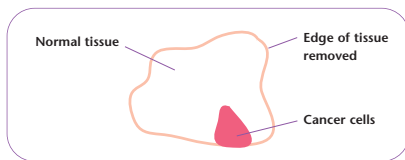
It's important that the cancer is removed with an area of normal, healthy tissue around it to make sure no cancer cells have been left behind.

- **Negative (clear) margins** mean no cancer cells were seen at the outer edge of the tissue removed.
- **Positive margins** mean the cancer cells do reach the edge of the tissue.

Negative (clear) margins



Positive margins



Treatment options

If you have negative or clear margins it's unlikely you'll need more surgery. If you have positive margins you may need to have another operation to take out more tissue and this may sometimes mean having a mastectomy to ensure all the cancer has been removed.

You may want to ask:

- Has all the breast cancer been removed?

Are there any breast cancer cells in the lymph vessels or blood vessels?

The breast also contains networks of lymph vessels and blood vessels that connect the breast to the rest of the body. If breast cancer cells break through into the walls of these vessels (invade) it's called **lympho-vascular invasion**. This increases the chances of the breast cancer spreading to somewhere else in the body. The pathology report will say if any lympho-vascular invasion has been seen in the tissue removed during surgery.

Treatment options

People with lympho-vascular invasion are more likely to have chemotherapy recommended to help destroy any cancer cells that may have got in to the lymphatic system or bloodstream.

You may want to ask:

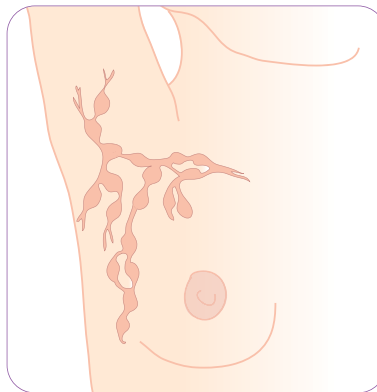
- Are there any signs of lympho-vascular invasion?

Are there any breast cancer cells in the lymph nodes?

Our bodies have a network of lymph vessels that drain into the lymph nodes (glands) in the armpit (axilla). There are about 20 lymph nodes in the armpit, though this can vary from person to person.

Breast cancer cells can spread to the lymph nodes so if you have invasive cancer a number of nodes may be removed during surgery. These are then checked to see whether or not they contain any cancer cells.

Lymph nodes in the armpit



- **Negative lymph nodes** mean the lymph nodes tested are free of cancer cells.
- **Positive lymph nodes** mean they do contain cancer cells. The pathology report will state how many lymph nodes were removed during surgery and how many contain breast cancer cells. This is often written as a number. For example, 2/10 means 10 lymph nodes were removed and 2 contained cancer cells. The more positive lymph nodes there are, the higher the likelihood that the cancer has spread to somewhere else in the body.

Sometimes there's only a very tiny area of breast cancer cells in the lymph nodes. This is called **micro-metastases** (or sometimes **micro-invasion** or **isolated tumour cells**).

Treatment options

People with lymph node positive breast cancer are more likely to have chemotherapy recommended to help destroy any cells that may have got in to the lymphatic system.

You may want to ask:

- Are the lymph nodes positive or negative?
- If they are positive how many lymph nodes are affected?

Are the breast cancer cells hormone positive or negative?

The hormones oestrogen and progesterone stimulate some types of breast cancer to grow. These cancers are called **hormone receptor positive**.

Your pathology report will say if there are any oestrogen receptor positive cells, any progesterone receptor positive cells, or both. Sometimes a score is used to indicate the concentration of hormone receptors on the cells and the percentage of cells with hormone receptors overall.

Treatment options

If you have invasive hormone receptor positive breast cancer you will usually be advised to have **hormone (endocrine) therapy**. There are several different hormone therapy drugs, which work in different ways.

For more information on hormone therapy drugs please see our individual factsheets.

If your breast cancer is **hormone receptor negative**, hormone therapy drugs will have no effect.

You may want to ask:

- Is the breast cancer hormone receptor positive or hormone receptor negative?

Are the breast cancer cells HER-2 positive or negative?

Some breast cancer cells have a higher than normal level (called over expression) of a protein known as HER-2 on their surface, which stimulates them to grow. Only around 20–25 per cent of breast cancers have this and are called **HER-2 positive**. These cancers tend to grow and spread faster than **HER-2 negative** breast cancers.

There are three main ways that the pathologist measures your HER-2 levels. One is called **IHC (immunohistochemistry)** and this is usually done first. This is reported as a score ranging from 0–3. A score of 0 or 1+ is called HER-2 negative and means that the breast cancer doesn't have high levels of HER-2. A score of 2+ is borderline, and a score of 3+ (HER-2 positive) means high levels of HER-2 have been found.

The other two ways of measuring HER-2 are called **FISH (fluorescent in situ hybridisation)** and **CISH (chromogenic in situ hybridisation)**. These are reported as positive or negative. Breast cancers with borderline IHC (+2) results should be re-tested with FISH or CISH to confirm if they are truly HER-2 positive.

HER-2 testing is normally only done on invasive breast cancer, so this may not be mentioned if you have ductal carcinoma in situ (DCIS).

Treatment options

People with HER-2 positive invasive breast cancer are more likely to be advised to have chemotherapy and also drug treatments called targeted therapies, which work by sticking to the receptors so that the cancer cells are no longer stimulated to grow. The most well known of these is Herceptin (trastuzumab).

For more information on targeted therapies please see our individual factsheets.

You may want to ask:

- Is the breast cancer HER-2 positive or HER-2 negative?

- What grade is the breast cancer?
- If they are positive how many lymph nodes are affected?
- Has all the breast cancer been removed?
- Is the breast cancer hormone receptor positive or hormone receptor negative?
- Are there any signs of lympho-vascular invasion?
- Is the breast cancer HER-2 positive or HER-2 negative?
- Are the lymph nodes positive or negative?

Beyond this booklet

Further support from Breast Cancer Care

Free telephone helpline 0808 800 6000 (for Tynetalk prefix 18001)

Our helpline provides information and support for anyone affected by breast cancer. Everyone on our helpline either has personal experience of breast cancer or is a breast care nurse. The team comes from a variety of backgrounds, so callers get to talk to someone who understands the issues they're facing.

The team is able to talk about clinical, medical and emotional issues surrounding breast cancer and breast health. Everyone on the helpline has an excellent knowledge of breast cancer issues and receives daily information on new developments. They can talk through the complexities of different treatments to help you understand your options and explain the best way for you to get treatment.

Volunteer support

Many people who have breast cancer find it helpful to talk to someone who has been in a similar situation. Breast Cancer Care's peer support service puts you in touch with someone who has personal experience of breast cancer and has been trained to listen and offer emotional support. You can talk to someone at any stage – whenever you feel it would help. Call our helpline or visit our website for more information about this free service. You can also contact our centres to access these services (contact details on the inside back cover of this booklet).

Courses and activities

We run courses and activities for people with breast cancer, which aim to provide information and support and give people the chance to meet others in a similar situation. For more information about these events, contact your nearest Breast Cancer Care centre or call our helpline.

Discussion forums and Live chat

The Breast Cancer Care website hosts discussion forums covering all aspects of the disease and its treatment. This service is available 24 hours a day and allows you to talk to people in a similar situation to you and to share your thoughts and feelings.

All forum users post their messages and responses at any time; however, the regular Live chat sessions take place among users who are all logged on at the same time.

They are hosted by Breast Cancer Care staff or a clinical specialist and give you the opportunity to discuss anything related to your diagnosis. Visit www.breastcancercare.org.uk for more details.

Ask the nurse

This is another service on the Breast Cancer Care website. You can email a question on any breast cancer or breast health issue and our team of specialist nurses will reply within two working days. The service is strictly confidential.

Publications

Breast Cancer Care produces a wide range of publications providing information for anyone affected by breast cancer. All of our publications are regularly reviewed by healthcare professionals and people affected by breast cancer. You can order our publications by using our catalogue, which can be requested from our helpline. All our publications can also be downloaded from our website.

Useful addresses

Cancerbackup

3 Bath Place
Rivington Street
London EC2A 3JR

Office: 020 7696 9003

Freephone helpline: 0808 800 1234

Email: info@cancerbackup.org

Website: www.cancerbackup.org.uk

Cancerbackup is a national information and support charity for people affected by cancer. Services include a helpline, staffed by specialist cancer information nurses, a website, cancer information booklets and local information centres. All Cancerbackup services are free to people affected by cancer.

Macmillan Cancer Support

89 Albert Embankment
London SE1 7UQ

Telephone: 020 7840 7840

Macmillan CancerLine: 0808 808 2020

Textphone: 0808 808 0121

Email: cancerline@macmillan.org.uk

Website: www.macmillan.org.uk

Macmillan Cancer Support is helping people who are living with cancer through the provision of immediate practical and emotional support. Specialist services include Macmillan nurses and doctors, cancer centres, a range of cancer information and direct financial help. The Macmillan CancerLine provides information and emotional support. Textphone available.

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Breast Cancer Care London & South
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For all breast cancer or breast health concerns, call our free, national helpline on 0808 800 6000 (for Typetalk prefix 18001) or visit www.breastcancercare.org.uk.

Breast Cancer Care relies on donations from the public to provide its services free to clients. If you would like to make a donation, please send your cheque to:
Breast Cancer Care, RRRKZ-ARZY-YCKG, 5–13 Great Suffolk Street, London SE1 0NS. Or donate online via our secure site at: www.breastcancercare.org.uk/donate.

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