



Understanding your pathology report



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Introduction

A pathology report describes 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 test 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** (Text Relay **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 a report is written by a pathologist (a doctor who examines the tissue).

For example, a report will be written if you have a biopsy (taking a sample of tissue for analysis), breast-conserving surgery (the removal of the cancer and a margin of normal breast tissue around the cancer) or a mastectomy (the removal of all the breast tissue including the nipple area).

The information in these pathology reports helps your specialist team decide which treatments may 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 from a small, defined area 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 a difficult time. 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 through with a member of your breast care team or 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 removed
- 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

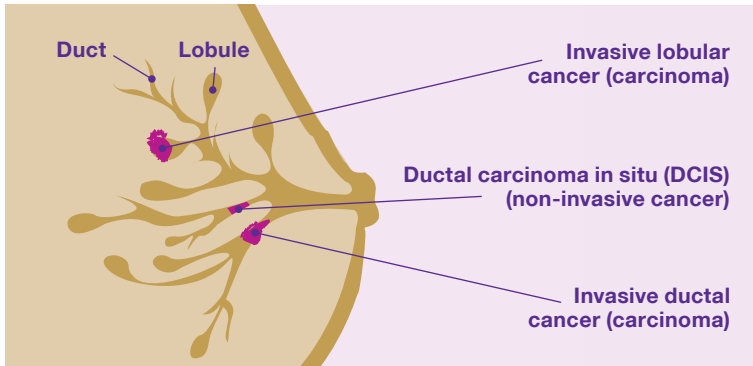
What type of breast cancer is it?

There are many different types of breast cancer, which are diagnosed depending on the appearances of your cancer under the microscope.

Most types of breast cancer are invasive. 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 spread. When breast cancer has spread to other parts of the body it's called secondary, advanced or metastatic breast cancer.

The breasts are made up of lobules (milk-producing glands) and ducts (tubes that carry the milk to the nipple). Some breast cancers have not spread outside the walls of the ducts when they are found. 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 into the breast tissue around the ducts.

Different types of breast cancer



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

Invasive ductal is the most common breast cancer and is sometimes called no special type (NST) or not otherwise specified (NOS) in the pathology report. The second most common type of breast cancer is invasive lobular.

However, there are many 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.

For more information on other types of breast cancer please see our individual factsheets.

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.

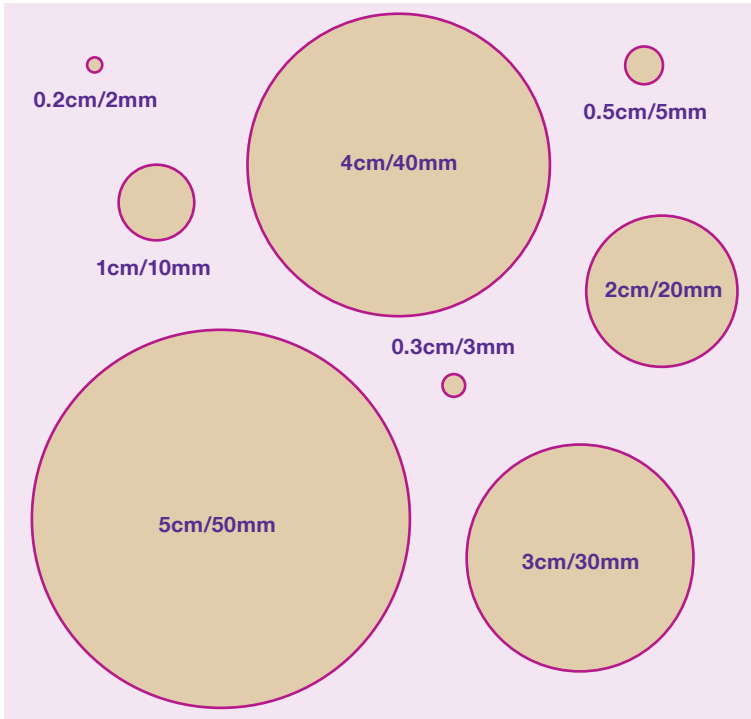
You may want to ask:

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

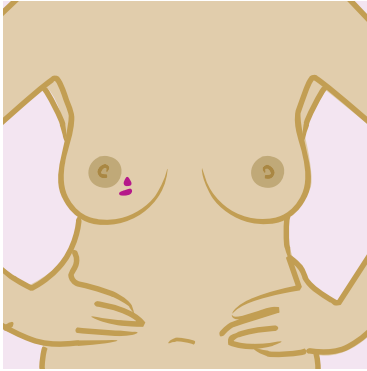
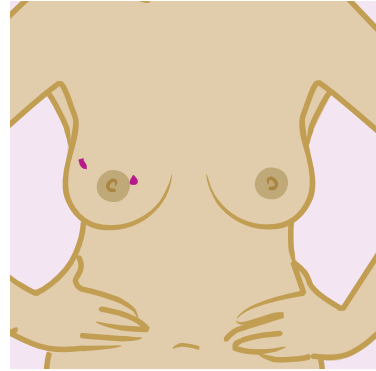
How big is the breast cancer?

The size (diameter) of the breast cancer is usually measured in millimetres (mm) or centimetres (cm). 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 is another factor that will be taken into consideration. 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 and millimetres



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-focal breast cancer**Multi-centric 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.

The size and position of the cancer in relation to your breast size may also affect what surgical options you are offered. For example with smaller cancers it may be possible to have breast-conserving surgery, where only the cancer and a small area of healthy tissue surrounding it are removed (wide local excision).

If you have a larger cancer (in relation to your breast size), you may be recommended to have a mastectomy or you may be offered the option of having chemotherapy prior to surgery (called neo-adjuvant or primary chemotherapy). This is given with the aim of shrinking the cancer, which may enable less extensive surgery in some cases.

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?

Cancers 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 may also be 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?

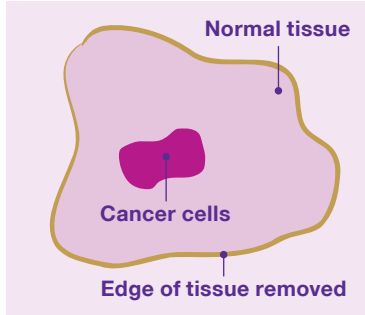
Has the breast cancer been completely removed?

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.

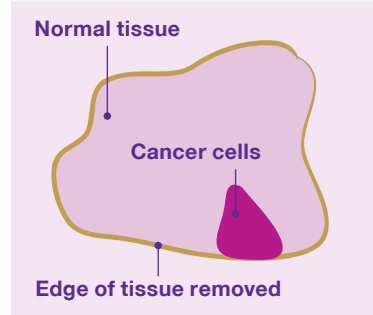
- Negative (clear) margins mean no cancer cells were seen at the outer edge of the tissue removed.
- Positive margins mean the cancer cells do reach the edge of the tissue.

Different hospitals will have their own guidelines as to how large the margin of clear tissue should be but recent national guidelines recommend a minimum of 2mm.

Negative (clear) margins



Positive margins



Treatment options

If you have negative or clear margins it's unlikely you'll need more surgery to the breast. 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, as far as you can tell?

Are there any breast cancer cells in the lymph vessels or blood vessels (lympho-vascular invasion)?

The breast 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:

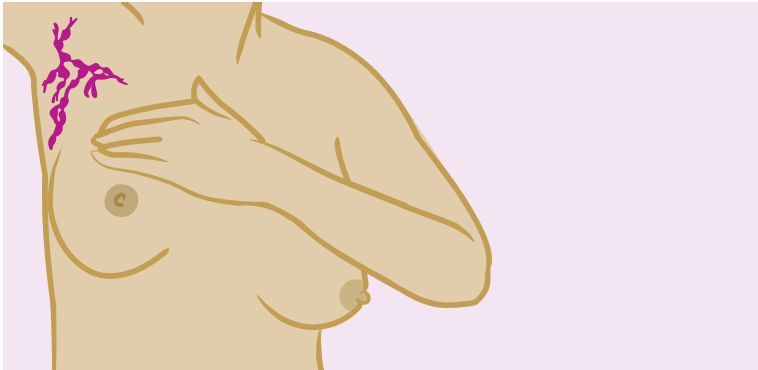
- Are there any signs of lympho-vascular invasion?

Are there any breast cancer cells in the lymph nodes?

Our breasts have a network of lymph vessels that drain into the lymph nodes (glands) in the armpit (axilla). There are about 20 lymph nodes in each 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 will usually be removed during surgery. These are then checked under the microscope 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. Where the cancer in the lymph node is between 0.2mm and 2mm, this is called micro-metastases (or sometimes micro-invasion). Where the area of cancer within the lymph node is less than 0.2mm, this is called isolated tumour cells (ITC).

Micrometastases are classed as lymph node positive, whereas people with isolated tumour cells are likely to be classed as lymph node negative.

Treatment options

People with lymph node positive breast cancer are more likely to have chemotherapy and radiotherapy recommended to help destroy any remaining cells or those that may have got in to the lymphatic system or other parts of the body.

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 receptor positive or negative?

The hormones oestrogen and progesterone help to stimulate some types of breast cancer to grow. This happens if the tumour cells have hormone receptors on their surface that respond to the hormones; these cancers are called hormone receptor positive.

Your pathology report will say if there are any oestrogen receptor positive cells. Some reports will also comment on whether there are progesterone receptor positive cells.

Sometimes a score (usually out of 8) is used to indicate the average amount of hormone receptors per cancer cell and the proportion of cells with receptors. The overall percentage of cells with hormone receptors is also sometimes given.

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 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. This is a more specialised test and may take a week or two for the results to become available.

Outside of a clinical trial, HER-2 testing is normally only done on invasive breast cancer, so this will 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 Herceptin please see our **Herceptin (trastuzumab)** factsheet.

You may want to ask:

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

For more information see our booklets on:

Treating breast cancer BCC4

Ductal carcinoma in situ (DCIS) BCC39

Chemotherapy for breast cancer BCC16

Breast cancer and you: diagnosis, treatment and the future BCC44

To order, or download a copy, please visit

www.breastcancercare.org.uk/publications

We also produce a range of factsheets on hormone therapy and targeted therapy drugs. For more information please call our free Helpline on **0808 800 6000** (Text Relay **18001**) or visit our website at www.breastcancercare.org.uk

What it means for you

We hope this booklet has helped you understand your pathology report.

Do ask your doctors or breast care nurse about anything you don't understand.

Questions you may want to ask

What type of breast cancer do I have?

Is the breast cancer invasive or non-invasive?

What size is the breast cancer?

Is there more than one area of breast cancer?

What grade is the breast cancer?

Has all the breast cancer been removed as far as you can tell?

Are there any signs of lympho-vascular invasion?

Are the lymph nodes positive or negative?

If they are positive how many lymph nodes are affected?

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

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

Further support

Breast Cancer Care

From diagnosis, throughout treatment and beyond, our services are here every step of the way. Here is an overview of all the services we offer to people living with and beyond breast cancer.

Helpline

Our free, confidential Helpline is here for anyone who has questions about breast cancer or breast health. Your call will be answered by one of our nurses or trained staff members with experience of breast cancer. Whatever your concern, you can be confident we will understand the issues you might be facing, and that the information you receive is clear and up-to-date. We will also let you know where else you can go for further support.

Our map of breast cancer services www.breastcancercare.org.uk/map is an interactive tool, designed to help you find breast cancer services in your local area, wherever you live in the UK.

Website

We know how important it is to understand as much as possible about your breast cancer. Our website is here round-the-clock giving you instant access to information when you need it. As well as clinical information, you'll find real life experiences and a daily newsblog on stories about breast cancer in the media. It's also home to the largest online breast cancer community in the UK, so you can share your questions or concerns with other people in a similar situation.

One-to-One Support

Our One-to-One Support service can put you in touch with someone who knows what you're going through. Just tell us what you'd like to talk about (the shock of your diagnosis, understanding treatment options or your feelings after finishing treatment, for example), and we can find someone who's right for you. Our experienced volunteers give you the chance to talk openly away from family and friends.

Discussion Forums

Through our Discussion Forums you can exchange tips on coping with the side effects of treatment, ask questions, share experiences and talk through concerns online. Our dedicated areas for popular topics should make it easy for you to find the information you're looking for. The Discussion Forums are easy-to-use and professionally hosted. If you're feeling anxious or just need to hear from someone else who's been there, they offer a way to gain support and reassurance from others in a similar situation to you.

Live Chat

We host weekly Live Chat sessions on our website, offering you a private space to discuss your concerns with others – getting instant responses to messages and talking about issues that are important to you. Each session is professionally facilitated and there's a specialist nurse on hand to answer questions.

Ask the Nurse

If you find it difficult to talk about breast cancer, we can answer your questions by email instead. Our Ask the Nurse service is available on the website – complete a short form that includes your question and we'll get back to you with a confidential, personal response.

Information and Support Sessions and Courses

We run Moving Forward Information and Support Sessions for people living with and beyond breast cancer. These sessions cover a range of topics including adjusting and adapting after a breast cancer diagnosis, exercise and keeping well, and menopause. In addition, we offer Lingerie Evenings where you will learn more about choosing a bra after surgery.

We also offer a HeadStrong service where you can find alternatives to a wig and meet other people who understand the distress of losing your hair. Our Younger Women's Forums, Living with Secondary Breast Cancer Courses and Seca Support Groups for people with secondary breast cancer are also here to offer specific, tailored support.

Information Resources

Our free information resources for anyone affected by breast cancer include factsheets, booklets and DVDs. They are here to answer your questions, help you make informed decisions and ensure you know what to expect. All of our information is written and reviewed regularly by healthcare professionals and people affected by breast cancer, so you can trust the information is up-to-date, clear and accurate. You can order our publications by using our order form, which can be requested from the Helpline. All our publications can also be downloaded from our website.

Other organisations

Macmillan Cancer Support

89 Albert Embankment
London SE1 7UQ

General enquiries: **020 7840 7840**

Helpline: **0808 808 00 00**

Website: **www.macmillan.org.uk**

Textphone: **0808 808 0121** or **Text Relay**

Macmillan Cancer Support provides practical, medical, emotional and financial support to people living with cancer and their carers and families. Over the phone, its cancer support specialists can answer questions about cancer types and treatments, provide practical and financial support to help people live with cancer, and are there if someone just wants to talk. Its website features expert, high-quality information on cancer types and treatments, emotional, financial and practical help, and an online community where people can share information and support. Macmillan also funds expert health and social care professionals such as nurses, doctors and benefits advisers.

Notes

Notes

Find out more

We offer a range of services to people affected by breast cancer. From diagnosis, through treatment and beyond, our services are here every step of the way.



To request a free leaflet containing further information about our services, please choose from the list overleaf, complete your contact details and return to us at the **FREEPOST** address or order online at www.breastcancercare.org.uk/publications

Donate today

We hope you found this publication useful. We are able to provide our publications free of charge thanks to the generosity of our supporters. We would be grateful if you would consider making a donation today to help us continue to offer our free services to anyone who needs them.

To make a donation please complete your details overleaf and return to us with your cheque/PO/CAF voucher at the **FREEPOST** address: **Breast Cancer Care, FREEPOST RRRKZ-ARZY-YCKG, 5-13 Great Suffolk Street, London SE1 0NS**

Or to make a donation online using a credit or debit card, please visit www.breastcancercare.org.uk/donate-to-us

I'd like more information

Please send me:

- Support for people recently diagnosed with breast cancer (SM21)
- Support for people having treatment for breast cancer (SM22)
- Support for people living with and beyond breast cancer (SM23)
- Support for younger women with breast cancer (SM24)
- Support for people living with secondary breast cancer (SM25)

I'd like to donate

Please accept my donation of £10 / £20 / my own choice of £

- I enclose a cheque/PO/CAF voucher made payable to Breast Cancer Care.
(Please don't post cash.)

Or to make a donation online using a credit or debit card, please visit

www.breastcancercare.org.uk/donate-to-us

Thank you for your kind donation.

My details

Name

Address

Postcode

Email address

From time to time we may wish to send you further information on our services and activities.

- Please tick if you are happy to receive emails from us
- Please tick here if you do not want to receive post from us

Breast Cancer Care will not pass your details to any other organisation or third party.

I am a (please tick):

- person who has/who has had breast cancer
 - friend/relative of someone with breast cancer
 - healthcare professional
 - other (please state)
-

Where did you get this Breast Cancer Care publication?

Please return this form to **Breast Cancer Care, FREEPOST RRKZ-ARZY-YCKG,
5-13 Great Suffolk Street, London SE1 0NS**

This booklet can be downloaded from our website, **www.breastcancercare.org.uk** It is also available in large print, Braille or on audio CD on request by phoning **0845 092 0808**.

This booklet has been produced by Breast Cancer Care's clinical specialists and reviewed by healthcare professionals and people affected by breast cancer.

Centres

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Email cym@breastcancercare.org.uk

East Midlands and the North of England

Telephone 0845 077 1893

Email nrc@breastcancercare.org.uk

Scotland and Northern Ireland

Telephone 0845 077 1892

Email sco@breastcancercare.org.uk



Breast Cancer Care is here for anyone affected by breast cancer. We bring people together, provide information and support, and campaign for improved standards of care. We use our understanding of people's experience of breast cancer and our clinical expertise in everything we do.

Visit www.breastcancercare.org.uk or call our free Helpline on **0808 800 6000** (Text Relay **18001**).

Interpreters are available in any language. Calls may be monitored for training purposes. Confidentiality is maintained between callers and Breast Cancer Care.

**Central Office
Breast Cancer Care**

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