



BREAST CANCER PATHOLOGY

FACT SHEET

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This fact sheet was produced by Breast Cancer Network Australia with input from The Royal College of Pathologists of Australasia

I'm a nurse and know medical terminology, but when diagnosed, there was heaps in my breast cancer pathology report that I didn't understand – and it all sounded pretty scary. – Helen, SA

If you have been recently diagnosed with breast cancer, this fact sheet can provide information to help you understand your breast cancer pathology reports, and how these may influence your treatment and care.

If it has been some months or years since you completed your treatment for breast cancer, this fact sheet can help you revisit your pathology reports to understand them better. We have also included information on accessing your pathology reports if you did not get copies of them at the time of your treatment.

Please note that the information contained in this fact sheet is of a general nature. For information specific to your individual situation, you may like to speak to your treating doctor.

What is pathology testing for breast cancer?

A pathologist is a doctor who looks at tissue to see if it is normal or affected by disease. Breast cancer pathology testing is where tissue removed from your breast by a surgeon, radiologist or other doctor performing a biopsy procedure is examined by a pathologist. The pathologist writes the results of this examination in a pathology report. The report is then sent to your surgeon and/or oncologist so he or she can discuss the results with you and determine the best course of treatment for you.

A pathologist works in a laboratory which may or may not be located at the hospital where you had your treatment. When your tissue is sent to the laboratory, parts of it are set into paraffin wax blocks and thin sections are taken and placed onto a slide for examination by the pathologist. The remaining tissue in the paraffin



block is kept in the laboratory so that further samples can be taken if more tests are required.

What sort of pathology reports will be produced?

There are two main types of pathology reports – an **initial biopsy report**, which confirms whether you have cancer or not, and a **breast cancer pathology report after surgery**, which provides specific information about your breast cancer.

Your pathology reports will usually be sent directly to your surgeon and/or oncologist. Your doctors can provide you with a copy of your pathology reports, if you would like them.

Initial biopsy report

The basic aim of a breast biopsy is to determine whether or not a change in your breast is cancer. There are several types of biopsies that can be performed.

Common biopsy procedures include a **Fine Needle Aspiration (FNA)**, where a thin needle is passed through the skin to sample fluid or cells. Another common procedure, a **core biopsy**, is where an incision or puncture is made through the skin and several narrow samples of tissue are removed. Sometimes, a **surgical biopsy** may be performed.



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If you would like more information about why these procedures were performed in your particular situation, you may like to ask your treating doctor. The results of your biopsy will usually be sent to the doctor who requested your test one to three days after the biopsy procedure has been performed.

Pathology report after surgery

A breast cancer pathology report is produced after the surgery to remove your breast cancer. This report provides a lot of information about your breast cancer. It will show what type of cancer it is, how big the cancer is, how fast the cells are growing, whether there is cancer present in your lymph nodes in the armpit if tissue was taken from your armpit during surgery, and whether there are any hormone receptors on the cancer cells.



What is in my pathology report after breast cancer?

The content of your pathology report will depend on what type of tissue specimen was provided, for example whether you underwent a biopsy, or whether you had a mastectomy.

The table on the opposite page outlines the type of information that you may find in a 'typical' breast cancer pathology report following surgery.

If your surgeon and/or oncologist are working as part of a multidisciplinary team, it is likely your pathology report will be discussed by the team to determine the best treatment options for you. Your surgeon or oncologist will explain the results to you and discuss with you your treatment options.

What sort of breast cancer do I have?

Many people talk about having 'breast cancer', but in fact there are many different types of breast cancer. The main types of breast cancer include:

Ductal carcinoma in situ (DCIS)

This is a condition in which abnormal cells are found lining the breast ducts. These cells have not spread outside the duct system into other areas of the breast and so cannot spread outside of the breast tissue to lymph nodes or elsewhere in the body. However, if left untreated the cells may become invasive and spread to other areas of the breast or to other parts of the body.

Lobular carcinoma in situ (LCIS)

This is a condition in which abnormal cells are found within the small ducts and lobules of the breast. It is a risk factor for invasive cancer in either breast, although higher risk in the side in which it was found.

Invasive breast cancer (Early Breast Cancer)

This is a condition in which abnormal cells from the ducts and lobules have spread (invaded) into the breast tissue and possibly into the local lymph nodes. The cells may form a palpable lump.

Other less common forms of breast cancer include Paget's disease of the nipple and inflammatory breast cancer. Locally advanced breast cancer is an invasive breast cancer that has directly spread to other areas close to the breast such as the chest wall. Breast cancer that has spread to other, more distant, parts of the body is usually referred to as metastatic breast cancer.

The breast cancer pathology report after surgery is the main tool used by your oncologist to plan your treatment. It is important to note that the pathology report does not predict whether your cancer will progress, but it can provide an indication of how fast growing or aggressive your cancer might be, and how likely or not it is to spread. This in turn will impact on the type of treatment that is recommended for you.

Preliminary pathology results from your surgery are usually sent to your surgeon and/or oncologist within two to four business days. However, further testing (such as for hormone receptors and HER2) is often required, and so it may be up to two weeks before the final complete results are available.

While waiting for test results can make many women anxious, it is important to remember that having the full complement of test results will help to plan the best course of treatment for you..



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What do all the 'positives' and 'negatives' mean?

There are lots of 'positives' and 'negatives' in breast cancer pathology reporting. This does **NOT** necessarily mean that something is good (positive) or bad (negative).

Below is a chart of commonly used terms that refer to positives/negatives:

Oestrogen receptor positive	This means that the growth of your breast cancer is affected by the hormone oestrogen.
Progesterone receptor positive	This means that the growth of your breast cancer is affected by the hormone progesterone.
HER2-positive	This means that the breast cancer cells have higher than normal levels of a protein called HER2. The HER2 protein affects how quickly cells divide in response to certain growth factors.
Positive lymph node involvement	This means there are cancer cells found in the lymph nodes in your armpit (axilla) or near the breast.
'Triple negative' breast cancer	This means that there are no oestrogen, progesterone, or HER2 receptors which are influencing the growth of your cancer. A proportion of triple negative breast cancers can also be classified as 'basal-like' cancers. These cancers may require a different combination of chemotherapy treatment.
Negative margins	This means that the edge of the normal tissue around the tumour removed by your surgeon is free of cancer cells. If the margins are 'positive', this means that the edge of the normal tissue around the tumour has cancer cells in it.

What if I don't understand my pathology report?

My doctors were great and they probably told me a lot, but I wasn't really listening. I didn't even know how big the breast cancer was. – Serafina, QLD

We know that many women only take in a small part of the discussion with their doctors about their test results and treatment plans. It may help to take someone with you to important consultations where tests and treatment plans are discussed. It may also help to jot down any questions as they occur to you for discussion at these consultations.

I couldn't tell you what grade my cancer was – my doctors certainly didn't give me anything to take home. – Julie, TAS

Many women also tell us that they don't remember seeing their pathology report – either because they didn't ask for it or the option was not made available to them.

You may like to ask your doctor for copies of your pathology report and other tests. This can help you to ask questions about your diagnosis that you may not have thought to ask initially, as well as providing a record for future reference, should you need it later on.

If in doubt about your pathology report, or if you have questions about your particular situation, you may like to discuss this with your surgeon or oncologist. If you are not happy with the information that is being provided to you, or if you feel that your questions are not being answered, you may like to seek a second opinion. This will not affect your treatment, and may help you to feel more confident in your health care team, and the advice you're being provided.

You can upload your pathology reports to your My Health record. If you do not have a My Health record you can talk to your GP about setting it up for you. Alternatively, you could buy a folder to keep copies of your pathology and other test results together.



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How are treatment decisions made?

With treatment, there is no 'one-size-fits-all' formula. Treatments are tailored to women's particular circumstances. – Heather, VIC

Many different factors are taken into consideration by your doctors when they are determining the treatment options for you. These include:

- the type of cancer, the grade, the stage, and the presence of hormone receptors
- whether the cancer has a lower or higher risk of recurrence
- your general health and age at the time of treatment planning.

It's important to remember, however, that every tumour is different. What may be suitable treatment for one woman may not be suitable for another.

If you are concerned or not clear about why a particular treatment is being recommended for you, ask your treating doctor to explain. Once again, it can help to write down questions as they occur to you, and take these with you to the consultation. If you are concerned about the advice provided, you might want to get a second opinion.

It is ok to take a week or two to be comfortable and confident about your treatment options and decisions. This will not affect the outcome of your treatment.

Will the cancer come back?

I really wanted to know its state of aggressiveness, and hence its likelihood of 'doing a runner'. – Helen, SA

Women tell us that one of the first questions on their minds is 'How likely is it that this cancer will come back?' This is often referred to as a prognosis, which is a forecast about the likely course or outcome of the breast cancer.

However, everyone is different and there is no way of telling for sure if breast cancer will or will not come back.

The likelihood of the cancer coming back or spreading may depend on a number of factors:

- The amount of time the cancer has been there. A lot more cancers are being picked up early by breast screening, which means that there is generally a better prognosis overall, and that the cancers found tend to be smaller.

- The cancer biology, which is the makeup of the cancer. For example, the grade and presence or absence of oestrogen, progesterone and/or HER2 receptors..

Doctors use this information to get a sense of **how likely** it is that the cancer will come back, and plan your treatment accordingly.

Genetic testing

If there is a strong family history of breast cancer in your family (two or more relatives on the same side of the family who have had breast or ovarian cancer), your doctor may suggest that you have genetic testing. This is done through a blood test that can show if you have inherited one of the known genetic mutations that increase a person's risk of getting breast or ovarian cancer, such as the BRCA1, BRCA2 and PALB2 gene mutations. Having one of these mutations may change your decisions around your treatment, such as the type of surgery you have.

You may also be offered genetic testing if your breast cancer is a triple negative cancer, as the BRCA1 gene mutation increases the risk of developing triple negative breast cancer.

Genomic testing

Your surgeon or medical oncologist may talk to you about genomic tests such as Oncotype DX, Prosigna, EndoPredict and Mammaprint. These are different from genetic tests.

Genomic tests assess a sample of your tumour to predict the likelihood of the cancer recurring (coming back) or the likely response of the cancer to systemic treatment (chemotherapy or hormone-blocking therapy). Your doctors can use this information to help make recommendations about the best treatment for you. If there is a high risk of recurrence, your doctor may recommend chemotherapy. If there is a low risk of recurrence, you may be able to avoid chemotherapy.

People with low grade, low stage breast cancers are generally not recommended genomic testing as the results do not change their treatment.

There is currently no Medicare rebate for these tests, and the costs range from \$2,900 to around \$5,000.

For more information about genomic testing, see BCNA's *My Journey* or talk to your breast surgeon or medical oncologist.



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A 'typical' pathology report after breast cancer

Section of Report	Description
Macroscopic Description	<p>This is what the pathologist sees by looking at the tissue sample with the naked eye. It also describes what sort of tissue was provided by the surgeon (for example, tissue from a core biopsy, a mastectomy, or lymph nodes).</p> <p>The location - where the cancer is in the breast.</p>
Microscopic Examination	<p>This is what the pathologist records after looking at sections of your tissue under a microscope. It is a summary of all the information needed by your treating doctors.</p> <p>The type - some types of breast cancer have a better outcome than others.</p> <p>The grade - this indicates the patterns of the cancer cell growth and how fast the cancer cells are growing. The grade is numbered from 1 to 3:</p> <ul style="list-style-type: none"> - Grade 1 (<i>Low Grade or Well Differentiated</i>) cancer cells still look a lot like normal cells. They are usually slow growing and are likely to behave less aggressively. - Grade 2 (<i>Intermediate/Moderate Grade or Moderately Differentiated</i>) cancer cells do not look like normal cells. They are growing somewhat faster than normal cells. - Grade 3 (<i>High Grade or Poorly Differentiated</i>) cancer cells do not look at all like normal cells. This means the cells are growing more quickly and are more likely to be aggressive. <p>The 'Stage' of the breast cancer - this indicates the size of the tumour and whether the cancer has spread. Low stage cancers are small and have not spread to the lymph glands or beyond. High stage cancers have spread beyond the breast and lymph glands to other parts of the body.</p> <p>Whether the margin is clear - the surgeon will remove your breast cancer, and some normal looking tissue around it, to ensure that the cancer is completely removed from the breast. The normal tissue is called the surgical margin. If the edge of the surgical margin is not 'clear' of breast cancer cells, you may need to have more surgery.</p> <p>Lymph nodes - the report shows whether there are cancer cells in the lymph nodes in your armpit (axilla) or near your breast. This information is used to 'stage' the cancer.</p> <p>Hormone receptors - the report shows if hormone receptors are present on your breast cancer. This will affect whether hormonal therapies are recommended for you. There are two types of hormone receptors - oestrogen (ER) and progesterone (PR).</p> <p>HER2 status - the report shows if there are HER2 receptors on your breast cancer. HER2 is a protein on a cell that allows growth factors to bind to the cell, causing the cell to divide. HER2 is also called HER2-neu or c-erbB2. If you have these receptors, you may have particular treatments recommended for you, such as Herceptin.</p> <p>Ki-67 - Ki-67 is a protein in cells that is present when cells are dividing. The report shows the percentage of cancer cells that contain Ki-67. The more positive cells there are, the more quickly the cancer is dividing and growing.</p>
Summary and diagnosis	<p>This is a summary of the above information, as well as a diagnosis. For example, 'Invasive ductal carcinoma of no special type, grade 2, 17mm diameter, clear surgical margins, with no evidence of axillary lymph node involvement.'</p>

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How can I access my pathology reports months or years after treatment?

*I asked for all my results from the clinical records part of my hospital. I've photocopied them and given them to my kids - I want them to have copies should anything happen to them down the track.
- Serafina, QLD*

You can ask your surgeon, oncologist or hospital staff about getting copies of your pathology reports, even months or years after your breast cancer treatment. These may be kept in your file in the clinical records department of the hospital, or they may be available from the pathology laboratory that ran the tests. It may take a bit of work to find these, particularly if they were a long time ago, or if the pathology laboratory has merged with another laboratory.

What happens to my breast cancer tissue?

Preservation and storage

After your surgery, portions of your breast cancer tissue are preserved in a paraffin wax block. The block is identified with your details and is used to prepare sections on glass slides for the pathologist. Multiple tests can be done using this same paraffin block, even many years following your diagnosis. This paraffin block is kept by the lab where your tissue sample was originally tested. In some cases the laboratory stores these paraffin blocks off site in a storage facility because of space issues in the laboratory itself.

Should your doctor want to access your paraffin block in the future for further testing, he or she can do this using the identifying information contained in your pathology report.

More information

Breast Cancer Network Australia

A glossary of pathology terms and information on breast cancer tissue banks is available on our website bcna.org.au or by phoning us on 1800 500 258.

Lab Tests Online

This Australian website provides information about pathology tests to help you manage your health and make the right decisions about your care. Visit labtestsonline.org.au

About us

Breast Cancer Network Australia (BCNA)

BCNA is the peak national organisation for Australians personally affected by breast cancer. We provide a range of free resources for women and men with breast cancer, including *My Journey*, which provides quality, evidence-based information and support tailored to your individual needs and circumstances at all stages of your breast cancer journey. You can access *My Journey* via your web browser or our App. Sign up at myjourney.org.au

BCNA's free biannual *Beacon* magazine includes stories from people with breast cancer, as well as information on a wide range of breast cancer issues.

More information about BCNA and our resources is available at bcna.org.au or by phoning us on 1800 500 258.

The Royal College of Pathologists of Australasia (RCPA)

The RCPA is responsible for the training and professional development of pathologists. Its mission is to improve the use of pathology testing to achieve better health care. For more information, visit rcpa.edu.au or phone (02) 8356 5858.

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