



Canadian Cancer Society
Société canadienne du cancer

Breast Cancer

Understanding your diagnosis



Let's Make Cancer History

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Breast Cancer

Understanding your diagnosis

When you first hear that you have cancer, you may feel alone and afraid. You may be overwhelmed by the large amount of information you will have to take in and the decisions you will need to make.

The introductory information in this brochure can help you and your family take the first step in learning about breast cancer. A better understanding may give you a sense of control and help you work with your healthcare team to choose the best care for you.

Breast cancer is mainly a disease in women, but each year a small number of men are also diagnosed with the disease. We often refer to *women* in the text, but men with breast cancer may find some of the information in this pamphlet helpful.

What is cancer?

Cancer is a disease that starts in our cells. Our bodies are made up of millions of cells, grouped together to form tissues and organs such as muscles and bones, the lungs and the liver. Genes inside each cell order it to grow, work, reproduce and die. Normally, our cells obey these orders and we remain healthy.

But sometimes the instructions in some cells get mixed up, causing them to behave abnormally. These cells grow and divide uncontrollably. After a while, groups of abnormal cells form lumps, or tumours.

Tumours can be either *benign* (non-cancerous) or *malignant* (cancerous). Benign tumour cells stay in one place in the body and are not usually life-threatening.

Malignant tumour cells are able to invade nearby tissues and spread to other parts of the body. Cancer cells that spread to other parts of the body are called *metastases*.

The first sign that a malignant tumour has spread (metastasized) is often swelling of nearby lymph nodes, but cancer can spread to almost any part of the body. It is important to find and treat malignant tumours as early as possible.

Cancers are named after the part of the body where they start. For example, cancer that starts in the breast but spreads to the liver is called breast cancer with liver metastases.

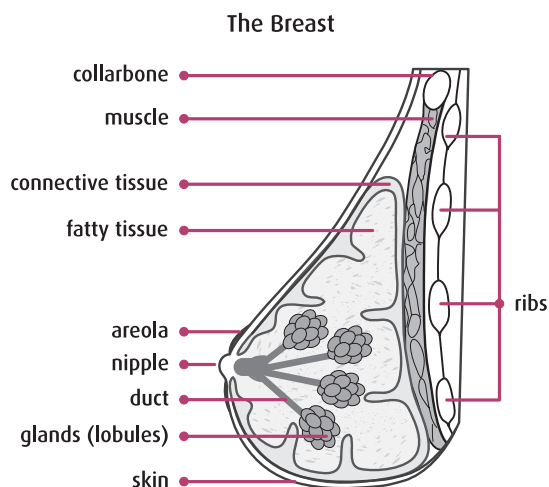
What is breast cancer?

Breast cancer starts in the cells of the breast. The breast tissue covers an area larger than just the breast. It extends up to the collarbone and from the armpit across to the breastbone in the centre of the chest. The breasts sit on the chest muscles that cover the ribs. Each breast is made of glands, ducts (thin tubes) and fatty tissue. Lobules are groups of glands that can produce milk. Milk flows from the lobules through a network of ducts to the nipple. The nipple is in the centre of a darker area of skin called the *areola*. Fatty tissue fills the spaces between the lobules and ducts and protects them.

A woman's breasts may feel different at different times of her menstrual cycle, sometimes becoming lumpy just before her period. Breast tissue also changes with age. Breast tissue in younger women is mostly made of glands and milk ducts, but older women's breasts are made up mostly of fatty tissue.

The breasts also contain lymph vessels and lymph nodes, which are part of the lymphatic system. The lymphatic system helps fight infections. Lymph vessels move lymph fluid to the lymph nodes. Lymph nodes trap bacteria, cancer cells and other harmful substances. There are groups of lymph nodes near the breast under the arm, near the collarbone and in the chest behind the breastbone.

Cancer cells may start within the ducts (this is called *ductal carcinoma*) or in the lobules (*lobular carcinoma*). Ductal carcinoma is the most common type of breast cancer. Other types of breast cancer, such as inflammatory breast cancer and Paget's disease, behave differently and may need different treatment.*



* The information in this brochure is about ductal and lobular carcinomas. For information about other types of breast cancer, contact our *Cancer Information Service* at 1 888 939-3333.

Causes of breast cancer

There is no single cause of breast cancer, but some factors increase the risk of developing it:

- age (breast cancer can occur in women of any age but a woman's risk increases as she ages)
- personal history of breast cancer (a woman who has had breast cancer in one breast has an increased risk of getting breast cancer again)
- family history of breast cancer or ovarian cancer (especially in a mother, sister or daughter diagnosed before menopause, or if mutations on the BRCA1 or BRCA2 genes are present)
- above-average exposure to estrogen
 - > never having given birth or giving birth for the first time after age 30
 - > beginning menstruation at a young age
 - > reaching menopause later than average
 - > taking hormone replacement therapy (estrogen plus progestin) for more than 5 years
- dense breasts (as shown on a mammogram)
- a history of breast biopsies showing certain breast changes, such as an increased number of abnormal cells that are not cancerous (*atypical hyperplasia*)
- radiation treatment to the chest area (for example, to treat Hodgkin lymphoma), especially before age 30

- lifestyle factors
 - > being overweight or obese
 - > drinking alcohol
 - > taking oral contraceptives (the pill) that combine estrogen and progesterone

Other possible risk factors are being studied, such as smoking and physical inactivity.

Some women develop breast cancer without having any of these risk factors. Most women with breast cancer do not have a family history of the disease.

Symptoms of breast cancer

Most often breast cancer is first noticed as a painless lump in the breast or armpit. You or your partner may discover the lump, or your doctor may find it during a routine physical exam or screening mammogram.

Other possible symptoms of breast cancer include a change in the size or shape of a breast, or a dimpling or thickening of the skin of the breast (sometimes called *orange peel skin*). You may notice changes to a nipple, such as the nipple turning inwards (called an *inverted nipple*), a rash around the nipple or bloodstained discharge.

Often, these symptoms are not caused by cancer. Other health problems can cause them. Remember, lumps in the breast are very common, especially just before your period. Most lumps are not breast cancer. Testing is necessary to make a diagnosis.

Diagnosing breast cancer

Your doctor may suspect that you have breast cancer:

- because a routine screening mammogram showed a problem
- when you reported a change in your breast or nipple
- after examining your breasts and talking with you about your health and your personal and family medical history

If you have a lump, your doctor will feel its size, shape and texture and will check to see if it moves easily. Non-cancerous lumps often feel different from cancerous lumps. To confirm the diagnosis, your doctor will arrange special tests. These tests may also be used to “stage” and “grade” the cancer. You may have one or more of the following tests.

Imaging studies: Imaging studies allow tissues, organs and bones to be looked at in more detail. Using x-rays, ultrasounds, CT scans or bone scans, your healthcare team can get a picture of the size of the tumour and see if it has spread. These tests are usually painless and do not require an anesthetic.

A diagnostic mammogram will be done even if you’ve already had a screening mammogram. During a diagnostic mammogram, more x-ray pictures will be taken of the areas in the breast that looked abnormal on the screening mammogram. Mammograms can be uncomfortable and may even hurt because the breast is pressed between two glass

plates. You will need to stay still for less than a minute while the pictures are taken.

Biopsy: A biopsy is usually necessary to make a definite diagnosis of cancer. Cells are removed from the body and checked under a microscope. If the cells are cancerous, they may be studied further to see how fast they are growing. There are several ways to do a breast biopsy.

- A *fine needle aspiration* uses a thin needle to remove fluid or cells from the lump. This procedure is quick, but it may be uncomfortable because the breast is so sensitive.
- For a *core needle biopsy*, your doctor inserts a needle through a small cut in the breast to remove one or more samples of breast tissue. If necessary, ultrasound or x-ray imaging is used to guide the needle into the lump. A local anesthetic (freezing) is used to numb the area. You may have some breast tenderness and bruising for a short time afterwards.
- A *surgical biopsy* is an operation to remove part or all of a breast lump or suspicious breast tissue. There are two types of surgical biopsies. An *incisional* biopsy takes a sample of a lump or abnormal area. An *excisional* biopsy takes out the entire lump or all the suspicious tissue. The biopsy can be performed in the doctor’s office or in the hospital as an outpatient, which means you won’t need to stay overnight. A local anesthetic is used to numb the area.

Laboratory tests: If cancer cells are found in the biopsy sample, your doctor may order more laboratory tests on the breast tissue that was removed. These tests help your doctor learn more about the cancer and plan the best treatment options for you.

- The *hormone receptor status test* shows whether the cells have certain hormone receptors. Breast cancer cells that have these receptors need estrogen and progesterone hormones to grow. If the biopsy sample has these receptors, the tumour is called *hormone receptor positive*. Knowing the hormone receptor status of the tumour helps predict how the tumour will behave and whether or not the cancer is likely to respond to hormonal therapy. Hormone-positive tumours are more common in post-menopausal women.
- The *HER2 test* looks for the cancer gene that controls the HER2 protein. HER2 stands for human epidermal growth factor receptor 2. HER2 is a protein on the surface of breast cells that promotes growth. Some breast cancer cells have a lot more HER2 than others. If the tissue has too much HER2 protein or too many copies of the gene that controls it, the tumour is called *HER2 positive*. HER2-positive breast cancers behave differently than other breast cancers and need specific treatment.

- Sometimes *blood tests* may be ordered. Blood is taken and studied to see if the different types of blood cells look normal and if they are normal in number. This shows the doctor how well your organs are working and may suggest whether or not there is cancer or if the cancer has spread.

Staging and grading

Once a definite diagnosis of cancer has been made and your healthcare team has the information it needs, the cancer will be given a stage and a grade.

The cancer stage describes the tumour size and tells whether it has spread beyond the place where it started to grow.

In the earliest stage of breast cancer, cancer cells are found only in the milk ducts or lobules. This is called *in situ cancer*. If *in situ* cancer is diagnosed before the cells have spread to the surrounding tissue, there is no risk of them spreading after they have been removed.

When breast cancer spreads out of the duct or lobule, it is called *invasive cancer*. It can still be treated effectively if diagnosed early.

For breast cancer, there are five stages.

Stage	Description
0	There are two kinds of stage 0 breast cancer: Ductal carcinoma <i>in situ</i> (DCIS): Abnormal cells are in the lining of a milk duct and have not spread outside the duct. Lobular carcinoma <i>in situ</i> (LCIS): Abnormal cells are in the lining of a lobule.
1	Tumour is 2 cm or smaller, and cancer may or may not have spread to nearby lymph nodes.
2	Tumour is 2 cm or smaller, and cancer has spread to nearby lymph nodes. OR tumour is between 2 and 5 cm, and cancer may or may not have spread to nearby lymph nodes. OR tumour is larger than 5 cm, but cancer has not spread to nearby lymph nodes.
3	Tumour is larger than 5 cm, and cancer has spread to lymph nodes. OR cancer has spread to many lymph nodes. OR cancer has spread to nearby tissue such as skin and muscle.
4	Cancer has spread to distant parts of the body.

To find out the grade of a tumour, the biopsy sample is examined under a microscope. A grade is given based on how the cancer cells look and behave compared with normal cells. This can give your healthcare team an idea of how quickly the cancer may be growing. There are three grades.

Grade	Description
1	Low grade – slow growing, less likely to spread
2	Moderate grade
3	High grade – tend to grow quickly, more likely to spread

It is important to know the stage and grade of the cancer. This information helps you and your healthcare team choose the best treatment for you.

Treatments for breast cancer

Your healthcare team will consider your age and general health and whether you've been through menopause or not. They will also consider the type, stage, grade, hormone receptor status and HER2 status of the cancer to recommend what treatments are best for you. Your healthcare team will help you make the final treatment choices. Talk to them if you have questions or concerns.

Treatments affect everyone in different ways. It's hard to predict which side effects you will have. Your healthcare team will tell you what to expect with each treatment. They will also let you know which side effects you should report right away and which ones you can wait to tell them about at your next appointment. If you notice any side effects or symptoms that you did not expect, talk to a member of your healthcare team as soon as possible.

Patients often worry about the side effects of treatment. However, side effects can often be well managed and even prevented with medicine. Be open with your healthcare team. Tell them your concerns and ask questions. They will help you get the care and information you need.

Talk to your doctor about birth control before starting treatment

If you are of child-bearing age, it is important to practise birth control during treatment, even if your periods stop. You may remain fertile during treatment and be able to become pregnant. Some cancer treatments are harmful to an unborn child.

For breast cancer, you might receive one or more of the following treatments.

Surgery: A decision about what type of surgery to have depends on the size of tumour and where it is. Surgery is done under general anesthetic (you will be unconscious), and you may stay in the hospital for several days after the surgery.

Surgery is the most common treatment for breast cancer. There are two different types of breast surgery:

- *breast-conserving surgery (lumpectomy)*: removal of a lump and some tissue, but not the whole breast
- *mastectomy*: removal of the whole breast

During surgery, the doctor usually removes some lymph nodes from the armpit to see if the cancer has spread. This is called an *axillary dissection*. You may be offered a newer procedure called *sentinel lymph node biopsy*, which removes fewer lymph nodes.

After surgery, you may have some pain or nausea or may not feel like eating. These side effects are temporary and can be controlled. Any change in how your breast looks after

surgery depends on the amount of breast tissue that is removed and the location of the tumour. You may have the option to have breast reconstruction done at the same time as the surgery, or later.

If lymph nodes are removed from under your arm, lymph fluid may build up in your arm and hand and cause swelling. This is called *lymphedema*. Lymphedema can happen soon after surgery, or months or even years later.

Radiation therapy: In *external beam radiation therapy*, a large machine is used to carefully aim a beam of radiation at the tumour. The radiation damages the cells in the path of the beam – normal cells as well as cancer cells. In *brachytherapy*, or internal radiation therapy, radioactive material is placed directly into or near the tumour.

External beam radiation therapy is almost always given after breast-conserving surgery to destroy any cancer cells that may remain in the breast area. In some cases, the lymph node area will be treated as well. Radiation is sometimes used after a mastectomy.

Radiation side effects are usually mild. Side effects are different depending on what part of the body receives the radiation. You may feel more tired than usual or notice changes to the skin (it may be red or tender) where the treatment was given. The nipple and the fold under the breast may be sensitive or sore. These side effects are a result of damage to normal cells. The side effects usually go away

when the treatment period is over and the normal cells repair themselves. Radiation to the armpit may increase the risk of lymphedema.

Chemotherapy: Chemotherapy may be given as pills or by injection. Chemotherapy drugs interfere with the ability of cancer cells to grow and spread, but they also damage healthy cells. Although healthy cells can recover over time, you may experience side effects from your treatment like nausea, vomiting, loss of appetite, fatigue, hair loss and an increased risk of infection.

Talk to your doctor about your fertility options before starting treatment

Some chemotherapy drugs can affect your ability to become pregnant. If you plan to have children after treatment, talk to your doctor about your options.

Hormonal therapy: Hormones are chemical substances that are produced by glands in the body or made in a laboratory. Hormonal therapy is a treatment that removes hormones from your body or blocks their action and stops cancer cells from growing. Drugs, surgery or radiation therapy can be used to change hormone levels.

If you have a tumour that is hormone receptor positive, your doctor may offer you hormonal therapy.

Hormonal drugs can be given as pills or injections, or both. Different drugs cause different side effects. You may notice menopause-like symptoms, such as irregular periods, hot flashes, vaginal discharge or

irritation. These effects can usually be reduced or controlled. They often go away when therapy is finished, but sometimes menopause is permanent.

For pre-menopausal women, surgically removing the ovaries is another form of hormonal treatment for breast cancer. If you have your ovaries removed, you will go into menopause right away. The side effects of having your ovaries removed are likely to be more severe than if you had gone into menopause naturally.

Biological therapy: Biological therapy for breast cancer uses drugs to interfere with how breast cancer cells grow and uses the body's immune system to destroy cancer cells.

Biological therapy may be used for women whose breast cancer has too much of the HER2 protein. The medication is given by injection and may be given with chemotherapy. Side effects may include flu-like symptoms (fever, chills, nausea), headache, rash or heart problems.

Clinical treatment trials: Clinical treatment trials investigate new approaches to treating cancer, such as new drugs, new types of treatments or combinations of existing treatments. They are closely monitored to make sure that they are safe for the participants. Ask your doctor if there is a clinical trial suitable as a treatment option for you. You may benefit and so may future cancer patients.

Complementary therapies: Complementary therapies are used *together with* conventional treatments. More research is needed to understand if these therapies are effective and how they work.

Alternative therapies are used *instead of* conventional treatments. Alternative therapies haven't been tested for safety or effectiveness. It's not known whether they will harm you or be effective in the treatment of cancer.

If you are thinking about using a complementary or alternative therapy, find out as much as you can about the therapy and talk to your healthcare team. It's possible that the therapy might interfere with test results or regular treatments.

Possible long-term side effects of treatment

Some side effects of treatment for breast cancer can be long lasting. Long-term side effects may be physical, such as lymphedema, early menopause or infertility. Side effects may also be emotional, such as changes to your self-image or sexuality.

Lymphedema: Lymphedema is swelling in the arm or hand caused by a buildup of lymph fluid. This may happen if lymph nodes have been removed by surgery or damaged by radiation therapy or by the cancer itself. It's difficult to predict who will get lymphedema. The risk is higher if you've had many lymph nodes removed or if you've had radiation therapy to your underarm area.

Lymphedema can happen soon after treatment, or months or even years later. It can be a temporary or long-term condition. Many women who develop lymphedema have mild symptoms that can be controlled very well. Be sure to call your doctor if you notice any swelling, redness or signs of infection in the arm on the same side as your surgery.

Menopause and infertility: Menopause is the end of menstruation. It is the time in a woman's life when the ovaries produce less estrogen and progesterone and pregnancy is no longer possible.

Some drug treatments, such as chemotherapy or hormonal therapy, can damage the ovaries and cause symptoms of menopause. These symptoms usually stop once treatment is over. Sometimes, depending on your age, the type of drugs or the dose you are taking, your periods may not return and menopause will be permanent. When the ovaries are removed, menopause happens right away. The side effects are often more severe than those caused by natural menopause. Your healthcare team can suggest ways to cope with these side effects.

Self-image and sexuality: For some women, their breasts are a very important part of their self-image as a woman, a mother or a partner. Having either a lumpectomy or a mastectomy may change how you feel about your body and your sexuality. You may wish to talk to your doctor about a breast prosthesis (a breast form that fits inside your bra and matches

the size and shape of your breast) or breast reconstruction (surgery to rebuild the breast).

Perhaps you are worried about being intimate with your partner or that your partner may reject you. It may help to talk about feelings with your partner, a close family member or friend. Your doctor can also refer you to specialists and counsellors who can help you and your partner with the emotional side effects of breast cancer treatment.

After treatment

Follow-up care helps you and your healthcare team monitor your progress and your recovery from treatment. At first, your follow-up care may be managed by one of the specialists from your healthcare team. Later on, it may be managed by your family doctor.

The schedule of follow-up visits is different for each person. You might see your doctor more often in the first three years after treatment and less often after that.

The end of cancer treatment may bring mixed emotions. You may be glad the treatments are over and look forward to returning to your normal activities. But you could feel anxious as well. If you are worried about your treatment ending, talk to your healthcare team. They are there to help you through this transition period.

Living with cancer

There are many sources of help available for people with cancer and for their caregivers.

Your healthcare team: If you need practical help or emotional support, members of your healthcare team may be able to suggest services in your community or refer you to cancer centre staff or mental health professionals.

Family and friends: Those closest to you can be very supportive. Accept offers of help. When someone says, “Let me know how I can help,” tell them what they can do. Maybe they can run errands, cook a meal or give you a ride to your doctor’s office.

People who have had a similar experience: Consider visiting a support group or talking with a cancer survivor in person, over the telephone or online. Talking with and learning from others who have had similar experiences can be helpful. Try more than one option to see which one suits you best.

Yourself: Try to stay positive. Staying positive is about figuring out how to deal with cancer in the best way that you can – and everyone will do this their own way. It doesn’t mean that you must seem happy or cheerful all the time or avoid talking or thinking about the difficulties of having cancer. But it can mean looking after yourself by finding relaxing, enjoyable activities that refresh you mentally, spiritually or physically.

The Canadian Cancer Society

Helping you understand cancer

Now that you have been introduced to the basics of breast cancer, you may want to learn more. Please contact the Canadian Cancer Society for more detailed information on breast cancer. Our services are free and confidential.

To contact the Canadian Cancer Society:

- Call an information specialist toll-free at **1 888 939-3333** Monday to Friday 9 a.m. to 6 p.m.
- E-mail us at **info@cis.cancer.ca**.
- Visit our website at **cancer.ca**.
- Contact your local Canadian Cancer Society office.



We'd like to hear from you

E-mail us at publicationsfeedback@cancer.ca if you have comments or suggestions to help us make this brochure more useful for you and other readers.

What we do

The Canadian Cancer Society fights cancer by:

- doing everything we can to prevent cancer
- funding research to outsmart cancer
- empowering, informing and supporting Canadians living with cancer
- advocating for public policies to improve the health of Canadians
- rallying Canadians to get involved in the fight against cancer

Contact us for up-to-date information about cancer, our services or to make a donation.



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