



NCCN
GUIDELINES
FOR PATIENTS®

2025

Breast Cancer Screening and Diagnosis



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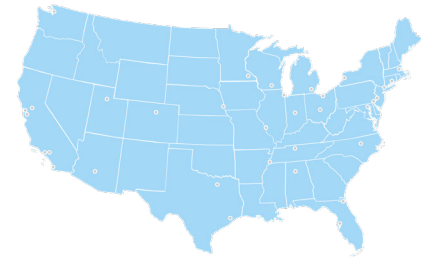


About the NCCN Guidelines for Patients®



National Comprehensive
Cancer Network®

Did you know that top cancer centers across the United States work together to improve cancer care? This alliance of leading cancer centers is called the National Comprehensive Cancer Network® (NCCN®).



Cancer care is always changing. NCCN develops evidence-based cancer care recommendations used by health care providers worldwide. These frequently updated recommendations are the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®). The NCCN Guidelines for Patients plainly explain these expert recommendations for people with cancer and caregivers.

**These NCCN Guidelines for Patients are based on the
NCCN Clinical Practice Guidelines in Oncology (NCCN
Guidelines®) for Breast Cancer Screening and Diagnosis
Version 2.2025 – March 28, 2025.**

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About breast cancer screening

- 5 What are the parts of the breast?
- 5 Why is breast cancer screening important?
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Breast cancer starts in the cells of the breast. Regular breast cancer screening and breast exams help find breast cancer at its earliest, most treatable stages.

Lobules look like tiny clusters of grapes. Small tubes called ducts connect the lobules to the nipple to carry breast milk. A terminal lobular unit (TDLU) is a lobule connected to the end of a small milk duct.

Why is breast cancer screening important?

Breast cancer screening aims to find breast cancer early. Breast cancer found earlier is often treated more successfully, reducing the risk of dying from breast cancer. This book will cover screening recommendations for those assigned female at birth. It will also discuss screening and testing options for those who are pregnant or lactating (breastfeeding), and those with breast pain, nipple discharge, changes in the skin, lumps, or other symptoms that require further testing.

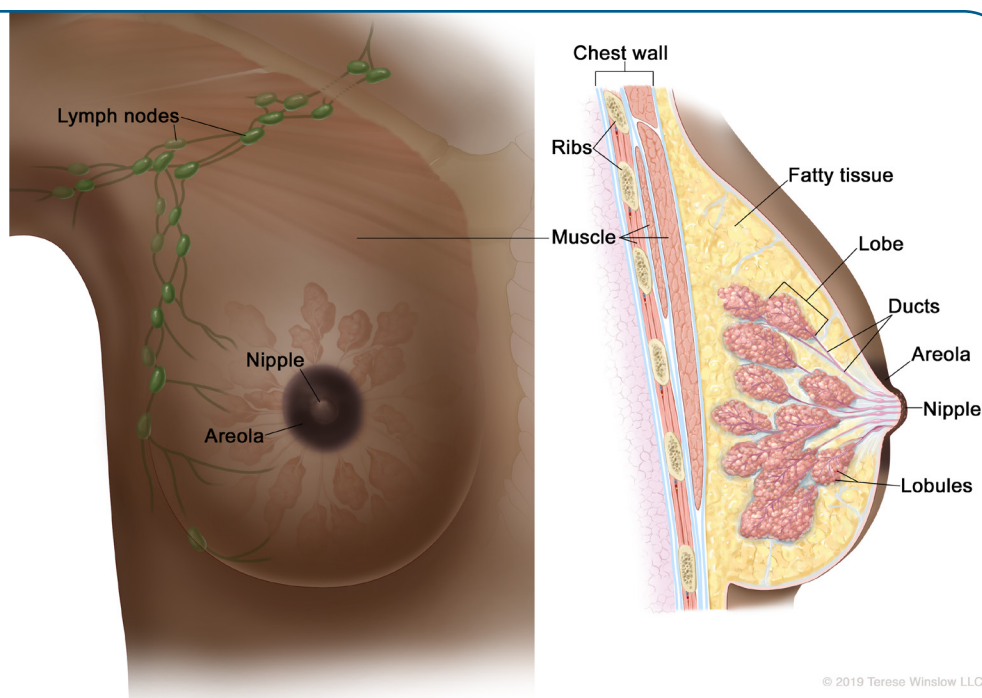
What are the parts of the breast?

The breast is a gland found on the chest. The breast is made of milk ducts, fat, nerves, lymph and blood vessels, ligaments, and other connective tissue. Behind the breast are the pectoral (chest) muscles and ribs. Muscles and ligaments help hold the breast in place.

Breast tissue contains glands that can make milk. These milk glands are called lobules.

The breast

The breast is a glandular organ made up of milk ducts, fat, nerves, blood and lymph vessels, ligaments, and other connective tissue.



Those assigned male at birth

Anyone can develop breast cancer, including those assigned male at birth. Although there are some differences between breast cancers in those assigned male and those assigned female at birth, treatment is very similar for all genders.

Those assigned male at birth do not undergo regular mammogram screening. However, if you feel a lump, have breast pain, or a change in the size or shape of one breast, then see your health care provider and read about recommended tests in *Chapter 5: What to do when you have symptoms*.

Transgender persons

Transgender persons should consult with their primary care physician to determine when or whether screening would be appropriate. However, if you feel a lump, have breast pain, or a change in the size or shape of one breast, then see your health care provider and read about recommended tests in *Chapter 5: What to do when you have symptoms*.

Where does breast cancer start?

Most breast cancers start in cells that make up the lining (epithelial cells) in the terminal duct lobular units (TDLUs) of the breast.

The most common types of breast cancer are ductal and lobular carcinoma.

- **Ductal carcinoma** starts in the cells that line the milk ducts. Ductal carcinoma is the most common type of breast cancer.
- **Lobular carcinoma** starts in the lobules (milk glands) of the breast.

What's in this book?

This chapter provided a brief overview of the importance of breast cancer screening. Other chapters in the book explain:

- Types of breast imaging tests and how doctors categorize findings on those imaging tests.
- How risk is calculated and when to start breast cancer screening for those at average and increased risk.
- Why it is important to continue breast cancer screening during and after pregnancy and when you might need more tests.
- When you should see a health care provider or get further testing.

What can you do to get the best care?

Advocate for yourself. You have an important role to play in your care. In fact, you're more likely to get the care you want by asking questions and making shared decisions with your care team.

The NCCN Guidelines for Patients will help you understand cancer care. With better understanding, you'll be more prepared to discuss your care with your team and share your concerns. Many people feel more satisfied when they play an active role in their care.

You may not know what to ask your care team. That's common. Each chapter in this book ends with an important section called *Questions to ask*. These suggested questions will help you get more information on all aspects of your care.

Take the next step and keep reading to learn what is the best care for you!

Why you should read this book

Making decisions about cancer care can be stressful. You may need to make tough decisions under pressure about complex choices.

The NCCN Guidelines for Patients are trusted by patients and providers. They clearly explain current care recommendations made by respected experts in the field. Recommendations are based on the latest research and practices at leading cancer centers.

Cancer care is not the same for everyone. By following expert recommendations for your situation, you are more likely to improve your care and have better outcomes as a result. Use this book as your guide to find the information you need to make important decisions.

2

Screening and diagnostic tests

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- 9 General health tests
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- 12 Other breast imaging tests
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This chapter provides an overview of imaging tests used for breast cancer screening and diagnosis.

Overview

In this chapter, you'll find information about mammograms and other breast imaging tests and learn the difference between screening and diagnostic tests. You'll also find information on how test results are interpreted and what those results mean for your follow-up care.

What's the difference between screening and diagnostic tests?

- **Screening** is done on a regular basis when there are no symptoms. For example, an annual screening mammogram is done once a year to detect breast cancer or anything abnormal before you have symptoms.
- **Diagnostic tests** are done when there are signs or symptoms such as a lump that can be felt in the breast, changes in the skin of the breast or nipple, or nipple discharge. With breast symptoms, the most frequent diagnostic tests used are mammograms and breast ultrasound.

A radiologist, a medical doctor, will interpret any screening and diagnostic tests and send a report to your health care provider. The radiologist will determine the best imaging methods according to current guidelines.

General health tests

Medical history

A medical history is a record of all health issues and treatments you have had in your life. Be prepared to list any illness, injury, or surgery and when it occurred. Bring a list or the bottles of old and new medicines and any over-the-counter (OTC) medicines, herbals, or supplements you take. Tell your care team about any symptoms you have. A medical history is sometimes called a health history.

Family history

Some cancers and other diseases can run in families. Your health care provider (HCP) will ask about the health history of family members who are blood relatives. This information is called a family history. You can help by asking blood relatives from both sides of the family if they have or had cancer. It's important to know the specific type of cancer, or where the cancer started, if it was in multiple locations, how old they were when they had the cancer, and if they had genetic testing.

Clinical breast exam

A clinical breast exam (CBE) is a physical exam of the bare breast performed by a health care provider to check for lumps or other changes. It is done while you are seated and/or lying down. Your provider should take time to palpate (feel) the entire breast, including the armpit. A nurse or assistant might also be in the room during the exam.

Mammogram

A mammogram is a picture of the inside of your breast. The picture is made using x-rays. A computer combines the x-rays to make detailed pictures. A bilateral mammogram includes pictures of both breasts.

Screening mammograms are annual preventive exams—done every year to find cancers before they become large enough to be felt or cause symptoms. Diagnostic mammograms are done when there are signs or symptoms in the breast or armpit. A screening mammogram only takes about 10 to 20 minutes, while a diagnostic mammogram can be longer. If you are visiting a new or different screening center, it is helpful to bring your prior mammograms so they can be used for comparison.

Both screening and diagnostic mammograms:

- Use low-dose x-rays to examine the breast.

- May use film or digital technology.
- Some may use technology called digital breast tomosynthesis, called DBT or tomo for short.

During a mammogram, a specially trained technologist will position your breast in the mammography unit. Your breast will be placed on a platform and flattened (compressed) with a clear plastic paddle. You may experience some discomfort with compression of the breast, but the discomfort is temporary.

The breast is compressed in order to:

- Even out breast thickness
- Spread out the tissue
- Hold the breast still
- Increase sharpness of the picture

You will be asked to stand very still and hold your breath for a few seconds while the pictures are being taken. You will be asked

Mammogram

A mammogram uses x-rays and a computer to make detailed pictures of the inside of your breast.



to change positions between images. The process will be repeated for the other breast.

Types of mammograms are described next.

Screening mammogram

A screening mammogram is the only imaging test that has been found to reduce death from breast cancer. It is a test that uses low-dose x-rays to take 4 standard pictures of your breast (2 on each side). A radiologist is a doctor who reviews the images and determines if you need additional imaging. If you need additional imaging, you will likely have a diagnostic mammogram. About 1 out of 10 people will be asked to return for more imaging. In most cases, the follow-up test shows nothing suspicious.

Diagnostic mammogram

Diagnostic mammograms look at specific areas of your breasts, which may not be clearly seen on screening mammograms. A diagnostic mammogram might be done after a screening mammogram or for a symptom such as a breast lump or nipple discharge. Diagnostic mammograms may include extra specialized views. A radiologist will most likely evaluate the diagnostic mammogram while you wait so if additional breast imaging is needed, it can be done right away.

Tomosynthesis mammogram

Tomosynthesis, sometimes called 3D mammograms, is a newer type of digital mammogram that may help to see small abnormal areas of the breast more easily. It takes multiple thin images that are combined to make a complete picture. Tomosynthesis

What's the difference between a screening and diagnostic mammogram?

A mammogram is a picture of the inside of your breast made using x-rays. During a mammogram, the breast is pressed between two plates while you stand in different positions. Multiple x-rays will be taken. A computer combines the x-rays to make detailed pictures.

Screening mammogram

- Done on a regular basis when there are no signs or symptoms of breast cancer. Results take a few days.

Diagnostic mammogram

- Used for those who have symptoms such as a lump, pain, skin thickening or nipple discharge, or those whose breasts have changed shape or size. An ultrasound is often used with a diagnostic mammogram.
- Also used to take a closer look at an abnormal area found in a screening mammogram.
- A radiologist will evaluate the diagnostic mammogram while you wait so if additional testing is needed, it can be done right away.

Both types of mammograms use low-dose x-rays to examine the breast. They may use film or digital technology.

can decrease call back rates (the need for additional tests) and improve cancer detection. Tomosynthesis can be used for screening or diagnostic mammograms and is recommended, if available in your area.

Contrast-enhanced mammogram

Contrast-enhanced mammography (CEM) is a new technology that uses contrast material to improve the pictures of the inside of the breast. For those at increased risk for breast cancer, contrast-enhanced screening mammogram is a possible option, although, research studies are still ongoing. CEM is not as widely available as mammogram, ultrasound, and MRI.

Other breast imaging tests

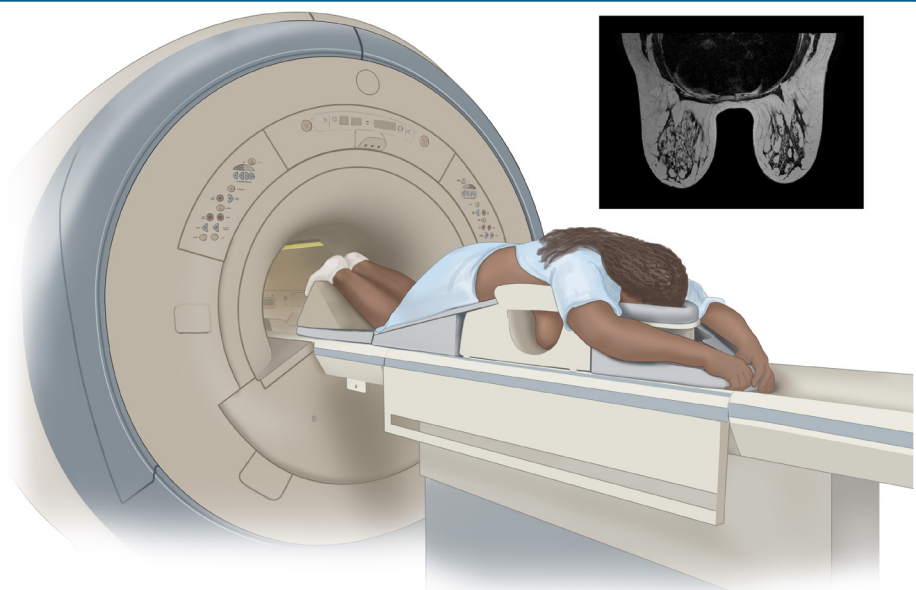
Breast MRI

A magnetic resonance imaging (MRI) scan uses radio waves and powerful magnets to take pictures of the inside of the body. MRI does not use radiation. If needed, an MRI would be used in addition to a mammogram. If you are at high risk for breast cancer, an annual breast MRI might be recommended. Because of the very strong magnets used in the MRI machine, tell the technologist if you have any metal in your body.

Contrast material will be used to improve the pictures of the breast. For a breast MRI, a gadolinium-based contrast agent (GBCA)—a rare, heavy metal—is used to enhance the quality of the MRI. Contrast is given through intravenous (IV) line placed in a vein, typically in the hand or near the elbow.

Breast MRI

If needed, a breast MRI will be done in addition to a mammogram. In a breast MRI, you are positioned face down with your arms overhead.



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Tell your health care provider (HCP) about all of your medical conditions, including:

- If you are pregnant or think you might be pregnant
- The date of your last MRI with gadolinium
- If you have a gadolinium allergy or allergy to other x-ray contrast
- If you have any metal in your body (such as implanted infusion ports, metal screws or plates, or some cardiac pacemakers)
- If you have kidney problems

Breast ultrasound

An ultrasound (US) uses sound waves to form pictures of the inside of the body. This is similar to the sonogram used for pregnancy. A wand-like probe (transducer) will be held and moved on your bare breast using gel. It may also be placed below your armpit. Ultrasound is painless and does not use x-rays, so it can be repeated as needed. Ultrasound is frequently used without a mammogram for diagnosis of breast symptoms in those under 30 years of age or with a mammogram in those 30 years of age and over.

Molecular breast imaging

Molecular breast imaging uses a radioactive tracer and special camera to find breast cancer. Molecular imaging such as breast-specific gamma imaging or sestamibi scan may improve detection. However, whole body radiation dose is much higher than that of standard mammograms. Molecular breast imaging is not a common breast screening imaging test.

Mammogram results

Mammogram results or findings are described using Breast Imaging Reporting and Data System (BI-RADS). Some of the terms below might be used in addition to BI-RADS imaging results explained starting on page 14.

Calcifications

Calcifications are small, white deposits of calcium in the breast that can be seen on a mammogram. Most calcifications seen on a mammogram are not breast cancer.

There are 2 types of breast calcification:

- **Macrocalcifications** are large deposits and are usually not related to cancer.
- **Microcalcifications** are specks of calcium that may be found in an area of rapidly dividing cells. Microcalcifications clustered together may be a sign of cancer.

Distortion

Distortion describes when an area of the breast tissue appears on a mammogram at an odd angle, fuzzy or misshapen (disorganized), particularly when compared to the other breast or prior imaging tests. This may just be due to how the breast was positioned during the mammogram. It might also be caused by a prior injury, procedure done on the breast, or breast cancer.

Masses

A mass is an area of abnormal tissue. A mass could be solid, fluid-filled, or a combination of both. A mass might be seen with or without

calcifications. Some masses can be watched over time with regular mammograms or ultrasounds to see if they change, but others may need to be biopsied.

Asymmetries

Asymmetries are white areas seen on a mammogram that look different from the normal breast tissue pattern, particularly when compared to the other breast. Different types of asymmetries include focal asymmetry, developing asymmetry, and global asymmetry. Further imaging will likely be needed to get a better look at the area.

Dense breasts

Your mammogram report will include an assessment of your breast density. Breast density is a description of how much fibrous and glandular tissue is in your breasts compared to fatty tissue. The denser your breasts, the harder it can be to see abnormal areas on mammograms.

Breasts are composed of fat and fibroglandular tissue. Dense breasts have more fibroglandular tissue than fat. Having dense breast tissue is not abnormal but may make it harder to see breast cancer or other changes in the breast on a mammogram. Breast density can change over time. If you have dense breast tissue, ask your health care provider about the risks and benefits of additional screening.

More information on breast density can be found on page 16.

BI-RADS

Breast Imaging Reporting and Data System or BI-RADS is a standard system used in the United States to describe mammogram results. It also classifies breast density into groups.

A radiologist will categorize your mammogram results using a BI-RADS numbered system of 0 through 6 and classify your breast density using a lettered system of A through D. Talk to your health care provider about your mammogram results and any next steps.

These same BI-RADS categories can also be used to describe the results of a breast ultrasound or breast MRI.

BI-RADS 1: Negative

BI-RADS 1 means the test is negative for cancer. This is a normal test result. The recommendation is to continue with annual mammogram screening.

BI-RADS 2: Benign (not cancer)

This is also a negative test result (there's no sign of cancer), but the radiologist chooses to describe a finding that is not cancer, such as benign calcifications, masses, or lymph nodes in the breast that are clearly not cancer. This can also be used to describe changes from a prior procedure (such as a biopsy) or surgery in the breast. This ensures that others who look at the mammogram in the future will not mistake the benign finding as suspicious. The recommendation is to continue with annual mammogram screening.

BI-RADS 3: Probably benign – Follow-up within a short time frame

A finding in this category has a very low (no more than 2% or 2 in 100) chance of cancer and is not expected to change over time. Breast experts agree that it is very safe to perform follow-up imaging to see if the area in question changes over time.

You will typically need follow-up imaging in 6, 12, and 24 months to evaluate whether the finding is stable. This approach helps avoid unnecessary biopsies, but if the area does change over time, it still allows for early diagnosis.

BI-RADS 4: Suspicious – Biopsy should be done

These findings do not definitely look like cancer but could be cancer. The radiologist is concerned enough to recommend a biopsy. The findings in this category can have a wide range of suspicion levels. For this reason, this category is often divided further:

- **4A:** Finding with a low likelihood of cancer. A low likelihood is more than 2% but no more than 10% or about 2 to 10 out of 100.
- **4B:** Finding with a moderate likelihood of cancer. A moderate likelihood is more than 10% but no more than 50% or about 10 to 50 out of 100.
- **4C:** Finding with a high likelihood of cancer, but not as high as Category 5. A high likelihood is more than 50% but less than 95% or about 50 to 95 out of 100.

BI-RADS Results

- 0** BI-RADS 0 means more imaging tests are needed to determine BI-RADS category.
- 1** BI-RADS 1 is a negative (normal) result.
- 2** BI-RADS 2 is a benign (not cancer) finding.
- 3** BI-RADS 3 is a probably benign finding. Follow-up is needed within a short time frame.
- 4** BI-RADS 4 is a suspicious abnormality and a biopsy should be done.
- 5** BI-RADS 5 is highly suggestive of cancer and a biopsy should be done.
- 6** BI-RADS 6 is a biopsy-confirmed cancer.

BI-RADS 5: Highly suggestive of malignancy – Biopsy should be done

The findings have a high chance (at least 95% or 95 out of 100) of being cancer. Biopsy is very strongly recommended.

BI-RADS 6: Known biopsy – Proven malignancy

This category is used only for findings on a mammogram (or ultrasound or MRI) that have already been shown to be cancer from a biopsy. Imaging may be used in this way to see how the cancer is responding to treatment.

BI-RADS breast density

BI-RADS breast density categories are described below.

- **Category A: Almost entirely fatty** means the breasts are almost entirely made up of fatty tissue. There is very little fibroglandular breast tissue.
- **Category B: Scattered areas of fibroglandular density** means the breasts are mostly made up of fatty tissue. But there are some scattered areas of fibroglandular breast tissue.
- **Category C: Heterogeneously dense** means most of the breast tissue is fibroglandular breast tissue. But there are some areas of fatty tissue.
- **Category D: Extremely dense** means nearly all of the breast tissue is fibroglandular breast tissue. There is very little fatty tissue.

Non-dense breasts are defined as:

- Almost entirely fatty
- Scattered areas of fibroglandular density

Dense breasts are defined as:

- Heterogeneously dense
- Extremely dense

Those with dense breasts might benefit from more screening tests, in addition to a screening mammogram. Ask your health care provider for more information.

Key points

- Screening is done on a regular basis when there are no symptoms.
- Diagnostic tests are done when there are signs or symptoms.
- Clinical breast exam (CBE) is a physical exam of the bare breast performed by a health care provider to check for lumps or other changes.
- Both screening and diagnostic mammograms use low-dose x-rays to examine the breast. They may use film or digital technology.
- Breast Imaging Reporting and Data System or BI-RADS is a standard system used to describe mammogram results and breast density.
- These same BI-RADS categories can also be used to describe the results of a breast ultrasound or breast MRI.

Questions to ask

- Do I have dense breasts?
- Should I have other imaging tests in addition to a mammogram on a regular basis?
- Who can I talk to about my BI-RADS results?
- How will my BI-RADS results affect how often I have mammograms or other screening tests?
- Should I have a biopsy?

3

Risk assessment for screening

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- 20 How is breast cancer risk calculated?
- 21 Average risk
- 21 Increased risk
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Breast cancer risk is your chance for developing breast cancer. This chapter discusses the difference between average and increased risk and at what age you should start screening mammograms.

Screening mammograms are done for those assigned female at birth who do not have any signs or symptoms of breast cancer.

See your health care provider (HCP) regularly for checkups. You might be asked to see your HCP more than once a year based on your risk factors for developing breast cancer. Know your breasts and immediately report any changes to your HCP. As your family cancer history changes, keep your HCP updated. This is important.

What is breast cancer risk?

Breast cancer risk is your chance of developing breast cancer. Everyone has some risk for developing breast cancer. However, some people are at increased risk.

Annual screening mammograms should start at 40 years of age for those at average risk.

Factors that put you at increased risk include:

- Family history or genetic testing that suggests a genetic predisposition to breast and other types of cancer (for example, *BRCA1* or *BRCA2*)
- Residual lifetime risk of 20 percent (20%) or more as defined by mathematical models that include a comprehensive family cancer history
- If you had radiation therapy (RT) to the chest between 10 and 30 years of age
- Residual lifetime risk of 20 percent (20%) or more and a previous breast biopsy that showed atypical ductal hyperplasia (ADH) or lobular neoplasia such as lobular carcinoma in situ (LCIS) or atypical lobular hyperplasia (ALH)
- 5-year risk of invasive breast cancer of 1.7% or greater in those 35 years of age and over (if using Gail Model)
- Those with a mammogram finding of heterogeneously dense and/or extremely dense breasts who do not meet any other increased risk category.

How is breast cancer risk calculated?

Breast cancer risk is calculated using breast cancer risk assessment models. It helps determine if you are at average or increased risk for developing breast cancer. This information suggests the best time to start breast cancer screening.

Commonly used breast cancer risk assessment models include Tyrer-Cuzick Model (International Breast Cancer Intervention Study or IBIS), Breast Cancer Risk Assessment Tool (BCRAT or the Gail model), BRCAPRO, Breast Cancer Surveillance Consortium (BCSC), and CanRisk which uses the Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm (BOADICEA). Ask your health care provider which model they are using to determine your risk level.

Individuals should undergo breast cancer risk assessment by 25 years of age. Your HCP should share information regarding potential benefits, risks, and limitations of breast screening. Shared decision-making between you and your HCP is encouraged.

What is your risk level?

Breast cancer risk is largely based on personal health history and family history of cancer. The goal is to undergo a risk assessment by 25 years of age. This will determine when you should start annual screening mammograms. Your risk for developing breast cancer will be rated as average or increased risk.

Your level of breast cancer risk can also be calculated based on the following information:

- What is your age, race, and ethnicity?
- What was the age of your first menstrual period (menarche)?
- Have you even been pregnant or given birth? What was your age when you first gave birth?
- How many blood relatives (parents, brothers, sisters, children, aunts, uncles, grandparents) on either side of your family have breast cancer? Are there other cancers such as ovarian, tubal, uterine, pancreatic, or prostate cancers in the family? What is/was the cancer cell type? At what age were they diagnosed?
- Have you had a breast biopsy? How many and when? Do you have a copy of the results?
- Have you or any close blood relatives had genetic testing? What were the results?
- Have you had a breast biopsy that showed atypical hyperplasia or lobular carcinoma in situ?

Average risk

Average risk means you have no known genetic or family cancer history or personal health history that suggests you are at increased risk of developing breast cancer. It is recommended you have annual screening mammograms starting at 40 years of age. However, based on certain risk factors or as your family cancer history information changes, your HCP might recommend you start annual screening mammograms sooner.

25 to 39 years of age

See your HCP for a checkup every 1 to 3 years. This should include breast cancer risk assessment and a breast exam.

40 years of age and over

See your HCP for a checkup every year. This should include ongoing breast cancer risk assessment and, if not recently done, a breast exam. Have an annual screening mammogram. If available, a tomosynthesis is recommended.

There is no upper age limit for screening mammograms as long as you are healthy and are expected to live more than 10 years. This means that screening mammograms can continue throughout your entire life unless you and your health care provider decide otherwise based on your health.

Increased risk

If you are at increased risk for developing breast cancer, see your HCP at least once a year (annually). You might be asked to see your HCP more often.

Increased risk is divided into those who have or had:

1. A family history of cancer that suggests a genetic predisposition towards breast cancer. You may be referred to a genetic counselor or other cancer genetics expert to assess if your family has a genetic predisposition. Genetic testing may be recommended for you or another family member.
2. A strong family history that shows your lifetime risk is 20% or greater, when calculated using a risk assessment tool such as BRCAPRO, Tyrer-Cuzick, BOADICEA/CanRisk, or BCSC. Residual lifetime risk is your chance of developing breast cancer based on the number of years of life that remain and other risk factors.
3. Chest or breast radiation therapy (RT) between 10 and 30 years of age.
4. 5-year risk of invasive breast cancer of 1.7% or greater as calculated by the Gail model.
5. Atypical ductal hyperplasia (ADH), lobular carcinoma in situ (LCIS), or atypical lobular hyperplasia (ALH) and 20% or greater residual lifetime risk.
6. Extremely dense or heterogeneously dense breast tissue.

If you have a family history or genetic predisposition

If you have a known family history of breast cancer or family history that suggests genetic predisposition to breast cancer, or there is a known genetic mutation, then you may be referred to a genetic counselor or other health care professional who is an expert in cancer genetics. A genetic counselor may recommend genetic testing for you or another family member.

Family cancer information can change. Share with your health care provider any changes to your health or your family cancer history.

If your residual lifetime risk is 20% or more

Individuals should undergo breast cancer risk assessment by 25 years of age. If your residual lifetime risk is 20 percent (20%) or more based on models using a comprehensive family history, then see your HCP for a checkup every 6 to 12 months. Ask your HCP about how you can reduce your risk of developing breast cancer.

- Annual mammogram screening for those at increased risk might begin as early as 30 years of age, but no later than 40 years of age.
- Annual breast MRI for those at increased risk might begin as early as 25 years of age, but no later than 40 years of age. If breast MRI is not available or you cannot have an MRI, talk to your HCP about options.

Increased risk

1

Known family history of breast cancer or family history of known genetic mutation that suggests predisposition to breast and other cancers

2

Residual calculated lifetime risk of 20% or greater largely due to family history

3

Previous chest or breast radiation therapy (RT) between age 10 and 30

4

5-year risk of invasive breast cancer of equal or greater than 1.7% in those age 35 or over as calculated by Gail model

5

Atypical ductal hyperplasia (ADH), lobular carcinoma in situ (LCIS), or atypical lobular hyperplasia (ALH) and 20% or greater residual lifetime risk

6

Extremely dense or heterogeneously dense breast tissue.

You might be referred to a

- Genetic counselor or other health professional with expertise and experience in cancer genetics, if not already done
- Breast specialist

If you had chest RT between 10 and 30 years of age

If you had chest or breast RT between 10 and 30 years of age, screening starts 8 years after radiation therapy (RT) ended, but not before 25 years of age.

If you are under 25 years of age, then see your HCP for a checkup every year.

If you are 25 years of age or over, then

- See your HCP for a checkup every 6 to 12 months.
- Get an annual screening mammogram. Tomosynthesis (3D mammogram) is recommended, if available.
- Get an annual breast MRI. Contrast-enhanced mammography or whole breast ultrasound might be an option for those who cannot undergo an MRI.
- Ask your HCP about how you can reduce your risk of developing breast cancer.

If you are at increased risk for invasive breast cancer based on the Gail model

If you are 35 years of age or over and have a 1.7% or greater 5-year risk of developing invasive breast cancer based on the Gail model, then

- See your HCP for a checkup every 6 to 12 months.
- Get an annual screening mammogram. Tomosynthesis (3D mammogram) is recommended, if available.
- Ask your HCP about how you can reduce your risk of developing breast cancer.

If you had ADH, LCIS, or ALH

If you had atypical ductal hyperplasia (ADH) or a lobular neoplasia such as lobular carcinoma in situ (LCIS) or atypical lobular hyperplasia (ALH) and have a 20% or greater residual lifetime risk, then

- See your HCP for a checkup every 6 to 12 months.
- Get an annual screening mammogram. Tomosynthesis (3D mammogram) is recommended, if available. Mammograms should start at the age you are diagnosed, but not before 30 years of age.
- Consider an annual breast MRI to begin when diagnosed but not before 25 years of age. Contrast-enhanced mammography or whole breast ultrasound might be an option for those who cannot undergo an MRI.
- Ask your HCP about how you can reduce your risk of developing breast cancer.

If you have dense breasts and no other risk factors

Dense breast tissue is associated with an increased risk for breast cancer. If you have dense breast tissue (heterogeneously or extremely dense breasts) as seen on mammography and do not meet any other increased risk category, the recommendations are described below.

For heterogeneously dense breasts,

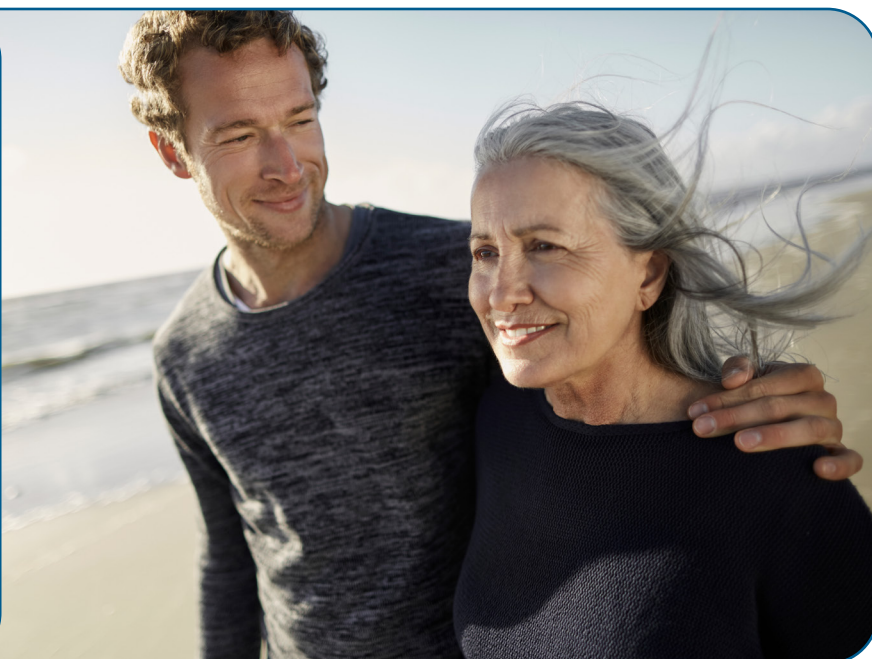
- See your HCP for a checkup every 6 to 12 months.
- Get an annual screening mammogram. Tomosynthesis (3D mammogram) is recommended, if available. Mammograms should start no later than age 40, but not before age 30.
- Talk with your HCP about screening tests in addition to mammography that might be appropriate for you.

- Ask your HCP about how you can reduce your risk of developing breast cancer.

For extremely dense breasts,

- See your HCP for a checkup every 6 to 12 months.
- Get an annual screening mammogram. Tomosynthesis (3D mammogram) is recommended, if available. Mammograms should start no later than age 40, but not before age 30.
- Get a breast MRI with and without contrast starting at age 50, but may start at age 40.
- Ask your HCP about how you can reduce your risk of developing breast cancer.

"As 4-time breast cancer survivor and *BRCA2*-genetic mutation carrier, it is important to me to help educate and support my sons, family, and anyone who has a higher risk of developing cancer."



Key points

- Breast cancer risk is your chance of developing breast cancer. Everyone has some risk for developing breast cancer.
- Breast cancer risk is calculated using a breast cancer risk assessment model. Ask your health care provider (HCP) what model they are using to calculate your risk.
- Screening mammograms are done for those who do not have any signs or symptoms of breast cancer. Annual screening mammograms are recommended to start at 40 years of age for those at average risk of developing breast cancer.
- For those at increased risk, annual screening mammograms may start as early as 30 years of age. For those at increased risk, annual breast MRIs may start as early as 25 years of age.

- Ask your HCP about how you can reduce your risk of developing breast cancer.

Questions to ask

- What is my risk of developing breast cancer? Am I at average or increased risk?
- Based on my risk level, when should I start yearly screening mammograms?
- If I have an increased risk, will I have both a screening mammogram and a breast MRI every year?
- I don't know my family health history. How will this affect my breast cancer risk assessment?
- Why might I be at increased risk for developing breast cancer even though breast cancer doesn't run in my family?

Being diagnosed with breast cancer at age 70 doesn't mean you don't have an inherited predisposition for developing breast or other cancer types. Many factors are considered to determine the likelihood of a cancer predisposition syndrome in a family, such as age at diagnosis, type of breast cancer, family history of cancer, and ethnic background.



4

Testing during pregnancy and breastfeeding

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- 27 During pregnancy
- 28 During breastfeeding
- 29 Key points
- 29 Questions to ask

Pregnancy-associated breast cancer (PABC) is breast cancer that occurs during pregnancy, while breastfeeding, or within 1 year of giving birth. It is important to continue taking care of your breast health during pregnancy and breastfeeding. Contact your health care provider about new or unusual changes to your breasts.

Overview

Changes in the breast are normal during pregnancy and breastfeeding (lactation). However, these changes can make it harder to detect small breast cancers. This is why it is important to continue taking care of your breast health. Delayed diagnosis of breast cancer during pregnancy or breastfeeding does happen. This may result in more advanced disease, larger tumors, and a higher chance of breast cancer spreading to lymph nodes in your armpit.

Pregnancy-associated breast cancer (PABC) is defined as breast cancer that occurs at any of these time:

- During pregnancy
- While breastfeeding
- Within 1 year of delivery

While rare, PABC is the most common invasive cancer diagnosed during pregnancy.

See your health care provider (HCP) regularly for checkups. Contact your HCP for any new or worsening changes.

Breast cancer screening during pregnancy and lactation is similar to non-pregnant and non-lactating people with some exceptions. For example, due to safety concerns, breast MRI is not generally performed during pregnancy, but it can be safely used in those who are lactating. Breast ultrasound and mammography can be safely performed during pregnancy.

This section discusses screening recommendations during pregnancy and breastfeeding. It also provides information on signs and symptoms that you should report to your HCP.

During pregnancy

Clinical breast exams (CBEs) and breast cancer screening mammograms can and should continue on a yearly basis during pregnancy. Mammograms contain a very low level of radiation and are considered safe during pregnancy.

Normal changes happen in the breast, skin, and nipple during pregnancy. However, if you notice anything new or unusual contact your HCP. An ultrasound may be done for changes in the skin of the breast or breast such as persistent or focused pain, a lump, suspicious nipple discharge, pitting or dimpling of the skin, skin thickening, swelling, or redness.

During breastfeeding

Clinical breast cancer exams and screening mammograms can and should continue on a yearly basis during breastfeeding (lactation). If you are at increased risk for developing breast cancer, then a breast MRI may be done.

Nursing or breast pumping before a mammogram is recommended.

Normal changes happen in the breast, skin, and nipple during lactation or breastfeeding. Contact your doctor if you notice any new or unusual changes to your breast or armpit, or if

- Your breast is warm to the touch, painful, or red in color.
- Your breast skin appears thickened with large pores (peau d'orange).
- You have focused, persistent breast pain. General or diffuse breast pain is not a suspicious symptom. Breast pain that comes and goes is not typically associated with breast cancer, although it can be related to non-breast causes.

Health care providers

During regular health checkups and breast cancer screening, you might come in contact with the following health care providers (HCPs):

- **Breast specialist** is an expert in breast health and disease.
- **Breast radiologist** is a doctor who interprets the results of mammograms, MRIs, and other imaging tests, and performs needle biopsies as needed.
- **Gynecologist** is a doctor who diagnoses and treats diseases of the female reproductive organs.
- **Lactation consultant** specializes in breastfeeding.
- **Mammogram, MRI, and ultrasound technologists** operate the mammogram unit, or MRI or ultrasound machine.
- **Advanced practice providers (APPs)** are nurse practitioners, physician assistants, and certified nurse midwives who can help prevent, evaluate, examine, and diagnose human disease, including breast cancer.
- **Obstetrician** is a doctor who specializes in pregnancy and in childbirth.
- **Pathologist** is a doctor who analyzes the cells, tissues, and organs removed during a biopsy or surgery.
- **Primary care provider (PCP) or physician** gives a wide range of care, including prevention and treatment.

Nipple changes

For changes in the nipple, contact your HCP if:

- Your nipple is retracted or pulled in (inverted) when it was not that way before.
- Your nipple has changed shape.
- Your nipple becomes tender, and it is not related to your menstrual cycle.
- Your nipple has skin changes, such as scaling, itchiness, and redness.
- You have new suspicious nipple discharge, such as bloody or clear discharge.

Key points

- An annual clinical breast exam (CBE) and mammogram are recommended during pregnancy and breastfeeding.
- Mammograms contain a very low level of radiation and are considered safe during pregnancy.
- Nursing or breast pumping before a mammogram is recommended.
- Breast MRI is not recommended during pregnancy, but may be performed during breastfeeding.
- Normal changes happen in the breast, skin, and nipple during lactation or breastfeeding. However, if you notice anything new or unusual contact your health care provider.

Questions to ask

- How will you make me comfortable during the mammogram if I am pregnant or breastfeeding?
- How long should I wait before I call the doctor if I notice any changes in the breast, nipple, or skin of the breast?



Let us know what you think!

Please take a moment to complete an online survey about the NCCN Guidelines for Patients.

[NCCN.org/patients/response](https://www.nccn.org/patients/response)

5

What to do when you have symptoms

- 31 Signs and symptoms
- 32 Skin changes
- 33 Nipple discharge
- 34 Nipple changes
- 35 Those assigned male at birth
- 35 Biopsy
- 37 Key points
- 37 Questions to ask

This chapter is for those with signs or symptoms that suggest further testing. Certain conditions are difficult to diagnose. If possible, see a breast specialist for any unusual symptoms or skin or nipple changes.

Signs and symptoms

A sign can be seen by someone else like your health care provider (HCP). A symptom is something only you can feel. If you have any signs or symptoms that might suggest breast cancer, another cancer or disease, you may have more tests as needed. These are called diagnostic tests because they help diagnose a disease or condition. It is important to tell your HCP if something doesn't feel or look right and has been that way for a few days. Don't wait to say something!

Signs and symptoms that might suggest further testing:

- Breast pain that is focused or concentrated in 1 area
- Lump, mass, or nodules can be felt in the breast
- Lump or swelling in or near the armpit (axilla)
- Breast implant-related symptoms
- Skin changes
- Nipple discharge

Breast pain

Breast pain is common in those assigned female at birth. Pain in both breasts and pain that comes and goes are considered benign and not typically associated with breast cancer. Persistent pain should be discussed with your HCP. Breast pain may be monitored to see if it persists, it is severe, and if there are changes in skin, or other symptoms such as a lump or nipple discharge. For pain that is focused or concentrated in one area, you may have an ultrasound. A mammogram might also be done if you are 30 years of age or over and you have not had a recent mammogram. Depending on the test results, further testing might be needed.

Lumps and other signs

If you have symptoms you can feel with your hand such as a lump, mass, nodules, or skin thickening, then for those

- **Under 30 years of age**, an ultrasound is preferred as a diagnostic test. However, your doctor may wait and observe any changes for 1 to 2 menstrual cycles before ordering an ultrasound.
- **30 years of age or over**, a diagnostic mammogram and ultrasound are recommended.

For a benign (not cancer) finding, you may not need any further evaluation. If the mammogram or ultrasound shows something, your HCP may recommend a core needle biopsy, additional physical exams, or more frequent mammograms and/or ultrasounds to monitor the symptom. You are also an important part of monitoring and should let your HCP know if you notice any new changes.

Lump in or near armpit

A diagnostic mammogram and ultrasound will be done for a lump or mass in or near the armpit (axilla). If you are under 30 years of age, a mammogram might only be done if the ultrasound results are unclear or if cancer is suspected. Depending on your symptoms, you might be referred to a breast specialist.

Breast implant-related symptoms

Those with breast implants have a very small risk of developing breast implant-associated anaplastic large cell lymphoma (BIA-ALCL), a type of cancer called peripheral T-cell lymphoma. It is mostly seen in textured implants about 7 to 9 years after implant surgery. The main symptoms of BIA-ALCL are persistent swelling, or a lump or pain around the breast implant. Since BIA-ALCL is very rare, only those with symptoms will undergo further testing.

If it has been more than 1 year since breast implant surgery and you are having symptoms related to the implants, then your health care provider should consult with a team of medical experts with experience in implant-related problems. If BIA-ALCL is suspected, then you will undergo further testing.

Skin changes

Skin changes include puckering, dimpling, a rash, or redness of the skin of the breast. Some people have a rash or redness of the nipple and the surrounding skin. The skin might look like an orange peel or the texture might feel different.

Some skin changes might be a sign of inflammatory breast cancer (IBC). Skin changes around the nipple may be a different condition known as Paget disease of the breast. Since these diseases are difficult to diagnose, you might be referred to a breast specialist.

Possible inflammatory breast cancer

Inflammatory breast cancer (IBC) is a rare, aggressive cancer where cancer cells block lymph vessels in the skin of the breast. This causes the breast to look red and swollen and feel warm to the touch.

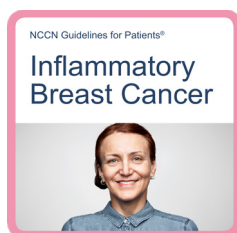
Possible signs of IBC:

- Peau d'orange (pitted or dimpled appearance of skin)
- Skin thickening (skin has an orange-peel texture)
- Edema (swelling caused by excess fluid in body tissue)
- Erythema (reddening of the skin, usually in patches)

If IBC is suspected, appropriate imaging tests will be recommended by the radiologist. These tests may include a mammogram, ultrasound, or both. If there is a suspicious

finding, a biopsy of the breast or a punch biopsy of the skin may be recommended. If there is a suspicious finding, a biopsy of the breast or a punch biopsy of the skin may be recommended

For more information on inflammatory breast cancer, see *NCCN Guidelines for Patients: Inflammatory Breast Cancer*, available at [NCCN.org/patientguidelines](https://www.nccn.org/patientguidelines) and on the [NCCN Patient Guides for Cancer](#) app.



Possible Paget disease of the breast

In Paget disease, abnormal cells are found in the nipple. This can cause nipple irritation or bleeding, scaly rash of the nipple, and skin ulcers. If Paget disease is suspected, then a diagnostic mammogram will be done. An ultrasound might be done, too.

Nipple discharge

When fluid that is not milk comes from the nipple, it is called nipple discharge. Nipple discharge is common, and, in most cases, unrelated to breast cancer.

Know your breasts and immediately report any changes to your health care provider.

For example, nipple discharge can occur

- During pregnancy following breast stimulation
- In those with certain thyroid conditions, and
- In those taking medicines, such as estrogen, oral contraceptives, opiates, and certain blood pressure medicines
- Due to inflammation of the breast duct that is not related to cancer

Nipple discharge is normal during breastfeeding (lactation). Some people who are lactating can express small amounts of yellow, green, or milky discharge if they squeeze the nipples. This is called expressed discharge. However, it is abnormal when the nipple discharge is any of the following:

- Spontaneous – occurs without squeezing or dried discharge is seen on your bra or other clothing
- Bloody or clear
- From a single duct opening on the nipple on only one breast

If you have abnormal nipple discharge without other symptoms, then for those

- **Under 30 years of age**, an ultrasound will be done. A diagnostic mammogram might also be done.
- **30 years of age or over**, a diagnostic mammogram and ultrasound will usually be done.

Depending on the BI-RADS result, you might have a core needle biopsy, additional physical exams, more frequent mammograms and/or ultrasounds to monitor the symptom. You might be referred to a breast specialist and a breast MRI might be done. If you have any questions or concerns, talk with your health care provider (HCP).

Milky discharge

For milky discharge in both breasts (bilateral), you might have an endocrine (hormone) workup. Milky discharge is generally normal in pregnancy. Mammograms and breast ultrasounds are not typically performed for milky discharge.

Nipple changes

Inverted or retracted nipples pull inward toward your breast instead of sticking out. For some this is normal, however, if your nipple inverts or changes suddenly, let your HCP know.

If you have an inverted or retracted nipple without a lump or other symptoms, then for those

- **Under 30 years of age**, an ultrasound will be done.
- **30 years of age or over**, a diagnostic mammogram and ultrasound will be done.

Depending on the BI-RADS result, you might have a core needle biopsy, additional physical exams, more frequent mammograms, breast MRIs or ultrasounds. You might be referred to a breast specialist and a breast MRI might be done. If you have any questions or concerns, talk with your HCP



We want your feedback!

Our goal is to provide helpful and easy-to-understand information on cancer.

Take our survey to let us know what we got right and what we could do better.

[NCCN.org/patients/feedback](https://www.nccn.org/patients/feedback)

Those assigned male at birth

Those assigned male at birth do not typically undergo routine screening mammograms. However, males can develop breast cancer and those with a *BRCA2* gene mutation might undergo routine screening mammograms.

Gynecomastia

Gynecomastia is the abnormal growth of breast tissue in those assigned male at birth. There might be concern if one breast appears enlarged. This is called asymmetrical gynecomastia. If it is not clear you have gynecomastia, then a diagnostic mammogram with possible ultrasound may be done.

Lump or nipple changes

If you have bloody nipple discharge or symptoms that can be felt such as a lump, then an ultrasound will be done in addition to the diagnostic mammogram. A core needle

biopsy might also be done. Your condition will be monitored, and you might be asked to return to your health care provider for regular testing. Consider seeing a breast specialist.

Biopsy

A biopsy is the removal of a sample of tissue from your body for testing. A pathologist will examine the biopsy for cancer and write a report called a pathology report.

Depending on the biopsy results, you may not need any additional testing and be returned to routine follow-up care. However, the biopsy results may require additional testing or more frequent exams or imaging. If cancer is found, you will be referred for cancer treatment.

There are different types of biopsies. Some biopsies are guided using imaging, such as mammography, ultrasound, or MRI. The primary or main area of concern is biopsied first. Other areas may also be biopsied.

“Even though my sister had breast cancer 3 times and had been genetically diagnosed as *BRCA2* positive, I was still SHOCKED that I, a 54-year-old male, could have breast cancer.”



Types of possible biopsies include:

- **Core biopsy (CB)** uses needles of different sizes to remove a sample of tissue or fluid and typically requires a very small incision. This type of biopsy is often performed by the radiologist. In a **vacuum-assisted core biopsy (VACB)**, suction from a special vacuum device is used to remove the sample through a needle.
- **Fine-needle aspiration (FNA)** uses a small needle to remove a sample of tissue or fluid. FNA is more commonly used when a lymph node in the armpit is being biopsied.
- **Incisional biopsy** removes a small amount of tissue through a cut in the skin or body and is typically performed by a surgeon.

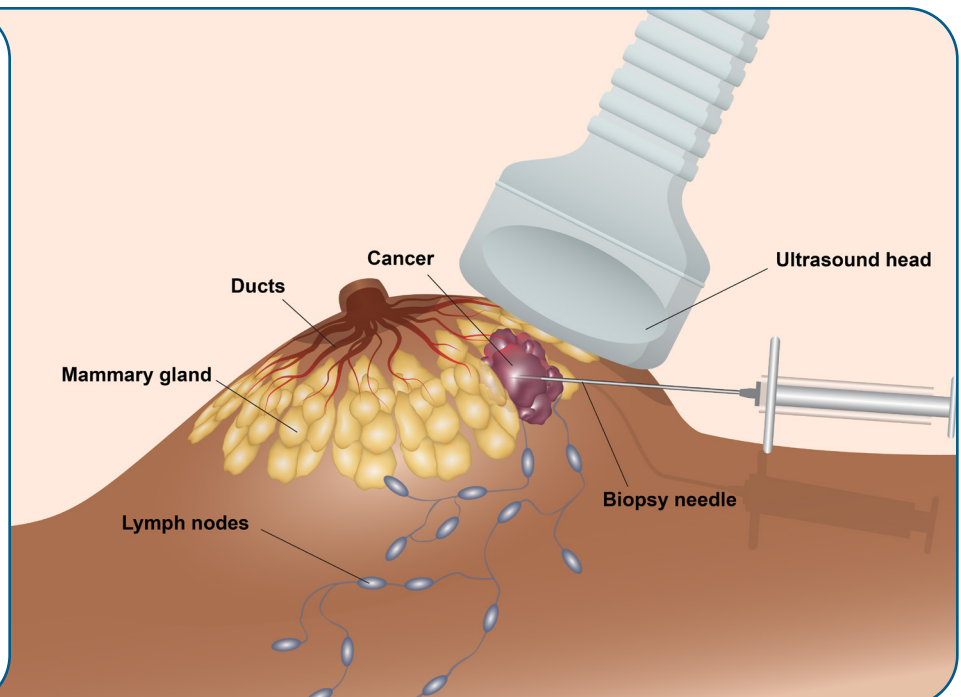
- **Excisional biopsy** removes the entire abnormal area. This is not the preferred type of biopsy, but may be necessary if other methods are not possible or when the biopsy results don't match the expected findings. An excisional biopsy is usually done under anesthesia by a surgeon in an operating room.

Before biopsies are performed, usually the area is injected with numbing medicine. A core needle biopsy (CNB) may remove more than one tissue sample, but usually through the same area on the breast. The samples are small. The needle is often guided into the tumor with imaging, but may be guided by using ultrasound or x-rays. When mammography is used during a biopsy, it is called a stereotactic needle biopsy.

One or more clips may be placed near the breast tumor during a biopsy. The clips are small, painless, and made of metal. They will

Biopsy

In a biopsy, a sample of tissue is removed. There are different types of biopsy. This image shows an ultrasound-guided needle biopsy.



mark the site for possible future treatment and imaging. The clips will stay in place until surgery. If the area biopsied is benign, the clip will remain in place to mark the biopsy site on future imaging. The clips cause no problems, even if they are left in place for a long time. You will be able to go through airport security and have an MRI.

Biopsy results

Histology is the study of the anatomy (structure) of cells, tissues, and organs under a microscope. It is used to make a diagnosis or treatment decisions. Your pathology report will contain information about histology.

Key points

- A sign can be seen by someone else like your health care provider. A symptom is something only you can feel, like pain. If you have any signs or symptoms that might suggest breast or another cancer or disease, then you will have more tests.
- Some skin changes might be a sign of inflammatory breast cancer (IBC) or Paget disease. Because these diseases are difficult to diagnose, you might be referred to a breast specialist.
- If IBC is suspected, then a diagnostic mammogram and possibly an ultrasound will be done. An MRI might be done, too. A biopsy will typically be needed.
- If Paget disease is suspected, then a diagnostic mammogram and possibly an ultrasound will be done. A biopsy will typically be needed.

- Nipple discharge is common, and, in many cases unrelated to breast cancer.
- Those assigned male at birth with a *BRCA2* gene mutation might undergo routine screening mammograms.

Questions to ask

- What imaging tests do you recommend and why?
- What type of biopsy will I have and how will you make me comfortable?
- Who will explain the imaging or biopsy results to me?
- How can I prepare for imaging testing or a biopsy?
- Can you recommend a breast specialist?

6

Other resources

- 39 What else to know
- 39 What else to do
- 39 Where to get help
- 40 Questions to ask

Want to learn more? Here's how you can get additional help.

What else to know

This book is an important tool for improving cancer detection and care. It plainly explains expert recommendations and suggests questions to ask your care team. But, it's not the only resource that you have.

You're welcome to receive as much information and help as you need. Many people are interested in learning more about:

- Personal or family risk of developing breast cancer and other cancers
- How to decrease risk of developing breast cancer and other cancers
- Finding a doctor who is an expert in breast cancer

What else to do

Your health care center can help you with next steps. They often have on-site resources to help meet your needs and find answers to your questions. Health care centers can also inform you of resources in your community.

In addition to help from your providers, the resources listed in the next section provide support for many people like yourself. Look through the list and visit the provided websites to learn more about these organizations

Where to get help

Bone & Marrow Cancer Foundation

Bonemarrow.org

Breast Cancer Alliance

breastcanceralliance.org

Breastcancer.org

breastcancer.org

CanCare, Inc

Cancare.org

CancerCare

Cancercare.org

Cancer Hope Network

Cancerhopenetwork.org

DenseBreast-info.org

DenseBreast-info.org

DiepC Foundation

diepcfoundation.org

FORCE - Facing Our Risk of Cancer Empowered

facingourrisk.org

GPAC Global Patient Advocacy Coalition

GPACunited.org

GRACE

Cancergrace.org

HIS Breast Cancer Awareness

Hisbreastcancer.org

Imerman Angels

Imermanangels.org

Inflammatory Breast Cancer Research Foundation

ibcresearch.org

MedlinePlus

medlineplus.gov

National Coalition for Cancer Survivorship

canceradvocacy.org

Sharsheret

sharsheret.org

Triage Cancer

Triagecancer.org

Unite for HER

uniteforher.org

Young Survival Coalition (YSC)

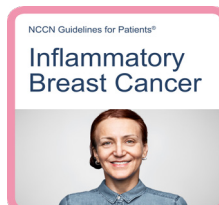
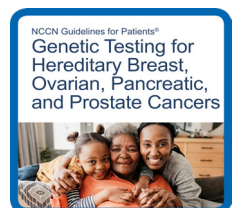
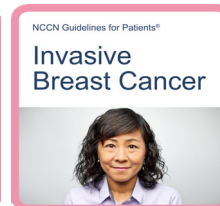
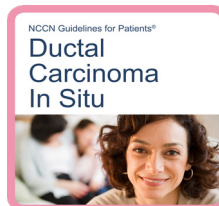
Youngsurvival.org

Questions to ask

- Who can I talk to about help with housing, food, and other basic needs?
- What help is available for transportation, childcare, and home care?
- What other services are available to me and my caregivers?
- How can I connect with others and build a support system?
- Who can I talk to if I don't feel safe at home, at work, or in my neighborhood?

Breast cancer resources

More information on breast cancer care is available at NCCN.org/patientguidelines and on the [NCCN Patient Guides for Cancer](#) app.





Words to know

areola

A darker, round area of skin on the breast around the nipple.

atypical ductal hyperplasia (ADH)

A benign (not cancer) condition in which there are more cells than normal in the lining of breast ducts and the cells look abnormal under a microscope. Having atypical ductal hyperplasia increases the risk of breast cancer.

atypical lobular hyperplasia (ALH)

A benign condition in which there are more cells than normal in the breast lobules and the cells look abnormal under a microscope. Having atypical lobular hyperplasia increases the risk of breast cancer.

axillary lymph node (ALN)

A small disease-fighting structure that is near the armpit.

biopsy

A procedure that removes fluid or tissue samples to be tested for a disease.

BI-RADS

Breast Imaging Reporting and Data System or BI-RADS is a standard system used in the United States to describe mammogram findings and results and classifies breast density into groups. BI-RADS can also be used to describe the results of a breast ultrasound or breast MRI.

calcification

Deposits of calcium in the tissues.

clinical breast exam (CBE)

A physical exam of the breast performed by a health care provider to check for lumps or other changes.

contrast

A substance put into your body to make clearer pictures during imaging tests.

core needle biopsy (CNB)

A procedure that removes tissue samples with a hollow needle. Also called core biopsy (CB).

diagnostic mammogram

Pictures of the insides of both breasts that are made from a set of x-rays in individuals with signs or symptoms.

duct

A tube-shaped structure through which milk travels to the nipple.

ductal carcinoma

A cancer derived from cells that line small tube-shaped duct.

ductal carcinoma in situ (DCIS)

A breast cancer that has not grown outside the breast ducts.

genetic counseling

Expert guidance on the chance for a disease that is passed down in families.

gynecomastia

The abnormal growth of breast tissue in those assigned male at birth.

hereditary breast cancer

Breast cancer likely caused by an inherited gene mutation passed down from biological parent to child.

histology

The structure of cells, tissue, and organs as viewed under a microscope.

lobule

A gland in the breast that makes breast milk.

lobular carcinoma

A breast cancer that started in cells that line the milk glands (lobules).

lobular carcinoma in situ (LCIS)

A benign (not cancer) condition in which abnormal cells are found in the lobules of the breast.

lobular neoplasia

A benign condition in which abnormal cells are found in the lobules of the breast and increases the risk of developing breast cancer in the future. Types of lobular neoplasia include atypical lobular hyperplasia (ALH) and lobular carcinoma in situ (LCIS).

lymph

A clear fluid containing white blood cells.

lymph node

A small, bean-shaped disease-fighting structure.

magnetic resonance imaging (MRI)

A test that uses radio waves and powerful magnets to make pictures of the inside of the body.

mammogram

A picture of the inside of the breast that is made by an x-ray test.

nipple discharge

Fluid that is not milk coming from the nipple.

pathologist

A medical doctor who interprets cells and tissues removed during a biopsy or surgery.

radiation therapy (RT)

A treatment that uses high-energy rays.

radiologist

A medical doctor who interprets the results of mammograms, MRIs, and other imaging tests.

residual lifetime risk

Chance of developing breast cancer in your lifetime based on the number of years of life that remain and other risk factors.

screening mammogram

X-rays of the breasts taken to check for breast cancer in someone without signs or symptoms of cancer.

technologist

Person trained to operate an imaging machine (for example, mammogram, ultrasound, or MRI) to produce images of the breasts.

ultrasound (US)

A test that uses sound waves to take pictures of the inside of the body.

NCCN Contributors

This patient guide is based on the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Breast Cancer Screening and Diagnosis Version 2.2025. It was adapted, reviewed, and published with help from the following people:

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Abramson Cancer Center
at the University of Pennsylvania
Philadelphia, Pennsylvania
800.789.7366 • pennmedicine.org/cancer

Case Comprehensive Cancer Center/
University Hospitals Seidman Cancer Center and
Cleveland Clinic Taussig Cancer Institute
Cleveland, Ohio
UH Seidman Cancer Center
800.641.2422 • uhhospitals.org/services/cancer-services
CC Taussig Cancer Institute
866.223.8100 • my.clevelandclinic.org/departments/cancer
Case CCC
216.844.8797 • case.edu/cancer

City of Hope National Medical Center
Duarte, California
800.826.4673 • cityofhope.org

Dana-Farber/Brigham and Women's Cancer Center |
Mass General Cancer Center
Boston, Massachusetts
877.442.3324 • youhaveus.org
617.726.5130 • massgeneral.org/cancer-center

Duke Cancer Institute
Durham, North Carolina
888.275.3853 • dukecancerinstitute.org

Fox Chase Cancer Center
Philadelphia, Pennsylvania
888.369.2427 • foxchase.org

Fred & Pamela Buffett Cancer Center
Omaha, Nebraska
402.559.5600 • unmc.edu/cancercenter

Fred Hutchinson Cancer Center
Seattle, Washington
206.667.5000 • fredhutch.org

Huntsman Cancer Institute at the University of Utah
Salt Lake City, Utah
800.824.2073 • healthcare.utah.edu/huntsmancancerinstitute

Indiana University Melvin and Bren Simon
Comprehensive Cancer Center
Indianapolis, Indiana
888.600.4822 • www.cancer.iu.edu

Johns Hopkins Kimmel Cancer Center
Baltimore, Maryland
410.955.8964
www.hopkinskimmelcancercenter.org

Mayo Clinic Comprehensive Cancer Center
Phoenix/Scottsdale, Arizona
Jacksonville, Florida
Rochester, Minnesota
480.301.8000 • Arizona
904.953.0853 • Florida
507.538.3270 • Minnesota
mayoclinic.org/cancercenter

Memorial Sloan Kettering Cancer Center
New York, New York
800.525.2225 • mskcc.org

Moffitt Cancer Center
Tampa, Florida
888.663.3488 • moffitt.org

O'Neal Comprehensive Cancer Center at UAB
Birmingham, Alabama
800.822.0933 • uab.edu/onealcancercenter

Robert H. Lurie Comprehensive Cancer Center
of Northwestern University
Chicago, Illinois
866.587.4322 • cancer.northwestern.edu

Roswell Park Comprehensive Cancer Center
Buffalo, New York
877.275.7724 • roswellpark.org

Siteman Cancer Center at Barnes-Jewish Hospital
and Washington University School of Medicine
St. Louis, Missouri
800.600.3606 • siteman.wustl.edu

St. Jude Children's Research Hospital/
The University of Tennessee Health Science Center
Memphis, Tennessee
866.278.5833 • stjude.org
901.448.5500 • uthsc.edu

Stanford Cancer Institute
Stanford, California
877.668.7535 • cancer.stanford.edu

The Ohio State University Comprehensive Cancer Center -
James Cancer Hospital and Solove Research Institute
Columbus, Ohio
800.293.5066 • cancer.osu.edu

The UChicago Medicine Comprehensive Cancer Center
Chicago, Illinois
773.702.1000 • uchicagomedicine.org/cancer

The University of Texas MD Anderson Cancer Center
Houston, Texas
844.269.5922 • mdanderson.org

UC Davis Comprehensive Cancer Center

Sacramento, California
916.734.5959 • 800.770.9261
health.ucdavis.edu/cancer

UC San Diego Moores Cancer Center

La Jolla, California
858.822.6100 • cancer.ucsd.edu

UCLA Jonsson Comprehensive Cancer Center

Los Angeles, California
310.825.5268 • uclahealth.org/cancer

UCSF Helen Diller Family Comprehensive Cancer Center

San Francisco, California
800.689.8273 • cancer.ucsf.edu

University of Colorado Cancer Center

Aurora, Colorado
720.848.0300 • coloradocancercenter.org

University of Michigan Rogel Cancer Center

Ann Arbor, Michigan
800.865.1125 • rogelcancercenter.org

University of Wisconsin Carbone Cancer Center

Madison, Wisconsin
608.265.1700 • uwhealth.org/cancer

UT Southwestern Simmons Comprehensive Cancer Center

Dallas, Texas
214.648.3111 • utsouthwestern.edu/simmons

Vanderbilt-Ingram Cancer Center

Nashville, Tennessee
877.936.8422 • vicc.org

Yale Cancer Center/Smilow Cancer Hospital

New Haven, Connecticut
855.4.SMILOW • yalecancercenter.org



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