



Canadian
Cancer
Society



Breast Cancer

Understanding your diagnosis



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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 have to take in and the decisions you need to make.

“ *All I could hear was ‘cancer.’ I heard my doctor say something like, ‘We’re going to try and get the surgery done as soon as possible.’ I didn’t hear one word after that.* ”

The introductory information in this brochure can help you and your family take the first steps in learning about breast cancer. A better understanding may give you a feeling 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 refer to women in the text, but men with breast cancer may find some of the information in this brochure helpful.

For more information

The information in this brochure provides an introduction to breast cancer. More in-depth information is available on cancer.ca. You can also call our Cancer Information Service at 1-888-939-3333 to learn more about cancer, diagnosis, treatment, support and the services we offer.

What is cancer?

Cancer is a disease that starts in our cells. Our bodies are made up of trillions 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. It's important to find and treat malignant tumours as early as possible. In most cases, finding cancer early increases the chances of successful treatment.

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.

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.

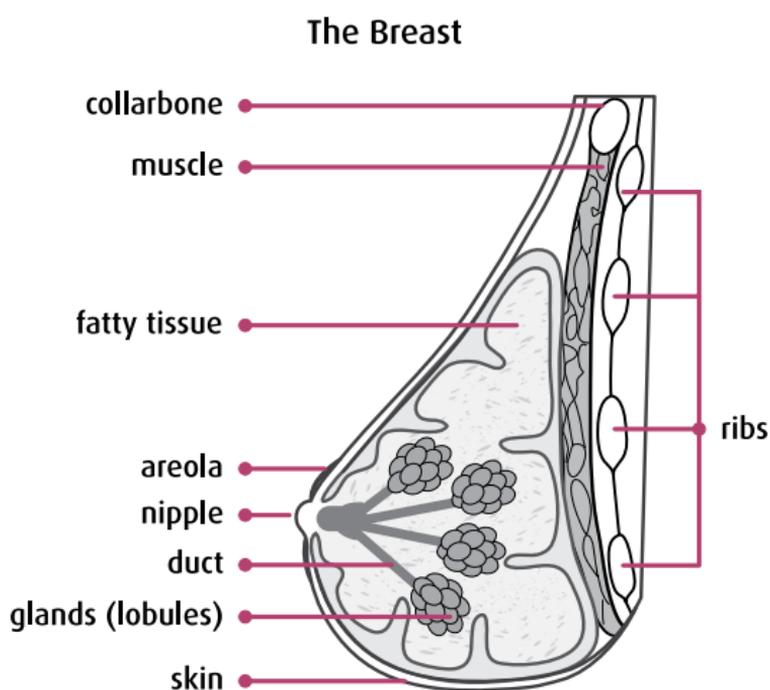
What is breast cancer?

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 mostly 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 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.

Diagnosing breast cancer

Your doctor may suspect you have breast cancer after taking your medical history and doing a physical exam. To confirm the diagnosis, your doctor will arrange special tests. These tests may also be used to “stage” and “grade” the cancer and to help plan treatment.

Symptoms of breast cancer: The most common signs and symptoms of breast cancer include:

- a lump in the breast that feels hard, irregular or tender
- a lump in the armpit
- changes in breast size or shape
- skin changes on the breast (dimpling, redness, swelling or itching)
- changes to the nipple, such as discharge or crusting

Other health problems can cause some of the same symptoms. 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.

The process of diagnosis may seem long and frustrating, but it is important for the doctor to make sure there are no other possible reasons for a health problem.

Your doctor will do one or more of the following tests to make a diagnosis.

Imaging studies: Imaging studies let your healthcare team look at your tissues, organs and bones in more detail. Using ultrasounds, CT scans, bone scans or MRIs, they can see the size of the tumour and if it has spread. These tests are usually painless, and you don't need an anesthetic (freezing).

Your doctor will do a mammogram to diagnose cancer even if you've already had a screening mammogram. During a diagnostic mammogram, more x-ray pictures are taken of areas in the breast that looked abnormal on the screening mammogram. Mammograms can be uncomfortable and may hurt because the breast is pressed between 2 glass plates. You need to stay still for less than a minute while the pictures are taken.

Biopsy: A biopsy is needed to make a definite diagnosis of breast cancer. Cells are taken from the body and checked under a microscope. If the cells are cancerous, they will be studied further to see how fast they are growing. There are many 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 (incision) in the breast to remove one or more samples of breast tissue. If necessary, an ultrasound or x-ray is used to guide the needle into the lump. A local anesthetic is used to numb the area. You may have some 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 2 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 don't need to stay overnight. A local anesthetic is used to numb the area.

Lab tests: If cancer cells are found in the biopsy sample, your doctor may order more lab 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 causes growth. Some breast cancer

cells have 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.

Blood tests: Sometimes blood tests may be ordered. Blood is taken and studied to see if the different types of blood cells are normal in number and how they look. The results show how well your organs are working and may suggest whether you have cancer and if it has spread.

Further testing: Your doctor may order more tests to find out if the cancer has spread and to help plan your treatment.

Will I be OK?

Most people with cancer want to know what to expect. Can they be cured?

A prognosis is your doctor's best estimate of how cancer will affect you and how it will respond to treatment. A prognosis looks at many factors including:

- the type, stage and grade of the cancer
- the location of the tumour and whether it has spread
- your age, sex and overall health

Even with all this information, it can still be very hard for your doctor to say exactly what will happen. Each person's situation is different.

Your doctor is the only person who can give a prognosis. Ask your doctor about the factors that affect your prognosis and what they mean for you.

Staging and grading

Once a definite diagnosis of cancer has been made, the cancer is given a stage and a grade. This information helps you and your healthcare team choose the best treatment for you.

The cancer stage describes the tumour size and tells whether it has spread.

In the earliest stage of breast cancer, cancer cells are found only in the milk ducts or lobules. This is called carcinoma in situ. If carcinoma in situ 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 5 stages.*

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

* This table summarizes the stages of breast cancer according to the Union for International Cancer Control (UICC). For more in-depth information, visit cancer.ca.

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

There are 3 grades for breast cancer.*

Grade	Description
1	Low grade - slow growing, less likely to spread
2	Intermediate grade (moderate)
3	High grade - tend to grow quickly, more likely to spread

* This table summarizes the grades of breast cancer according to the Bloom-Richardson system with Nottingham modification. For more in-depth information, visit cancer.ca.

Treatments for breast cancer

Your healthcare team considers your general health and whether you've reached menopause or not. They will also consider the type, stage, grade, hormone receptor status and HER2 status of the cancer to recommend the best treatments for you. You'll work together with your healthcare team to make the final treatment choices. Talk to them if you have questions or concerns.

Talk to your doctor about birth control before starting treatment

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

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

Surgery: A decision to have surgery depends on the size and location of the tumour. During the operation, all or part of the tumour and some healthy tissue around the tumour are removed. Surgery is done under general anesthetic (you will be unconscious). You may stay in the hospital for a few days or longer after the surgery.

Surgery is the most common treatment for breast cancer. There are 2 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 lymph node dissection. You may be offered a different 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.

Women may be sent home with the drains that were put in during surgery. The healthcare team will give instructions on how to care for the incision and the drains at home. Drains are removed when there is little fluid coming from them.

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.

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 is treated as well. Radiation is sometimes given 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. There may be changes to the breast in size and shape, or you may have pain. These side effects are from 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.

Talk to your doctor about fertility before starting chemotherapy

Some chemotherapy drugs can affect your ability to become pregnant after treatment. If you plan to have children in the future, talk to your doctor about your options. Women who want to preserve their fertility may be offered different or shorter therapies.

Chemotherapy: Chemotherapy uses drugs to treat cancer. Chemotherapy drugs may be given by injection (with a needle) or as pills. They 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 bone marrow suppression, nausea and vomiting, loss of appetite, weight gain or hair loss.

For more information on treatment, you may want to read our booklets *Chemotherapy and Other Drug Therapies* and *Radiation Therapy*.

Hormonal therapy: Hormones are chemical substances that are produced by glands in the body or made in a lab. Hormonal therapy is a treatment that removes hormones from your body or blocks their action and stops cancer cells from growing. Drugs or surgery 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 by injection, or both. Different drugs cause different side effects. You may have nausea and vomiting, or you may notice menopause-like symptoms, such as hot flashes, night sweats, 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, removing the ovaries by surgery is another form of hormonal treatment for breast cancer. If your ovaries are 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 (sometimes called immunotherapy) uses your immune system to fight cancer or to help control side effects of cancer treatments. Natural body substances or drugs made from natural body substances boost the body's own defences against illness.

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 medicine is given by injection and may be given with chemotherapy. Side effects may include flu-like symptoms, such as headache, diarrhea, nausea and vomiting, skin rash or fatigue.

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 and effective for the participants.

Ask your doctor if any clinical trials are available as a suitable treatment option for you. You may benefit and so may future cancer patients.

Our brochure *Clinical Trials* has more information, including how to find a clinical trial.

Complementary therapies: Complementary therapies – for example, massage therapy or acupuncture – are used *together with* conventional cancer treatments, often to help ease tension and stress as well as other side effects of treatment. They don't treat the cancer itself. 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 enough for safety or effectiveness. Using alternative treatments alone for cancer may have serious health effects.

If you're thinking about using a complementary or alternative therapy, learn 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 other treatments.

Our booklet *Complementary Therapies* has more information.

Side effects of treatment: Some cancer treatments cause side effects, such as fatigue, hair loss or nausea. Because treatments affect everyone differently, it's hard to predict which side effects – if any – you may have.

Side effects can often be well managed and even prevented. If you're worried about side effects, tell your healthcare team about your concerns and ask questions. They can tell you which side effects you should report right away and which ones can wait until your next appointment.

Possible long-term side effects

Some side effects of treatment for breast cancer can be long lasting. Long-term side effects may include lymphedema or early menopause and infertility.

Lymphedema: Lymphedema is swelling in the arm or hand caused by lymph fluid. Lymph fluid can build up if lymph nodes have been removed by surgery or damaged by radiation therapy or by the cancer itself. The risk for lymphedema 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. Call your doctor as soon as you can 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.

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 year after treatment and less often after that. After treatment has ended, you should report new symptoms and symptoms that don't go away to your doctor without waiting for your next scheduled appointment.

Maintaining a healthy diet: More studies are needed on how diet can affect the risk of breast cancer coming back (recurring). But you may want to consider eating less fat and more vegetables, fruit and grains as part a healthy diet and as a way to get to and stay at a healthy body weight.

Physical activity: Physical activity can reduce the side effects of chemotherapy and hormonal therapy and help you maintain a healthy body weight. Other benefits of exercise after breast cancer treatment include increased energy levels, less fatigue, anxiety and depression, improved cardiovascular fitness and higher self-esteem.

Self-image and sexuality: It's natural to be concerned about the effects of breast cancer and its treatment on your sexuality. The effects of menopause may make sex uncomfortable. Or you may be worried about how your body looks after treatment, about having sex with a partner or that you may be rejected.

For some women, their breasts are a very important part of their self-image as a woman, a partner or a mother. Having either a lumpectomy or a mastectomy may change how you feel about your body and your sexuality. You may want 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).

It may help to talk about these feelings with someone you trust. Your doctor can also refer you to specialists and counsellors who can help you with the emotional side effects of breast cancer treatment.

Our booklet *Sex, Intimacy and Cancer* has more detailed information.

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're worried about your treatment ending, talk to your healthcare team. They're there to help you through this transition period.

Living with cancer

Our booklet *Coping When You Have Cancer* has more detailed information and resources.

Many sources of help are 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: People 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 drive you to your doctor's office.

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

Yourself: Coping well with cancer doesn't mean that you have to be happy or cheerful all the time. But it can mean looking after yourself by finding relaxing, enjoyable activities that refresh you mentally, spiritually or physically. Take some time to find coping strategies to help you through this experience. You may also want to talk to a counsellor for more help.

Talking to someone who's been there

If you would like to talk to someone who's had a similar cancer experience, you can connect by phone with a trained volunteer who will listen, provide hope and suggest ideas for coping – all from the shared perspective of someone who's been there.

Register for this free program at match.cancer.ca or call us at 1-888-939-3333.

Want to connect with someone online?

If you'd like to join our online community, visit CancerConnection.ca. You can read news, join discussion groups, get support and help others at the same time. You'll find caring, supportive people there.

What causes breast cancer?

There is no single cause of breast cancer, but some factors increase the risk of developing it. Some people can develop breast cancer without any risk factors, while others who have these factors do not get it.

Risk factors for breast cancer include:

- 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 or ovarian cancer (especially in a mother, sister or daughter diagnosed before menopause, or if mutations in the BRCA1 or BRCA2 genes are present)
- dense breasts (as shown on a mammogram)
- Ashkenazi Jewish ancestry
- 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
- radiation treatment to the chest area (for example, to treat Hodgkin lymphoma), especially before age 30
- taking hormone replacement therapy (estrogen plus progestin) for more than 5 years

- atypical hyperplasia (a benign condition of the breast)
- being tall
- being obese or overweight
- drinking alcohol
- taking oral contraceptives (the pill) that combine estrogen and progesterone

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

Canadian Cancer Society

We're here for you.

When you have questions about treatment, diagnosis, care or services, we will help you find answers.

Call our toll-free number 1 888 939-3333.



Ask a trained cancer information specialist your questions about cancer. Call us or email info@cis.cancer.ca.



Connect with people online to join discussions, get support and help others. Visit CancerConnection.ca.



Browse Canada's most trusted online source of information on all types of cancer. Visit cancer.ca.

Our services are free and confidential. Many are available in other languages through interpreters.

Tell us what you think

Email cancerinfo@cancer.ca and tell us how we can make this publication better.



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 and our services or to make a donation.



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