

Breast Cancer

Information for People with Cancer

This information should not be used to diagnose yourself or in place of a doctor's care.

There is a small amount of fat between the skin and underlying muscle on the front of your chest. The breast grows in this fatty layer. Each breast has 15-20 lobes or sections. Lobes connect to ducts and ducts lead to the nipple.

Breast anatomy - female:

visualsonline.cancer.gov/retrieve.cfm?imageid=7127&dpi=72&fileformat=jpg

Breast anatomy – male:

visualsonline.cancer.gov/retrieve.cfm?imageid=9206&dpi=72&fileformat=jpg

The earlier a breast cancer is found, the better the chance of curing it with treatment. If you find a lump, go and see a doctor or nurse practitioner right away.

Breast lumps are either malignant (cancer) or benign (not cancer).

- Not all lumps are cancer. Up to 90% (90 out of 100) of breast lumps are not cancer.
- It is common for breasts to feel tender and full before a period starts. These are not signs of cancer.
- There may be one or many benign breast lumps at one time. They are likely caused by the normal cycle of hormones in your body.
- Many benign lumps may change size during a menstrual cycle. Doctors may choose to keep an eye on a lump through a menstrual cycle to see if it gets smaller or goes away. If the lump goes away, it is not cancer.

Diagnosis and Staging

What are the signs and symptoms of breast cancer?

These are some symptoms of breast cancer:

- A mass, a lump, a thickening or any change in your breast that is new or stays over time. Up to 90% (90 out of 100) of breast lumps are not cancer (benign).
- A lump in your breast gets bigger or your whole breast gets smaller or bigger. Painful lumps are less likely to be cancer.
- Your nipple starts to draw in (it sinks into your breast).
- There is dimpling or puckering of the skin of your breast.
- There is a change in the shape of your breast.
- You have bloody or watery discharge from your nipple.
- Redness, scaling or inflammation (swelling) of your nipple.
- Your breast is red, swollen or hot.
- A lump under your arm or in your armpit.

If you have any symptoms that you are worried about, please talk to your family doctor or nurse practitioner.

Male breast cancer

Male breast cancer is very rare. Each year, there are 10-30 new cases of male breast cancer diagnosed in B.C.

Male breast cancer is very similar to female breast cancer, and it is treated in mostly the same way.

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The main differences between male breast cancer and female breast cancer are:

- Male breast cancers are often diagnosed at later stages of disease (metastatic: cancer has spread to other parts of the body). This is likely because males ignore lumps in their breast tissue. Also, many males may not know that lumps in their breast tissue may be cancer.
- A high rate of male breast cancer cases are estrogen receptor positive (ER+). This means that the hormone estrogen helps the cancers grow.
- Males who develop breast cancer are more likely to have inherited a gene mutation (change) that raises their breast cancer risk.

Note: Available statistics do not have information about the inclusion of transgender and gender diverse participants. It is unknown how these statistics apply to transgender and gender diverse people. Patients are advised to speak with their primary care provider or specialists about their individual considerations and recommendations.

How is breast cancer diagnosed?

These tests may help diagnose breast cancer:

- **Diagnostic Mammogram (breast x-ray):** If a lump is found in your breast by touch or from a screening mammogram, you may get a diagnostic mammogram. This type of mammogram takes more x-ray pictures. It can help find out if the lump is benign (not cancer) or if you need more tests.
- **Ultrasound:** If a lump is found with a diagnostic mammogram, you may need an ultrasound. This can help determine if the lump is filled with fluid (a benign cyst that is not cancer) or is solid (possible cancer).
- **Magnetic Resonance Imaging (MRI):** May help determine if the lump is cancer.
- **Biopsy:** a small amount of tissue is removed. A specialist (pathologist) will look at the tissue.

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There are a few types of breast biopsies:

- **Fine needle aspiration (FNA):** a small needle is put into the lump to take out cells. This may be done in a doctor's office. Sometimes this is done with ultrasound, mammogram or MRI to help guide the needle.
 - **Core biopsy:** a needle takes out a long, thin piece of tissue, called a core. This is often done with an ultrasound, sometimes a mammogram or MRI.
 - **Open or excisional biopsy:** a surgeon removes the lump. Sometimes this is done after a fine needle aspiration or core biopsy. If the lump is not easy to find by hand, sometimes a wire is put into the lump. This wire helps to show the surgeon where the lump is.
- For information about how to understand your breast biopsy pathology report, read the Pathology Report Patient Companion Guide: www.bccancer.bc.ca/library-site/Documents/Patient%20Friendly%20Pathology%20Companion%20Guide%20-%20Finalv2.pdf
 - **Hormone receptor testing and Human Epidermal Growth Factor Receptor 2 (HER2) Testing:** If the lump is cancer, pathologists will test your biopsy tissue to see if certain hormones help the cancer grow. This helps your oncologist (cancer doctor) decide on the best treatment for you.
 - The hormones estrogen and progesterone may help some cancers grow. These are called estrogen receptor positive (ER+) or progesterone receptor positive (PR+) cancers.
 - If these hormones do not help the cancers grow, they are called estrogen receptor negative (ER-) or progesterone receptor negative (PR-) cancers.
 - HER2 is a common name for a gene that controls a protein on the surface of cells. This protein helps cells grow. If there is too much HER2 protein being made, it may help cancers grow.

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For more information on tests used to diagnose cancer, see our Screening and Diagnosis pathfinder: bccancer.libguides.com/pathfinder-screening

What are the types of breast cancer?

Breast cancers are either non-invasive or invasive:

- **Non-invasive:** tumour is in one spot. Also called “in situ”.
- **Invasive:** tumour has grown into the breast fat around the ducts and lobules of the breast.

Almost all breast cancers are adenocarcinomas. This means the cancer starts in the glandular parts of the breast. When a pathologist looks at the cancer under a microscope, they can tell exactly what part of the breast the cancer started in.

There are different types of adenocarcinomas, depending on where they started:

- **Ductal carcinoma:** 75% (75 out of 100) of cases. Start in the ducts of the breast.
- **Lobular carcinoma:** 15% (15 out of 100) of cases. Start in the lobules of the breast.
- **Medullary, tubular, scirrhous and other rare types.**

Invasive Ductal and Lobular Carcinoma

- The most common types of breast cancer.
- Invasive breast cancer means that cancer cells in the ducts or lobules of the breast have broken through the walls of these structures and grown into the surrounding cells.

Ductal Carcinomas In Situ (DCIS)

- Breast cells are exposed to changing levels of hormones. This can cause cells inside the milk ducts to multiply. These cells result in a condition called intraductal hyperplasia. If the cells start to look abnormal, this is called hyperplasia with atypia.

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- The extra cells may block the duct and begin to look like cancer cells. If this happens, this is called ductal carcinoma in situ (DCIS).
- In DCIS, the cancer cells are only in the milk ducts. If the cancer cells grow out of the ducts into the breast tissue surrounding the ducts, then it becomes an invasive cancer. DCIS is serious but very treatable and highly curable.
- DCIS is most often found by mammogram if calcium deposits start to form in the ducts.
- Pathologists may give the DCIS names depending on how they look under the microscope, such as papillary, cribriform and comedo.

Lobular Carcinoma In Situ (LCIS)

- LCIS forms when too many cells grow in the lobules of the breast.
- If you have LCIS, this means that an invasive breast cancer can develop in the future in either breast, not just where the LCIS was found. LCIS is less common than DCIS.
- If you have LCIS, you are at risk for future invasive breast cancer. Usually, the more LCIS you have, the higher your risk for future invasive breast cancer.
- LCIS is hard to see on a mammogram or ultrasound. It is often found when another lump is being checked by biopsy.
- If you have LCIS, the aim of any treatment is to stop invasive breast cancer from forming and to catch any cancers as early as possible. The options for treatment include:
 - Regular screening and follow-up.
 - Tamoxifen, a drug that can lower the risk of invasive breast cancer by half (50%).
 - Removing both breasts, called prophylactic mastectomy. This is an extreme option and is rarely recommended. See “Can I help prevent breast cancer?” section below.

Inflammatory Carcinoma of the breast

- This cancer shows up as inflammation (redness, swelling) of the skin over the tumour.
- It is a fast-growing (aggressive) type of adenocarcinoma.
- Very rare. Makes up 1% (1 out of 100) of cases in B.C.

Paget's disease

- This cancer begins by looking like a skin disease, like dermatitis or reddening or scales on the nipple. It may look like eczema. These skin changes are caused by the cancer cells growing into the skin.
- Tumour is usually below the nipple.
- A health care provider may not feel the tumour on an exam.
- Very rare: 0.6% (less than 1 out of 100) of cases.

Sarcomas or lymphomas of the breast

- Very rare: 0.5% (less than 1 out of 100) of cases
- Sarcomas start in the connective tissue of the breast.
- Lymphomas start in the lymphoid tissue of the breast.

What are the stages of breast cancer?

Staging describes the cancer. Staging is based on how much cancer is in the body, where it was first diagnosed, if the cancer has spread and where it has spread to.

The stage of the cancer can help your health care team plan your treatment. It can also tell them how your cancer might respond to treatment and the chance that your cancer may come back (recur).

Breast cancer staging:

- **Stage 0:** Tumour is non-invasive and usually small. Found with a mammogram. DCIS or LCIS.
- **Stage 1:** Tumour is 2 cm (about 1 inch) or smaller. Cancer has not spread to lymph nodes.
- **Stage 2:** Tumour is larger than 2 cm but less than 5 cm (2 inches) and/or cancer has spread to lymph nodes under the arm (armpit).

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- **Stage 3:** Tumour is larger than 5 cm. Cancer may have spread to many lymph nodes under the arm. Cancer has not spread to anywhere else in the body.
- **Stage 4:** Tumour has spread outside of the breast and nearby lymph nodes to another part of the body, like the liver or bone. This is called metastatic breast cancer.

For more information on staging, see our About Cancer page:

bccancer.bc.ca/health-info/types-of-cancer/about-cancer

Treatment

What is the treatment for breast cancer?

Cancer treatment may be different for each person. It depends on your particular cancer. Your treatment may be different from what is listed here.

Treatment for breast cancer depends on:

- Type, size and stage of the cancer
- Your age and health
- Results of hormone receptor and HER2 tests

Surgery

- For carcinoma in situ, only the tumour is removed.
- For early breast cancer found only in the breast and/or underarm lymph nodes, this is the most important treatment. It is also usually the first treatment.
- For invasive breast cancer, the tumour and some underarm lymph nodes are removed. A pathologist will examine the lymph nodes to see if the cancer has spread.

Getting Ready for Breast Surgery is a booklet to help you prepare for breast surgery at BC Cancer, Vancouver Hospital or UBC Hospital: [www.bccancer.bc.ca/patient-and-public-info-site/Documents/Getting Ready for Breast Surgery 2013.pdf](http://www.bccancer.bc.ca/patient-and-public-info-site/Documents/Getting_Ready_for_Breast_Surgery_2013.pdf)

The information in this booklet is similar for breast surgery at other B.C. hospitals. However, please check with your surgeon or hospital for their information about breast surgery.

Lumpectomy

- Also called a segmental or partial mastectomy.
- The tumour and a small area (margin) around the tumour is removed.
- This is breast conserving surgery since the breast is not removed (it is conserved).
- About one half to three quarters of all breast cancers can be treated this way.
- Sometimes the margin is too close to the cancer cells. In this case, you may need another surgery to remove extra tissue (re-excision). This is done to try and remove all of the cancer.
- In general, you have the option of a lumpectomy if you:
 - Have a tumour that is less than 4 cm (about 1 and a half inches).
 - Have a large enough breast so that when tissue is removed the breast still looks similar to what it did before.
 - Want to conserve your breast.
 - Are able to have radiation therapy after surgery.

Mastectomy

- One whole breast is removed.
- **Simple mastectomy:** All breast tissue is removed but no underarm lymph nodes are removed. May be used for in situ carcinomas (DCIS and LCIS).
- **Modified Radical Mastectomy:** All breast tissue and underarm lymph nodes are removed.
- **Radical mastectomy:** All breast tissue, underarm lymph nodes and muscles of chest wall underneath the breast are removed. This is not done very often.

Removing lymph nodes

Axillary dissection: A surgeon removes all tissue under the arm below the axillary vein.

Sentinel node biopsy: A surgeon removes fewer lymph nodes from under the arm.

- Before surgery, the breast is injected with a dye or radioactive material. The surgeon can then see which underarm lymph nodes are more likely to have cancer cells.
- A pathologist looks at the lymph nodes. If lymph nodes do not have any cancer, you do not need more surgery. If cancer is found, your health care team will recommend an axillary dissection.
- In general, you will have the option of a sentinel node biopsy if you:
 - Have a tumour that is less than 2 cm.
 - Have not had previous breast reduction surgery (surgery to make breasts smaller), or under arm lymph node surgery, or a mastectomy.
 - Do not have any obvious spread of the cancer to the underarm lymph nodes.

Breast reconstruction and prosthesis

See our Reconstruction or Prosthesis page: www.bccancer.bc.ca/health-info/types-of-cancer/breast-cancer/reconstruction-or-prosthesis

Side effects after removing under arm lymph nodes

Lymphedema

- Lymph nodes help drain lymph fluid from the arm and the breast.
- When lymph nodes are removed, the fluid may not drain properly. Fluid builds up and causes swelling, which is called lymphedema.
- For more information: www.bccancer.bc.ca/health-info/types-of-cancer/breast-cancer/lymphedema

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Difficulty raising your arm

- Scarring from the surgery can make it difficult to raise your arm.
- You may have some soreness under your arm.
- To help with this problem, it is important to practice raising your arm soon after surgery and often. Please speak to your health care team about this. For more information:
www.bccancer.bc.ca/health-info/types-of-cancer/breast-cancer/exercises-after-surgery

Numbness under your arm

- Surgery often damages a nerve under the arm. This nerve helps you feel things on the skin under the upper arm.
- Numbness may get better slowly or it may be permanent (it will never go away).

Pain in your upper arm

- Some patients have pain just below where the surgical area.
- This gets better with time.

Radiation therapy (high energy x-rays that kill or shrink cancer cells)

Radiation therapy is often used to treat breast cancer. Radiation is often given to the breast and sometimes to the lymph nodes near the tumour.

Radiation therapy is used:

- After a lumpectomy, to lower the chance of the cancer coming back (recurrence). Treatment is given each day for 3.5 – 6 weeks.
- After a total mastectomy, if there is a high chance of the cancer coming back in the chest wall. This happens when there is a large tumour or if there are many lymph nodes with cancer.

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- Before surgery, if the cancer cannot be safely removed by surgery. Often, the radiation will shrink the cancer so it can be removed after radiation.
- If the cancer comes back. Radiation can help with pain, bleeding or other problems.
- For more information about radiation therapy go to:
bccancer.bc.ca/our-services/treatments/radiation-therapy

Systemic Therapy (chemotherapy)

Often given in two situations:

- To kill cancer cells that still exist after surgery or radiation. This is for people with cancer that is only in the breast and/or lymph nodes under the arm. This is called adjuvant therapy.
- If cancer shows up somewhere else in the body or the cancer comes back after treatment is over (recurrence). Recurrent cancer cannot be cured but it can be treated.

A type of systemic therapy that people with breast cancer may get is called **hormone therapy**.

- The hormones estrogen and progesterone may help some breast cancers grow. These are called estrogen receptor positive (ER+) and progesterone receptor positive (PR+) cancer.
- The type of hormone therapy used depends on if you are pre-menopausal (have not gone through menopause) or post-menopausal (have gone through menopause).
 - For people who are pre-menopausal, we recommend Tamoxifen. This drug blocks the effect estrogen, produced by the ovaries, has on the cancer. For more information: www.bccancer.bc.ca/drug-database-site/Drug%20Index/Tamoxifen_handout.pdf

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- For people who are post-menopausal (have gone through menopause), we recommend Tamoxifen plus an aromatase inhibitor (AI). Both of these drugs block the effect of estrogen on the cancer. There are different AI's. One of them is Anastrozole: www.bccancer.bc.ca/drug-database-site/Drug%20Index/Anastrozole_handout_1June2015.pdf

For people who are pre-menopausal and their ovaries are still working, we sometimes recommend **ovarian ablation**. This is when we stop the ovaries from working, either permanently (they will never work again) or temporarily (for a short time). If the ovaries are not working, they cannot produce hormones that help the cancer grow.

We can stop the ovaries from working by:

- Removing them with surgery (permanent).
- Giving radiation for one week (permanent).
- Giving medications (temporary).

For more information about systemic therapy go to:

[bccancer.bc.ca/our-services/treatments/systemic-therapy-\(chemotherapy\)](http://bccancer.bc.ca/our-services/treatments/systemic-therapy-(chemotherapy))

What is the follow-up after treatment?

- Follow-up testing is based on your type of cancer.
- Guidelines for follow-up after treatment are on our website: www.bccancer.bc.ca/health-professionals/clinical-resources/cancer-management-manual/breast/breast#7-Survivorship-Care
- These are guidelines written for your doctor, nurse practitioner or specialist. You can look at them to see what appointments and tests you might need after treatment.

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- Please read our pamphlet Follow-up Plan after Breast Cancer Treatments:
 - English: www.bccancer.bc.ca/survivorship-site/Documents/Follow-up-after-breast-cancer-treatment.pdf
 - Simplified Chinese: www.bccancer.bc.ca/survivorship-site/Documents/Follow-up-after-breast-cancer-treatment-Simplified-Chinese.pdf
 - Traditional Chinese: www.bccancer.bc.ca/survivorship-site/Documents/Follow-up-after-breast-cancer-treatment-Traditional-Chinese.pdf
 - Punjabi: www.bccancer.bc.ca/survivorship-site/Documents/Follow-up-after-breast-cancer-treatment-Punjabi.pdf
- After treatment, you may return to the care of your family doctor or specialist for regular follow-up. If you do not have a family doctor, please talk to your BC Cancer health care team.
- The BC Cancer Life after Cancer page has information on issues that cancer survivors may face: bccancer.bc.ca/lifeaftercancer

More Information

What causes breast cancer and who gets it?

These are some of the risk factors for breast cancer. Not all of the risk factors below may cause breast cancer, but they may help the cancer start growing.

- One woman out of nine who live until the age of 80 will develop breast cancer.
- The risk of getting breast cancer goes up with age.
- Canadian First Nations and Inuit people have lower rates of breast cancer than other Canadians.
- A diagnosis of breast cancer increases the risk of more breast cancers.

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- Family history of breast cancer, especially if the relative is close such as a parent, brother or sister.
- Having the BRCA1 or BRCA2 gene mutation. These mutations are rare. Only 5-10% (5-10 out of 100 people) of women with breast cancer have these genes. For more information on hereditary breast cancer: www.bccancer.bc.ca/our-services/services/hereditary-cancer
- Family history of cancer of the cervix, uterus or colon.
- A longer lifetime exposure to hormone estrogen. Factors that increase your lifetime exposure to estrogen:
 - Starting menstruation before age 12.
 - Entering menopause after age 55.
 - Never being pregnant.
 - Having your first pregnancy after age 30.
 - Using hormone replacement therapy after menopause.
 - Being overweight (body mass index over 25) or obese (body mass index over 30).
Some estrogen is made in fatty tissue.
- Drinking alcohol.
- Previous radiation therapy to the chest.

Statistics

- **B.C.:** www.bccancer.bc.ca/health-info/disease-system-statistics/statistics-by-cancer-type
- **Canada:** www.cancer.ca/en/cancer-information/cancer-type/breast/statistics/?region=bc

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Note: Available statistics do not have information about the inclusion of transgender and gender diverse participants. It is unknown how these statistics apply to transgender and gender diverse people. Patients are advised to speak with their primary care provider or specialists about their individual considerations and recommendations.

Myths about breast cancer risk

- **Breast implants** do not increase your risk of breast cancer. However, people with breast implants are in a higher risk category because mammograms cannot be performed as easily on them. If you are getting implants, we strongly recommend having a mammogram before your surgery.

If you have implants, talk to your doctor about your options for screening for breast cancer. For more information: www.bccancer.bc.ca/screening/breast

- **Oral Contraceptives (birth control pill)** do not increase your risk of breast cancer. Some studies suggested a small increase in risk for people that used older types of birth control. Birth control pills now have less estrogen in them.
- **Underwire bras** do not cause breast cancer or increase your risk.
- **Mammograms** do not cause breast cancer or increase your risk.
- **An injury to your breast** does not increase your risk of breast cancer. However, it can sometimes draw your attention to a lump that was already there.
- **Having an abortion** does not increase your risk of breast cancer.

Can I help prevent breast cancer?

BC's leading cancer organizations created Five Plus, a website that encourages everyone to take five steps that may help to prevent breast cancer, plus two actions for possible early detection:

<http://www.fiveplus.ca/>

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- Maintain a healthy body weight.
- Maintain an active lifestyle.
- Limit how much alcohol you drink.
- Breastfeed if possible.
- Weigh the risks and benefits of hormone therapy for menopause symptoms.

Two actions for possible early detection:

- **Be breast self-aware.** Know how your breasts and the surrounding area usually look and feel. This way, you can tell if anything is unusual.
- **Book a mammogram.** For more information: www.bccancer.bc.ca/screening/breast

Other things you can do to lower your risk of breast cancer:

- **Eat healthy, nutritious foods.**
 - Follow Canada's Food Guide: www.canada.ca/en/health-canada/services/canada-food-guides.html
 - Visit the BC Cancer Food Choices and Cancer Prevention page: www.bccancer.bc.ca/health-info/prevention/food-choices
- **Stop smoking.** Do not smoke and try not to be around tobacco and cigarette smoke. Even if you have been using tobacco for many years, quitting will lower your risk of getting cancer. Support is available to help you quit smoking. Visit the BC Cancer Tobacco and Cancer Prevention page: www.bccancer.bc.ca/health-info/prevention/tobacco

If you have a high risk of developing breast cancer, these options may be recommended to you:

- **Prophylactic (preventive) mastectomy:** removal of one or both breasts to prevent future cancers. This is not done very often. The goal is to stop breast cancer from developing.
 - Some people may choose to have both breasts removed.

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- If a person has cancer in one breast, their doctor may recommend removal of the other breast.
- There are two kinds of prophylactic mastectomies. A **total prophylactic mastectomy** removes the breast and the nipples but not the lymph nodes. A **subcutaneous prophylactic mastectomy** keeps the nipple but leaves behind more breast tissue than a total mastectomy. This type of mastectomy is not recommended.
- **Hormone therapy:** Tamoxifen and aromatase inhibitors may be used to help prevent breast cancer in very high risk situations. See Treatment section for more information.

Is there screening for breast cancer?

- **Mammograms:** BC Cancer Breast Screening encourages healthy people to have regular screening mammograms.
 - If you are aged 40 or more, you can make an appointment for a free screening mammogram once every 1-2 years, without a doctors' referral.
 - For more information: www.bccancer.bc.ca/screening/breast
- **Magnetic resonance imaging (MRI):** A screening tool for people aged 30-65 who carry breast cancer genes.
- **Breast self-examination (BSE):** There is no evidence that self-examination lowers the chance of a person dying from breast cancer. However, it allows you to become familiar with your breasts and the normal changes that happen over time. Talk to your doctor or nurse practitioner about self-examination.
 - If you find a lump or notice anything unusual in your breasts, talk to your doctor or nurse practitioner. You may need more tests.

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- **Genetic (hereditary) testing:** Only 5- 10% (5-10 out of 100) of breast cancers are related to inherited gene mutations (genes passed from mother or father to children). If you have close blood relatives with breast cancer, you can contact the Hereditary Cancer Program for more information: www.bccancer.bc.ca/our-services/services/hereditary-cancer

Where can I find more information?

- If you have questions about breast cancer, please talk to your health care team.
- Our librarians can help you find the information you need. Visit our Library page: bccancer.bc.ca/our-services/services/library
- BC Cancer Library Breast Cancer pathfinder: bccancer.libguides.com/pathfinder_breast
- Managing Your Symptoms: www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects
- Emotional Support: www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support