NCCN GUIDELINES FOR PATIENTS®

2025

Ductal Carcinoma In Situ

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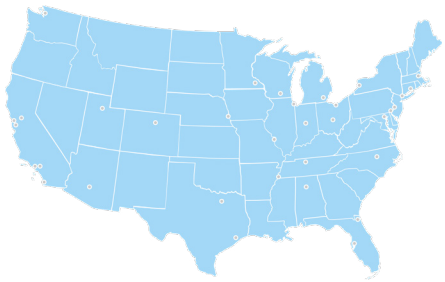
About the NCCN Guidelines for Patients®

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, Version 1.2025 – January 31, 2025.

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NCCN.org/patient-guidelines-process

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NCCN Foundation seeks to support the millions of patients and their families affected by a cancer diagnosis by funding and distributing NCCN Guidelines for Patients. NCCN Foundation is also committed to advancing cancer treatment by funding the nation's promising doctors at the center of innovation in cancer research. For more details and the full library of patient and caregiver resources, visit NCCN.org/patients.

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1 About ductal carcinoma in situ

Ductal carcinoma in situ (DCIS) is found in the cells that line the ducts in the breast. DCIS is stage 0 or noninvasive cancer. This means the cancerous cells are in place (in situ) and have not spread outside the ducts. DCIS is treated to prevent invasive breast cancer, a more advanced form of cancer.

What is DCIS?

Ductal carcinoma in situ (DCIS) or intraductal carcinoma is found in the cells that line the ducts. Ducts are thin tubes that carry milk in the breast. DCIS is noninvasive cancer.

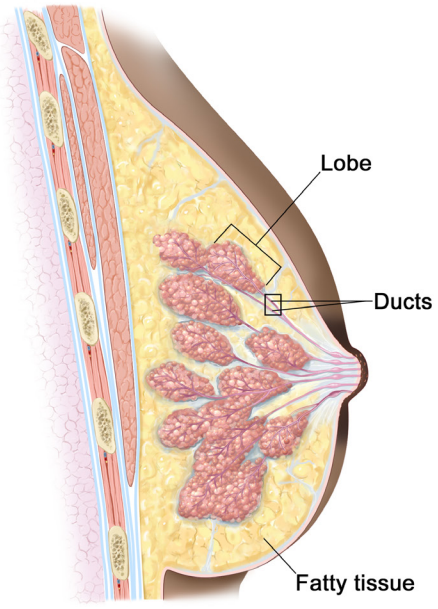
Noninvasive means the cancerous cells are in place (in situ) and have not spread anywhere else.

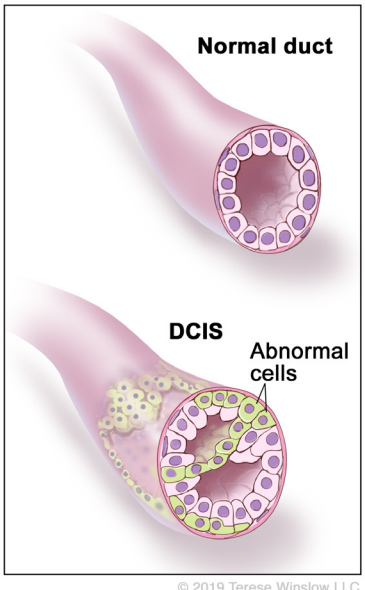
DCIS is a preinvasive disease. DCIS is treated to prevent invasive breast cancer, a more advanced form of cancer. Invasive breast cancer is breast cancer that has spread from the milk ducts or milk glands (lobules) into the surrounding breast tissue or nearby lymph nodes. Once outside the ducts or lobules, breast cancer can spread through lymph or blood to lymph nodes or other parts of the body.

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

DCIS

Ductal carcinoma in situ (DCIS) is found in the cells that line the thin tubes (ducts) that carry milk to the breast. The cancerous cells are in place (in situ) and have not spread.





What are the parts of the breast?

The breast is a gland on the chest. The breast is made of milk ducts, fat, nerves, lymph and blood vessels, ligaments, and other connective tissue. Behind the breast is the pectoral (chest) muscle 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. Lobules look like tiny clusters of grapes. Small tubes called ducts connect the lobules to the nipple.

The ring of darker breast skin is called the areola. The raised tip within the areola is called the nipple. The nipple-areola complex (NAC) is a term that refers to both parts.

Lymph drains from breast tissue into lymph vessels and travels to lymph nodes near your armpit (axilla). Lymph is a clear fluid that gives cells water and food. It also helps to fight germs. Nodes near the armpit are called axillary lymph nodes (ALNs). Cancer cells can travel though lymph and lymph vessels to lymph nodes.

What's in this book?

This book is organized into the following chapters:

Chapter 2: Testing for DCIS provides an overview of tests you might receive, and the role estrogen receptor has in treatment planning.

Chapter 3: Types of treatment gives a general overview of DCIS treatment and what to expect.

Chapter 4: Surgery options details specific treatment options. DCIS is treated with surgery followed by radiation therapy.

Chapter 5: The breast after surgery offers more information on volume displacement, flat closure, and breast reconstruction.

Chapter 6: Other resources provides information on patient advocacy groups and where to get help.

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. Consider seeking the opinion of a breast cancer specialist

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
Testing for DCIS

Treatment planning starts with testing. This chapter presents an overview of the tests you might receive and what to expect.

Results from biopsy and imaging studies will be used to determine your treatment plan. For possible tests, **see Guide 1.**

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 or injury and when it happened. Bring a list of old and new medicines and any over-the-counter (OTC) medicines, herbals, or supplements you take. Some supplements interact with and affect medicines that your care team may prescribe.

Guide 1
Possible tests

Medical history and physical exam
Diagnostic mammogram of both breasts
Biopsy with pathology review
Determine estrogen receptor (ER) status
Genetic counseling, if at risk for hereditary breast cancer
Breast MRI as needed

Tell your care team about any symptoms you have. A medical history, sometimes called a health history, will help determine which treatment is best for you.

Family history

Some cancers and other diseases can run in families. Your doctor will ask about the health history of family members who are blood relatives. This information is called a family history. Ask family members on both sides of your family about their health issues like heart disease, cancer, and diabetes, and at what age they were diagnosed. It's important to know the specific type of cancer, or where the cancer started, and if it is in multiple locations, and if they had genetic testing.

Physical exam

During a physical exam, your health care provider may:

- Check your temperature, blood pressure, pulse, and breathing rate
- Check your height and weight
- Listen to your lungs and heart
- Look in your eyes, ears, nose, and throat
- Feel and apply pressure to parts of your body to see if organs are of normal size, are soft or hard, or cause pain when touched.
- Examine your breasts to look for lumps, nipple discharge or bleeding, or skin changes.
- Feel for enlarged lymph nodes in your neck, underarm, and groin.

Clinical breast exam

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.

Imaging tests

Imaging tests take pictures of the inside of your body. Imaging tests show the primary tumor, or where the cancer started, and look for cancer in other parts of the body.

A radiologist, a medical expert in interpreting imaging tests, will interpret the test and send a report to your doctor.

Diagnostic mammogram

A mammogram is a picture of the insides of your breast. The pictures are made using x-rays. A computer combines the x-rays to make detailed pictures. A bilateral mammogram includes pictures of both breasts. Mammogram results are used to plan treatment.

Diagnostic mammograms look at specific areas of your breasts, which may not be clearly seen on screening mammograms. Diagnostic mammograms include extra compression in certain areas of the breast, magnification views, or rolling the breast to image additional areas of the breast. Other tests may include a breast MRI.

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 mammograms** are done on a regular basis when there are no signs or symptoms of breast cancer. Results take a few days.
- **Diagnostic mammograms** are used for those who have symptoms such as a lump, pain, nipple thickening or discharge, or whose breasts have changed shape or size.
- **Diagnostic mammograms** are 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 either the standard 2-dimensional (2D) digital mammogram or 3-dimensional (3D) mammogram known as tomosynthesis.

Breast MRI scan

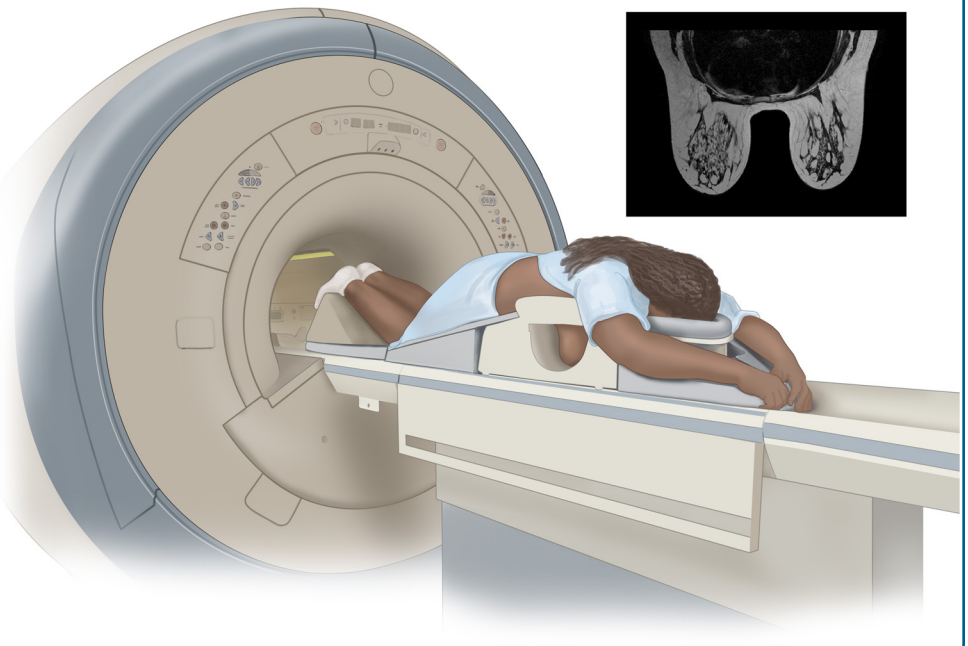
A magnetic resonance imaging (MRI) scan uses radio waves and powerful magnets to take pictures of the inside of the body. It does not use x-rays, which means there is no radiation delivered to your body during the test. Because of the very strong magnets used in the MRI machine, tell the technologist if you have any metal in your body. During the test, you will likely be asked to hold your breath for 10 to 20 seconds as the technician collects the images.

For a breast MRI, a gadolinium-based contrast agent (GBCA)—a rare, heavy metal—is used to enhance the quality of the MRI. There are no harmful effects from GBCA, but it may linger in the body for months to years afterward. Talk to your doctor if you have any concerns.

A closed MRI has a capsule-like design where the magnet surrounds you. The space is small and enclosed. An open MRI has a magnetic top and bottom, which allows for an opening on each end. Closed MRIs are more common than open MRIs, so if you have claustrophobia (a dread or fear of enclosed spaces), be sure to talk to your care team about it. MRI scans take longer to perform than CT scans.

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.



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. Ask questions about your biopsy results and what it means for your treatment.

There are different types of biopsies. Some biopsies are guided using imaging, such as mammogram. The primary or main tumor is biopsied first. Other tumors or tumors in different areas may also be biopsied. You may have tissue removed from the breast, lymph nodes, or both.

Types of possible biopsies include:

- **Fine-needle aspiration (FNA)** or **core biopsy (CB)** uses needles of different sizes to remove a sample of tissue or fluid. In a **vacuum-assisted core biopsy (VACB),** suction is used through a needle to remove the sample using a special vacuum device.
- **Incisional biopsy** removes a small amount of tissue through a cut in the skin or body.
- **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 in an operating room.

Before biopsies are performed, usually the area is injected with numbing medicine. A core needle biopsy (CNB) removes 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. 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 mark the site for 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 treatment decisions. Your pathology report will contain information about histology. You may be recommended to have an open biopsy (surgery) to remove (excise) the tumor to confirm histology, such as invasive ductal carcinoma or invasive lobular carcinoma. Talk to your health care provider for more information on next steps.

Estrogen receptor status

Estrogen is a hormone that plays a role in breast development. It is made by a gland in your body. A receptor is a protein found inside or on the surface of a cell. When substances such as hormones attach (bind) to these receptors, it causes changes within the cell. When hormones, such as estrogen, attach to receptors inside breast cancer cells, they can cause cancer to grow. If found, these estrogen receptors may be targeted using endocrine therapy.

Immunohistochemistry

Immunohistochemistry (IHC) is a special staining process that involves adding a chemical marker to cells. These cells are then studied using a microscope. IHC can find estrogen receptors in breast cancer cells. A pathologist will measure how many cells have estrogen receptors and the number of estrogen receptors inside each cell. Test results will either be estrogen receptor-positive (ER+) or estrogen receptor-negative (ER-).

Estrogen receptor-positive

In estrogen receptor-positive (ER+) breast cancer, IHC finds estrogen hormone receptors in at least 1 out of every 100 cancer cells. ER+ cancer cells may need estrogen to grow. These cells may stop growing or die with endocrine treatment to block estrogen production or estrogen receptor signaling.

ER+ breast cancer is treated with endocrine therapy, which blocks estrogen receptor signaling or decreases estrogen production.

HER2 testing is not used in the diagnosis and treatment of DCIS.

Estrogen receptor-negative

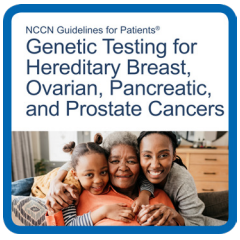
Estrogen receptor-negative (ER-) breast cancer cells do not have estrogen hormone receptors. These cancer cells do not need estrogen to grow and continue to grow. Therefore, estrogen-blocking treatment is not effective.

Genetic cancer risk testing

About 1 out of 10 breast cancers are hereditary. Depending on your family history or other features of your cancer, your health care provider might refer you for hereditary genetic testing to learn more about your cancer. A genetic counselor or trained provider will speak with you about the results. Test results may be used to guide treatment planning.

Genetic testing is done using blood or saliva (spitting into a cup or a cheek swab). The goal is to look for gene mutations inherited from your biological (birth) parents called germline mutations. Some mutations can put you at risk for more than one type of cancer. You can pass these genes on to your children. Also, other family members might carry these mutations. Tell your care team if there is a family history of cancer.

More information on genetic cancer risk testing can be found in the *NCCN Guidelines for Patients: Genetic Testing for Hereditary Breast, Ovarian, Pancreatic, and Prostate Cancers* NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



BRCA tests

Everyone has *BRCA* genes. Normal *BRCA* genes help to prevent tumor growth. They help fix damaged cells and help cells grow normally. *BRCA* mutations put you at risk for more than one type of cancer. Mutations in *BRCA1* or

What is your family health history?

Some cancers and other diseases run in families—those who are related to you through genes passed down from biological (birth) parent to child. This information is called a family health history. Ask blood relatives about their health issues like heart disease, cancer, and diabetes, and at what age they were diagnosed. For relatives who were diagnosed with cancer, ask them (or other relatives if they are no longer living) what type of cancer they had, if they died from the cancer, and at what age the cancer was diagnosed.

Start by asking your parents, siblings, and children. Next, talk to half-siblings, aunts and uncles, nieces and nephews, grandparents, and grandchildren.

Write down what you learn about your family history and share with your health care provider.

Some of the questions to ask include:

- How old were you when each of these diseases and health conditions was diagnosed?
- What is our family's ancestry—from what countries did our ancestors originate?

BRCA2 increase the risk of breast, ovarian, prostate, colorectal, pancreatic, and melanoma skin cancers. Mutated *BRCA* genes can also affect how some treatments work. These tests might be repeated.

Other genes

Other genes such as *PALB2, p53, CHEK2,* and ATM might be tested. For example, *PALB2* normally helps prevent cancer. When *PALB2* mutates, it no longer works correctly. Those with a *PALB2* mutation have a higher risk of developing breast cancer.

Breast cancer stages

A cancer stage is a way to describe the extent of the cancer at the time you are first diagnosed. Based on testing, your cancer will be assigned a stage. Staging helps to predict prognosis and is needed to make treatment decisions. A prognosis is the course your cancer will likely take.

Staging is based on a combination of information to reach a final numbered stage. It takes into account what can be felt during a physical exam, what can be seen on imaging tests, and what is found during a biopsy or surgery. Often, not all information is available at the initial evaluation. More information can be gathered as treatment begins.

Breast cancer staging is often done twice, before and after surgery.

- **Clinical stage (c)** is the rating given before any treatment. It is based on a physical exam, biopsy, and imaging tests. An example might look like cT0 or cN1. Tests are done before any treatment as part of an initial diagnosis.
- **Pathologic stage (p)** or surgical stage is determined by examining tissue removed during surgery. An example might be pT1.

TNM scores

The tumor, node, metastasis (TNM) system is used to stage breast cancer. In this system, the letters T, N, and M describe different areas of cancer growth. Based on cancer test results, your doctor will assign a score or number to each letter. The higher the number, the larger the tumor or the more the cancer has spread. These scores will be combined to assign the cancer a stage. A TNM example might look like this: T1N0M0 or T1, N0, M0. For DCIS, it will look like this: TisN0M0.

- **T (tumor)** – Depth and spread of the main (primary) tumor(s) in one or both breasts
- **N (node)** – If cancer has spread to nearby (regional) lymph nodes
- **M (metastasis)** – If cancer has spread to distant parts of the body or metastasized

Lymph nodes

Lymphatic fluid, a clear fluid containing cells that help fight infections and other diseases, drains through channels into lymphatic vessels. From here, lymph drains into lymph nodes. Lymph nodes work as filters to help fight infection. Regional lymph nodes are found near the breast in the armpit (axilla). If breast cancer spreads, it often goes first to nearby lymph nodes under the arm. It can also sometimes spread to lymph nodes near the collarbone or near the breastbone. However, it is possible for cancerous cells to travel through lymph and blood to other parts of the body without having gone to the lymph nodes first. **DCIS does not typically spread to lymph nodes.**

Grade

Grade describes how abnormal the tumor cells look under a microscope (called histology). Higher-grade cancers tend to grow and spread faster than lower-grade cancers. GX means the grade can't be determined, followed by G1, G2, and G3. G3 is the highest grade for breast cancers. A low-grade tumor has a low risk of recurrence. A high-grade tumor has a higher risk of recurrence (of cancer returning).

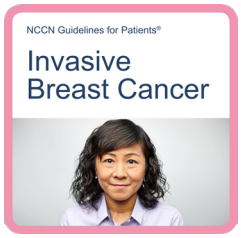
- **GX** – Grade cannot be determined
- **G1** – Low nuclear grade
- **G2** – Intermediate nuclear grade
- **G3** – High nuclear grade

Numbered stages

Numbered stages are based on TNM scores and receptor (hormone and HER2) status. Stages range from stage 0 to stage 4, with 4 being the most advanced. They might be written as stage 0, stage I, stage II, stage III, and stage IV. Inflammatory breast cancer is stage 3 (invasive) or 4 (metastatic).

- **Stage 0 is noninvasive** – Noninvasive breast cancer is rated stage 0. Ductal carcinoma in situ (DCIS) is found only in the ducts (Tis). It has not spread to the surrounding breast tissue, lymph nodes (N0), or distant sites (M0).
- **Stages 1, 2, and 3 are invasive but not metastatic** – Invasive breast cancer is rated stage 1, 2, or 3. It has grown outside the ducts, lobules, or breast skin. Cancer might be in the axillary lymph nodes.
- **Stage 4 is metastatic** – In stage 4 breast cancer, cancer has spread to distant sites. It can develop from earlier stages. Sometimes, the first diagnosis is stage 4 metastatic breast cancer (called de novo).

More information on invasive and metastatic breast cancers can be found at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



Key points

- A diagnostic mammogram includes detailed pictures of one or both breasts. It is different than a screening mammogram.
- During a biopsy, tissue or fluid samples are removed for testing. Samples are needed to confirm the presence of cancer and to perform cancer cell tests.
- A sample from your biopsy will be tested for estrogen receptor (ER) status and grade (histology). This provides information about the behavior of your cancer, as well as treatments to which your cancer may respond. Other biomarker tests may be performed.
- HER2 status testing is not done for DCIS.
- DCIS does not typically spread to lymph nodes.
- About 1 out of 10 breast cancers are hereditary. Depending on your family history or other features of your cancer, your health care provider might refer you for hereditary genetic testing or to speak with a genetic counselor.

Questions to ask

- What type(s) of biopsy will I have?
- What tests will be done on the tumor?
- What is the tumor grade?
- Is there more than one known cancer site?
- What is the tumor estrogen receptor (ER) status?

3
Types of treatment

There is more than one treatment for ductal carcinoma in situ (DCIS). This chapter describes treatment options and what to expect. Together, you and your care team will choose a treatment plan that is best for you.

Care team

Treating breast cancer takes a team approach. Treatment decisions should involve a multidisciplinary team (MDT). An MDT is a team of health care and psychosocial care professionals from different professional backgrounds who have knowledge (expertise) and experience in your type of cancer. This team is united in the planning and implementing of your treatment. Ask who will coordinate your care.

Some members of your care team will be with you throughout cancer treatment, while others will only be there for parts of it. Get to know your care team and help them get to know you.

Treatment overview

Surgery is an operation or procedure to remove cancer from the body. Surgery is the main or primary treatment for ductal carcinoma in situ (DCIS). This is only one part of a treatment plan. When preparing for surgery, seek the opinion of an experienced surgeon. The surgeon should be an expert in performing your type of surgery. Hospitals that perform many surgeries often have better results. You can ask for a referral to a hospital or cancer center that has experience in treating your type of cancer.

Goal of surgery

The goal of surgery or tumor resection is to remove all the cancer. To do so, the tumor is removed along with a rim of normal-looking tissue around its edge called the surgical margin. The surgical margin may look normal during surgery, but cancerous cells may be found when viewed under a microscope by a pathologist. A clear or negative margin (R0) is when no cancer cells are found in the tissue around the edge of the tumor. In a positive margin, cancer cells are found in normal-looking tissue around the tumor.

After surgery, you may receive treatment such as radiation to kill any remaining cancer cells. You might have a wound drain to prevent fluid from collecting in the body after surgery. These drains are usually removed a few days after surgery.

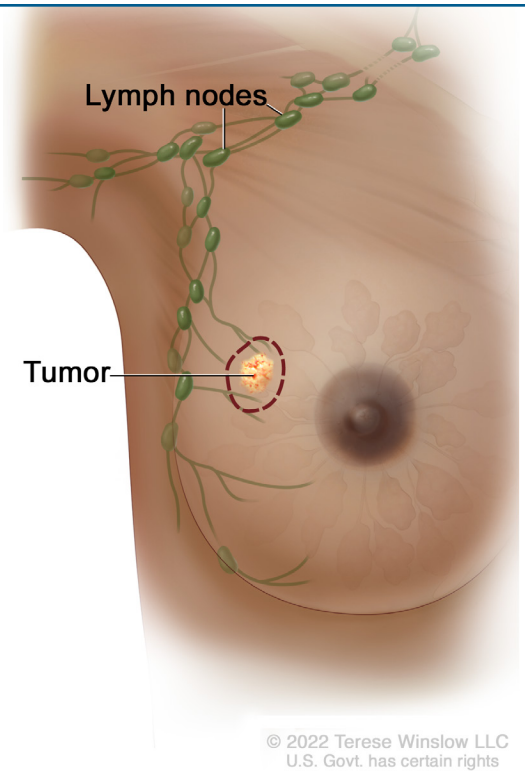
Lumpectomy

Lumpectomy is the removal of abnormal cells or tumor. It does not remove the whole breast. A lumpectomy is also called breast-conserving therapy or breast-conserving surgery (BCS). In a lumpectomy, the surgeon aims to remove all DCIS with a rim of healthy tissue around it, called a negative, or clear, surgical margin. Having a negative surgical margin will decrease the chance that cancer may return in that area of the breast. You may need more than one surgery to achieve negative margins and ensure all the cancer was removed. A lumpectomy is usually followed by radiation therapy to part of or the whole breast. It is important to note that a lymph node biopsy is not done with a lumpectomy.

The breast might not look the same after a lumpectomy. Speak to your surgeon about how a lumpectomy might affect the look and shape of your breast, and any concerns you have. You can also seek the opinion of a plastic surgeon.

Breast-conserving surgery

The dotted line shows where the tumor is removed. Lumpectomy is the removal of abnormal cells or tumor and not the whole breast. It is also called a partial mastectomy, breast-conserving therapy, or breast-conserving surgery (BCS).



Mastectomy

A mastectomy removes all of the breast. In some cases, the surgeon may do a sentinel lymph node biopsy (SLNB) before removing the breast. Sentinel lymph nodes are the first lymph nodes cancer cells are likely to have spread from the primary tumor.

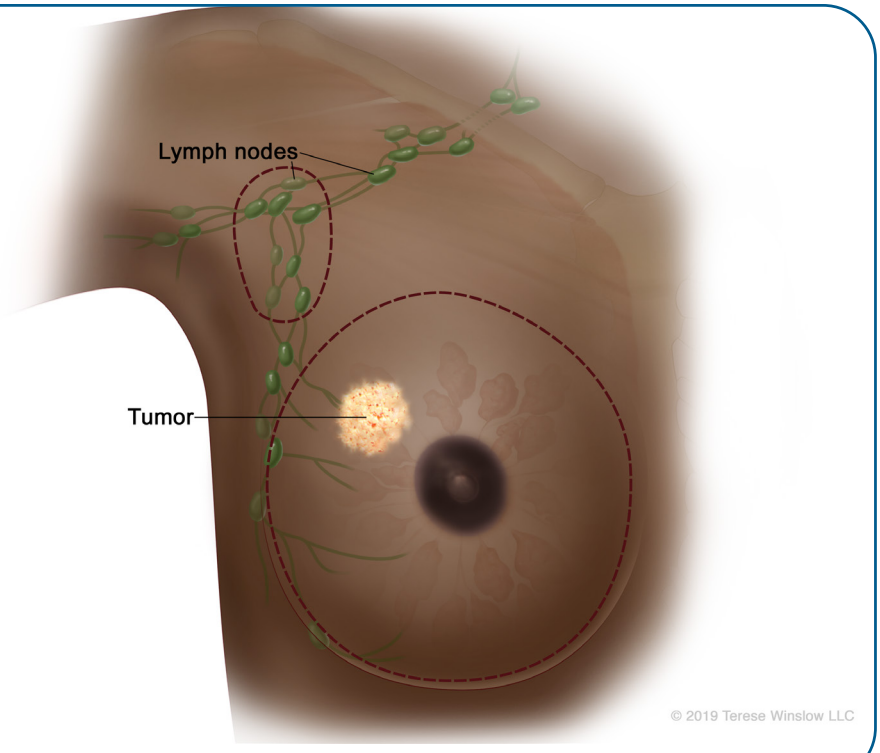
Types of mastectomies include:

- **A total mastectomy or simple mastectomy** removes the whole breast with a flat skin closure.
- **A skin-sparing mastectomy** removes the breast but not all of the skin, in order to have breast reconstruction that might include flaps and/or implants.
- **Nipple-sparing mastectomy** preserves the nipple-areola complex (NAC) as well as all of the skin. Not everyone is a candidate for nipple-sparing mastectomy based upon location of cancer, breast size, and breast ptosis (degree of drooping).

Breast reconstruction is an option after a mastectomy. It might be done at the same time as mastectomy (immediate) or at some time following the completion of cancer treatment (delayed). Breast reconstruction is most commonly done in stages. If you are considering breast reconstruction surgery, it requires collaboration between a breast surgeon and a reconstructive (plastic) surgeon.

Total (simple) mastectomy

The dotted line shows where the entire breast is removed. Some lymph nodes under the arm may also be removed. Clinical staging of lymph nodes is staging before surgery.



Sentinel lymph node biopsy

For DCIS, this procedure is only done in some cases.

A sentinel lymph node (SLN) is the first lymph node that cancer cells are most likely to spread to from a primary tumor. Sometimes, there can be more than one sentinel lymph node. Removal of the sentinel lymph nodes during surgery is called a sentinel lymph node biopsy (SLNB or SNB). This procedure may be done during surgery such as a mastectomy (surgery to remove the breast) or lumpectomy (surgery to remove the tumor) to determine if any cancer cells have traveled to the lymph nodes. The lymph nodes removed are called the sentinel nodes. They may or may not contain any cancer cells. Just because these nodes are removed, it does not mean that they are positive for cancer.

To find the sentinel lymph nodes, a radioactive material and other dyes are injected into the area where breast tumor is located. From here, the dye travels through the lymphatics in the breast to the lymph nodes. This helps the surgeon find which of the nodes are the sentinel lymph nodes. Once the nodes are found, those containing the radioactive material or dye are removed and tested by a pathologist. If cancer is found, then more than the sentinel lymph nodes may be removed.

Standard of care is the best-known way to treat a particular disease based on past clinical trials. There may be more than one treatment regimen that is considered standard of care. Ask your care team what treatment options are available and if a clinical trial might be right for you.

Radiation therapy

Radiation therapy (RT) uses high-energy radiation from x-rays (photons), protons, and other sources to kill any remaining cancer cells after surgery. Different types of radiation can be used for DCIS. Most types include several short treatment sessions that are given once daily over a few days to weeks. Ask your care team which radiation option(s) are best for you and what side effects to expect.

Types of radiation therapy used in DCIS include:

- **Whole breast radiation therapy (WBRT)** is used to treat the entire breast. Sometimes, additional treatments may be given to the tumor area. This is called a boost.
- **Partial breast irradiation (PBI)** is used to treat only the tumor area of the breast. **Accelerated partial breast irradiation (APBI)** is radiation given over a shorter period of time.

External beam radiation therapy

External beam radiation therapy (EBRT) uses a machine outside the body to aim radiation at the whole breast (WBRT) or only the tumor area of the breast (PBI).

Internal radiation

Internal radiation (brachytherapy) involves placing one or more small tubes into the tumor area of the breast. A small radioactive seed travels into the tube(s) and delivers radiation to the tumor area of the breast from inside the body. This type of radiation is used only for PBI.

Endocrine therapy

Endocrine therapy blocks estrogen or progesterone to treat hormone receptor-positive (HR+) breast cancer. The endocrine system is made up of organs and tissues that produce hormones. Hormones are natural chemicals released into the bloodstream.

There are 4 hormones that might be targeted in endocrine therapy:

- **Estrogen** is made mainly by the ovaries, but is also made by other tissues in the body such as fat tissue.
- **Progesterone** is made mainly by the ovaries.
- **Luteinizing hormone-releasing hormone (LHRH)** is made by a part of the brain called the hypothalamus. It tells the ovaries to make estrogen and progesterone and testicles to make testosterone. LHRH is also called gonadotropin-releasing hormone (GnRH).
- **Androgen** is made by the adrenal glands, testicles, and ovaries.

Hormones may cause breast cancer to grow. Endocrine therapy will stop your body from making hormones or it will block what hormones do in the body. This can slow tumor growth or shrink the tumor for a period of time.

Endocrine therapy is sometimes called hormone therapy or anti-estrogen. It is not the same as hormone replacement therapy (HRT) used for menopause.

Endocrine therapy will suppress the production of hormones and affect one's ability to become pregnant during treatment. Those who want to

have children in the future should be referred to a fertility specialist before starting endocrine therapy.

Types of endocrine therapy can be found in **Guide 2.**

Testosterone

For those assigned male at birth whose bodies continue to make testosterone, endocrine therapy includes tamoxifen or an aromatase inhibitor with a testosterone-suppressing therapy.

Guide 2
Endocrine therapy types

Bilateral oophorectomy	Surgery to remove both ovaries.
Ovarian ablation	Radiation to permanently stop the ovaries from making hormones.
Ovarian or testosterone suppression	Drugs to temporarily stop the ovaries or testicles from making hormones such as LHRH and GnRH. • LHRH agonists include goserelin (Zoladex) and leuprolide (Lupron Depot). These are injected every 4 or 12 weeks. They do not affect estrogen made by the ovaries. • GnRH agonists might be used to suppress ovarian hormone or testosterone production.
Aromatase inhibitors (AIs)	Drugs to stop a type of hormone called androgen from changing into estrogen by interfering with an enzyme called aromatase. They do not affect estrogen made by the ovaries. Nonsteroidal AIs include anastrozole (Arimidex) and letrozole (Femara). Exemestane (Aromasin) is a steroidal AI.
Estrogen receptor (ER) modulators or anti-estrogens	• **Selective estrogen receptor modulators (SERMs)** block estrogen from attaching to hormone receptors. Tamoxifen and toremifene (Fareston) are SERMs. • **Selective estrogen receptor degraders (SERDs)** block and destroy estrogen receptors. Fulvestrant (Faslodex) and elacestrant (Orserdu) are SERDs.
Hormones	Hormone examples include ethinyl estradiol, fluoxymesterone, and megestrol acetate (Megace).

Premenopause

If you have menstrual periods, you are in premenopause. In premenopause, the ovaries are the main source of estrogen and progesterone.

- Tamoxifen is the endocrine treatment option for those in premenopause. Ovarian suppression or ablation is frequently considered for higher risk ER+ breast cancers.

Menopause

In menopause, the ovaries permanently stop producing hormones and menstrual periods stop. Estrogen and progesterone levels are low, but the adrenal glands, liver, and body fat continue to make small amounts of estrogen. If you don't have periods, a test using a blood sample may be used to confirm your status.

Cancer treatment can cause a temporary menopause. If you stopped having periods due to removal of your uterus (hysterectomy) but you still have your ovaries, then you should have your menopausal status confirmed with a blood test. If both ovaries have been removed (with or without your uterus), you are in menopause.

- Tamoxifen or an aromatase inhibitor is the endocrine treatment for those in menopause. Aromatase inhibitors include anastrozole (Arimidex), exemestane (Aromasin), and letrozole (Femara).

Preventing pregnancy during treatment

If you become pregnant during radiation therapy or endocrine therapy, it can cause birth defects. Non-hormonal birth control methods such as intrauterine devices (IUDs) and barrier methods are preferred in those with a breast cancer diagnosis. Types of barrier methods include condoms, diaphragms, cervical caps, and the contraceptive sponge.

Clinical trials

A clinical trial is a type of medical research study. After being developed and tested in a lab, potential new ways of treating cancer need to be studied in people. If found to be safe and effective in a clinical trial, a drug, device, or treatment approach may be approved by the U.S. Food and Drug Administration (FDA).

Everyone with cancer should carefully consider all of the treatment options available for their cancer type, including standard treatments and clinical trials. Talk to your doctor about whether a clinical trial may make sense for you.

Phases

Most cancer clinical trials focus on treatment and are done in phases.

- **Phase 1** trials study the safety and side effects of an investigational drug or treatment approach.
- **Phase 2** trials study how well the drug or approach works against a specific type of cancer.
- **Phase 3** trials test the drug or approach against a standard treatment. If the results are good, it may be approved by the FDA.
- **Phase 4** trials study the safety and benefit of an FDA-approved treatment.

Who can enroll?

It depends on the clinical trial's rules, called eligibility criteria. The rules may be about age, cancer type and stage, treatment history, or general health. They ensure that participants are alike in specific ways and that the trial is as safe as possible for the participants.

Informed consent

Clinical trials are managed by a research team. This group of experts will review the study with you in detail, including its purpose and the risks and benefits of joining. All of this information is also provided in an informed consent form. Read the form carefully and ask questions before signing it. Take time to discuss it with people you trust. Keep in mind that you can leave and seek treatment outside of the clinical trial at any time.

Will I get a placebo?

Placebos (inactive versions of real medicines) are almost never used alone in cancer clinical trials. It is common to receive either a placebo with a standard treatment, or a new drug with a standard treatment. You will be informed, verbally and in writing, if a placebo is part of a clinical trial before you enroll.

Are clinical trials free?

There is no fee to enroll in a clinical trial. The study sponsor pays for research-related costs, including the study drug. But you may need to pay for other services, like transportation or childcare, due to extra appointments. During the trial, you will continue to receive standard cancer care. This care is often covered by insurance.

Supportive care

Supportive care helps improve your quality of life during and after cancer treatment. The goal is to prevent or manage side effects and symptoms, like pain and cancer-related fatigue. It also addresses the mental, social, and spiritual concerns faced by those with cancer.

Supportive care is available to everyone with cancer and their families, not just those at the end of life. Palliative care is another name for supportive care.

Supportive care can also help with:

- Making treatment decisions
- Coordinating your care
- Paying for care
- Planning for advanced care and end of life

Distress

Depression, anxiety, and sleeping issues are common and are a normal part of cancer diagnosis. Talk to your care team and with those whom you feel most comfortable about how you are feeling. There are services, people, and medicine that can help you. Support and counseling services are available.

Fatigue

Fatigue is extreme tiredness and inability to function due to lack of energy. Fatigue may be caused by cancer or it may be a side effect of treatment. Let your care team know how you are feeling and if fatigue is getting in the way of doing the things you enjoy. Eating a balanced diet, exercise, yoga, acupuncture, and massage therapy can help. You might be referred to a nutritionist or dietitian to help with fatigue.

Loss of appetite

Sometimes side effects from surgery, cancer, or its treatment might cause you to feel not hungry or sick to your stomach (nauseated). You might have a sore mouth. Healthy eating is important during treatment. It includes eating a balanced diet, eating the right amount of food, and drinking enough fluids. A registered dietitian who is an expert in nutrition and food

Supportive care resources

More information on supportive care is available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.

can help. Speak to your care team if you have trouble eating or maintaining weight.

Lymphedema

Lymphedema is a condition in which lymph fluid builds up in tissues and causes swelling. It may be caused when part of the lymph system is damaged or blocked, such as during surgery to remove lymph nodes, or by radiation therapy. Cancers that block lymph vessels can also cause lymphedema. Swelling usually develops slowly over time. It may develop during treatment, or it may start years after treatment. If you have lymphedema, you may be referred to an expert in lymphedema management. The swelling may be reduced by exercise, massage, compression devices, and other means.

Pain

Tell your care team about any pain or discomfort. You might meet with a palliative care specialist or with a pain specialist to manage pain.

Palliative care

Palliative care is appropriate for anyone, regardless of age, cancer stage, or the need for other therapies. It focuses on physical, emotional, social, and spiritual needs that affect quality of life.

Quality of life

Cancer and its treatment can affect your overall well-being or quality of life (QOL). For more information on quality of life, see *NCCN Guidelines for Patients: Palliative Care* at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.

All cancer treatments can cause unwanted health issues called side effects. It is important to tell your care team about all of your side effects so they can be managed.

Side effects

All cancer treatments can cause unwanted health issues called side effects. Side effects depend on many factors. These factors include the drug type and dose, length of treatment, and the person. Some side effects may just be unpleasant. Others may be harmful to one's health. Treatment can cause several side effects. Some are very serious. Tell your care team about any new or worsening symptoms.

Survivorship

A person is a cancer survivor from the time of diagnosis until the end of life. After treatment, your health will be monitored for side effects of treatment and the return of cancer. This is part of your survivorship care plan. It is important to keep any follow-up care and imaging test appointments. Seek good routine medical care, including regular doctor visits for preventive care and cancer screening.

A personalized survivorship care plan will contain a summary of possible long-term effects of treatment called late effects and a list of follow-up tests. Find out how your primary care provider will coordinate with specialists for your follow-up care.

Key points

- Surgery is the main or primary treatment for DCIS.
- Treatment for DCIS is usually a combination of surgery and radiation therapy followed by endocrine therapy.
- Surgery options include a lumpectomy or mastectomy. A lumpectomy is also called breast-conserving surgery (BCS) or partial mastectomy.
- Systemic therapy works throughout the body. It includes endocrine therapy. Chemotherapy is not used to treat DCIS.
- Supportive care is health care that relieves symptoms caused by treatment and improves quality of life. Supportive care is always given.

Questions to ask

- What is your experience treating breast cancer?
- How many breast cancer surgeries have you done?
- Which treatment do you recommend and why?
- Is there a social worker or someone who can help me decide about treatment?
- Who will coordinate my care?

4
Surgery options

Ductal carcinoma in situ (DCIS) is treated with surgery. The goal of treatment is to reduce the risk of cancer progressing to invasive breast cancer. Together, you and your care team will choose a treatment plan that is best for you.

Overview

Ductal carcinoma in situ (DCIS) is treatable. Surgery is a central part of treatment for DCIS. Talk to your care team about what to expect from treatment. Your preferences about treatment are important. Make your wishes known. Treatment options are found in **Guide 3.**

There are 2 types of treatment:

- **Local therapy** focuses on the breast and armpit (axilla) only. It includes surgery and radiation therapy (RT).
- **Systemic therapy** works throughout the body. It includes endocrine therapy. Chemotherapy is not used to treat DCIS.

The goal of treatment is to prevent DCIS from growing outside the duct into surrounding tissue. When cancer spreads into the surrounding tissue, it is called invasive breast cancer. Invasive breast cancer is breast cancer that has spread from the milk ducts or milk glands (lobules) into the breast tissue or to nearby lymph nodes.

Guide 3
Treatment options

Option 1	• Lumpectomy with whole breast radiation therapy (WBRT) • Lumpectomy with WBRT and radiation boost
Option 2	• Lumpectomy with accelerated partial breast irradiation (APBI) or partial breast irradiation (PBI)
Option 3	• Lumpectomy only (not an option for most people)
Option 4	• Total mastectomy with sentinel lymph node biopsy (SLNB) • Flat closure or reconstruction after mastectomy

Lumpectomy options

A lumpectomy is also known as breast-conserving surgery (BCS). It may or may not be followed by radiation therapy. Lymph node surgery is not done with a lumpectomy. You may have more than one surgery to ensure all the cancer was removed.

A lumpectomy followed by radiation therapy is an option for many but not all with DCIS. This is not an option if you are pregnant, have some health issues, or the cancer is throughout the breast. The surgical margin must be cancer-free, called a negative surgical margin (R0). Lumpectomy options are described next.

Lumpectomy with whole breast radiation therapy

Most of your breast will be treated with radiation in whole breast radiation therapy (WBRT). Whole breast radiation will help to prevent the return of cancer. For every cancer that returns there is an equal chance of developing DCIS again or an invasive type of cancer. Many factors are used to determine risk of recurrence. Ask your care team if your risk of cancer coming back is low or high. If it's high, you may receive extra radiation called a boost.

Lumpectomy with partial breast radiation therapy

When radiation therapy (RT) is given only to the lumpectomy site, it is called partial breast irradiation (PBI). This is an option in some cases. You must have a low risk of the cancer returning. Surgical margins must be cancer-free. The size, grade, and other features of the tumor will be considered. Accelerated partial breast irradiation (APBI) therapy is radiation given over a shorter length of time.

Lumpectomy only

Treatment with a lumpectomy only (no radiation) is an option for a small group of people. You must have a low risk of the cancer coming back. Surgical margins must be cancer-free. The size, grade, and other features of the tumor will be considered.

Mastectomy option

A total mastectomy or a simple mastectomy is a surgery that removes the whole breast. Chest muscle is not removed. A skin-sparing mastectomy removes the breast but not all of the skin. A nipple-sparing mastectomy preserves the nipple-areola complex (NAC) and the skin. Not everyone is a candidate for nipple-sparing mastectomy. You might choose to have a flat closure or breast reconstruction after a mastectomy.

There are many reasons why a total mastectomy might be the best choice for you.

- Cancer may be found at the surgical margin.
- The tumor might be large, too big, or widespread.
- You may be at risk of developing a second cancer.
- You might have a health issue.
- You may want a mastectomy.
- You may not be able to receive radiation to the breast area.

Total mastectomy with sentinel lymph node biopsy

A sentinel lymph node biopsy (SLNB) is done at the time of mastectomy. Sentinel lymph nodes are the first lymph nodes that cancer cells are likely to have spread to from the primary tumor. An SLNB finds and removes a few of these nodes. The nodes are then tested for cancer. Once the breast is removed, an SLNB can't be done. Instead, many lymph nodes would have to be removed to test for cancer. This is because a mastectomy permanently changes lymph flow and drainage. Therefore, an SLNB will be done at the time of a mastectomy just in case there is a small area of invasive cancer in the breast.

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

Endocrine therapy after lumpectomy

Endocrine therapy is often given after a lumpectomy for cancers that are estrogen receptor-positive (ER+). This is meant to reduce the risk of cancer returning. For treatment after breast-conserving surgery, **see Guide 4.**

Endocrine therapy

Endocrine therapy includes treatments that stop cancer growth caused by hormones. It is sometimes called hormone therapy. It is not the same as hormone replacement therapy (HRT).

Endocrine therapy may be given to help reduce the risk of developing a second breast cancer in those who were treated with:

- Breast-conserving surgery (lumpectomy) with radiation therapy (RT)
- Lumpectomy alone
- Mastectomy on one side only

There is more than one type of endocrine therapy. The type prescribed by your care team is partly based on if you have menstrual periods.

- Those who have menstrual periods are in premenopause. Tamoxifen is an option.
- Those whose menstrual periods have stopped for more than 12 months are in menopause. Tamoxifen or an aromatase inhibitor (AI) is an option.

While taking endocrine therapy, it is important to have follow-up visits with your care team and seek regular preventive care with a dentist. Let your dentist know if you are taking any of these medicines. Let your care team know about any planned dental procedures.

Medicine might be given to prevent bone loss and fractures while on endocrine therapy. A calcium and vitamin D supplement might be recommended, but talk to your care team first.

Guide 4
Treatment after breast-conserving surgery (lumpectomy)

Consider endocrine therapy for 5 years for those with estrogen receptor-positive (ER+) DCIS if treated with:

- Breast-conserving surgery (lumpectomy) and radiation therapy (RT)
- Lumpectomy alone
- Mastectomy on one side only

Endocrine therapy options:

- For those in premenopause, tamoxifen
- For those in menopause, tamoxifen or aromatase inhibitor (AI)

Follow-up care

After treatment, you will receive follow-up care. It is important to keep any follow-up visits and imaging test appointments. Contact your doctor if you have any new or worsening symptoms.

Medical history and physical exam

An update of your medical history and a physical exam are part of follow-up care. Both should be done every 6 to 12 months for 5 years, then once a year after 5 years of normal results.

Mammogram

A mammogram should be done every 12 months after breast-conserving treatment. If you had both breasts removed to reduce your cancer risk, then mammograms aren't needed. The first mammogram might be as soon as 6 months after completing radiation or breast-conserving treatment.

Lowering your risk

There are things you can do to lower your chance of developing breast cancer in the future. Changes in your lifestyle include eating a mostly plant-based diet, exercising, limiting alcohol, and quitting smoking. Your care team can offer information and support on how to lower your risk.

"Be your own advocate. Talk to someone who has gone through the same thing as you. Ask a lot of questions, even the ones you are afraid to ask. You have to protect yourself and ensure you make the best decisions for you, and get the best care for your particular situation."

Key points

- Ductal carcinoma in situ (DCIS) is treatable. The goal of treatment is to reduce the risk of DCIS progressing to invasive breast cancer.
- Treatment for DCIS starts with surgery.
- Surgery may be a lumpectomy or mastectomy. A lumpectomy followed by radiation therapy is most common.
- Endocrine therapy is often given after a lumpectomy for cancers that are estrogen receptor-positive (ER+).
- Lifestyle changes, endocrine therapy, and surgery help to reduce the risk of future breast cancer.
- Follow-up care includes physical exam and mammogram.

Questions to ask

- Which type of surgery do you recommend and why?
- What will be done to manage pain after surgery?
- How long will it take to recover from surgery?
- Who should I call when I have questions or notice changes in my condition?
- Will I have endocrine therapy?

5
The breast after surgery

The look of your breast after surgery will depend on the type of surgery, the amount of tissue removed, and other factors such as your body type, age, and size and shape of the area before surgery. You might consider speaking with a plastic surgeon before surgery. This chapter offers more information on flat closure and breast reconstruction.

The recovery time for each procedure differs. This can affect your ability to return to work or participate in activities. You might consider speaking with a plastic surgeon before surgery to discuss your options and what to expect. A plastic surgeon performs oncoplastic (breast cancer surgery) reductions, balancing procedures, and breast reconstruction.

Volume displacement

With a lumpectomy, most people have a scar with some volume loss. However, if you need a large lumpectomy and your surgeon thinks your breast will look more abnormal afterwards, your breast may be able to be re-shaped at the time of surgery. This procedure is called volume displacement or oncoplasty. Only a limited number of cancer centers perform this procedure. It is often done by the cancer surgeon or plastic surgeon right after the lumpectomy. The surgeon will shift the remaining breast tissue to fill the space left by the removed tumor.

If volume displacement is planned, a larger piece of your breast will need to be removed. Despite a larger piece being removed, the natural look of your breast will be kept. However, with large amounts of tissue removed, your breast may be smaller than before.

You may not like the results of the volume displacement. In this case, breast revision surgery may help. This surgery is done by a plastic surgeon. A second volume displacement may be an option, too. Another option is to get breast implants or mastectomy with reconstruction.

Flat closure

In a total mastectomy with a flat closure, the entire breast, including nipple, extra skin, fat, and other tissue in the breast area, is removed. The remaining skin is tightened and sewn together. No breast mound is created, and no implant is added. The scar will be slightly raised and differ in color than the surrounding skin. A flat closure is not completely flat or smooth. The result varies from person to person. Ask to look at pictures from flat closures so you know what to expect.

Breast reconstruction

Breast reconstruction is surgery to rebuild the shape and look of the breast after a mastectomy. In many cases, breast reconstruction involves a staged approach. It might require more than one procedure.

You may have a choice as to when breast reconstruction is done. Immediate reconstruction is finished within hours after removing the breast. Delayed reconstruction can occur months or years after the cancer surgery. Reconstruction can also be done in stages, with part of the reconstruction done at the time of the original cancer surgery and finished with another surgery later. A plastic surgeon performs breast reconstruction.

Breasts can be reconstructed with implants and flaps. All methods are generally safe, but as with any surgery, there are risks. Ask your treatment team for a complete list of side effects.

Implants

Breast implants are small bags filled with salt water, silicone gel, or both. They are placed under the breast skin or muscle to look like a new breast following a mastectomy. A balloon-like device, called an expander, may be used first to stretch out tissue. It will be placed under your skin or muscle and enlarged every few weeks for 2 to 3 months. When your skin is stretched to the proper size, you will have surgery to place the final implant.

Implants have a small risk of leaking or causing other issues. You may feel pain from the implant or expander. Scar tissue or tissue death can occur.

Flaps

Breasts can be remade using skin from other parts of your body, known as flaps. These flaps are taken from the abdomen, buttocks, thigh, or from under the shoulder blade. Some flaps are completely removed and then sewn in place. Other flaps stay attached to your body but are slid over and sewn into place.

There are several risks associated with flaps, including death of fat in the flap, which can cause lumps. A hernia may result from muscle weakness. Problems are more likely to occur among those who have diabetes or who smoke.

Implants and flaps

Some breasts are reconstructed with both implants and flaps. This method may give the reconstructed breast more volume to match the other breast. For any reconstruction, you may need surgery on your remaining breast to match the size and shape of both breasts.

Nipple replacement

Like your breast, a nipple can be remade. To rebuild a nipple, a plastic surgeon can use surrounding tissues. Also, nipples can be remade with tissue from the thigh or the other nipple. Tissue can be darkened with a tattoo to look more like a nipple. It is important to know that while you can remake something to look like a nipple, it will not have the sensation of your real nipple. Also, a tattoo can be done to look like a nipple without having to take tissue from another part of the body.

What to consider

Some things to consider when deciding to have flat closure or reconstruction after mastectomy:

- **Your desire** – You may have a strong feeling towards flat closure or one form of reconstruction after being given the options. Breast reconstruction should be a shared decision between you and your care team. Make your wishes known.
- **Health issues** – You may have health issues such as diabetes or a blood disorder that might affect or delay healing, or make longer procedures unsafe.
- **Tobacco use** – Smoking delays wound healing and can cause mastectomy flap death (necrosis), nipple-areola complex (NAC) necrosis in a nipple-sparing mastectomy, infection, and failure of implant-based reconstruction. In free flap reconstruction, smoking increases the risk of complications. You are encouraged to stop smoking prior to reconstruction.
- **Breast size and shape** – There are limits to the available sizes of breast implants. Very large breasts or breasts that lack tone or droop (called ptosis) might be difficult to match. Breast reduction surgery might be an option.
- **Body mass index (BMI)** – Those with an elevated BMI have an increased risk of infections and complications with breast reconstruction.

If you smoke or vape, seek help to quit

Smoking or vaping nicotine greatly increases your chances of having side effects during and after surgery. Smoking and vaping can limit how well cancer treatment works and prevent wound healing. They also increase your chances of developing other cancers. Cannabis use might also affect the amount of anesthesia used during surgery.

Nicotine is the chemical in tobacco that makes you want to keep smoking and vaping. Nicotine withdrawal is challenging for most people who smoke or vape. The stress of having cancer may make it even harder to quit. If you smoke or vape, ask your care team about counseling and medicines to help you quit.

More information can be found in the *NCCN Guidelines for Patients: Quitting Smoking* at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.

For online support, try these websites:

- SmokeFree.gov
- CDC.gov/tobacco

Key points

- Volume displacement is a shifting of the breast tissue to fill the space left by a lumpectomy.
- Flat closure is done after a mastectomy. The skin is tightened and sewn together without the addition of a breast implant.
- Breast reconstruction is surgery to rebuild the shape and look of the breast.
- Breasts that are fully removed in a mastectomy can be remade with breast implants, flaps, or both.
- Removed nipples can be remade with body tissue and/or tattooing.

Questions to ask

- What will my breast look like after surgery?
- How many breast surgeries or breast reconstructive surgeries have you done?
- How long will it take for me to recover from surgery and what should I expect?
- How much pain will I be in and what will be done to manage my pain?
- What options are available if I do not like the look of my breast after surgery?

6
Other resources

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

What else to know

This book can help improve your cancer 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:

- The details of treatment
- Being a part of a care team
- Getting financial help
- Finding an oncologist who is an expert in breast cancer
- Coping with side effects

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

Cancer*Care*
Cancercare.org

Cancer Hope Network
cancerhopenetwork.org

Cancer Survivor Care
Cancersurvivorcare.org

DiepC Foundation
diepcfoundation.org

FORCE: Facing Our Risk of Cancer Empowered
facingourrisk.org

GPAC Global Patient Advocacy Coalition
GPACunited.org

HIS Breast Cancer Awareness
Hisbreastcancer.org

Imerman Angels
lmermanangels.org

Inflammatory Breast Cancer Research Foundation
ibcresearch.org

Lobular Breast Cancer Alliance
lobularbreastcancer.org

MedlinePlus
medlineplus.gov

National Cancer Institute (NCI)
cancer.gov/types/breast

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 about resources and support

- 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?

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

Words to know

anti-estrogen
A drug that stops estrogen from attaching to cells.

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

aromatase inhibitor (AI)
A drug that lowers the level of estrogen in the body.

axillary lymph node (ALN)
A small disease-fighting structure that is near the armpit (axilla).

bilateral diagnostic mammogram
Pictures of the insides of both breasts that are made from a set of x-rays.

bilateral oophorectomy
An operation that removes both ovaries.

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

breast implant
A small bag filled with salt water, gel, or both that is used to remake breasts.

breast reconstruction
An operation that creates new breasts.

cancer stage
A rating of the outlook of a cancer based on its growth and spread.

carcinoma
A cancer of cells that line the inner or outer surfaces of the body.

chest wall
The layer of muscle, bone, and fat that protects the vital organs.

clinical breast exam (CBE)
Touching of a breast by a health expert to feel for diseases.

clinical stage (c)
The rating of the extent of cancer before treatment is started.

clinical trial
A type of research that assesses health tests or treatments.

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 bilateral mammogram
Pictures of the insides of both breasts that are made from a set of x-rays.

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

endocrine therapy
A cancer treatment that stops the making or action of estrogen. Also called hormone therapy.

estrogen
A hormone that plays a role in breast development.

estrogen receptor (ER)
A protein inside cells that binds to estrogen.

estrogen receptor-negative (ER-)
A type of breast cancer that doesn't use estrogen to grow.

estrogen receptor-positive (ER+)
A type of breast cancer that uses estrogen to grow.

fertility specialist
An expert who helps people have babies.

fine-needle aspiration (FNA)
A procedure that removes tissue samples with a very thin needle.

flat closure
Procedure done after a mastectomy in which the skin is tightened and sewn together without the addition of a breast implant.

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

hereditary breast cancer
Breast cancer likely caused by abnormal genes passed down from biological parent to child.

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

hormone
A chemical in the body that triggers a response from cells or organs.

hormone receptor-negative cancer (HR-)
Cancer cells that don't use hormones to grow.

hormone receptor-positive cancer (HR+)
Cancer cells that use hormones to grow.

human epidermal growth factor receptor 2 (HER2)
A protein on the surface of a cell that sends signals for the cell to grow.

immunohistochemistry (IHC)
A lab test of cancer cells to find specific cell traits involved in abnormal cell growth.

invasive breast cancer
The growth of breast cancer into the breast's supporting tissue (stroma).

lobule
A gland in the breast that makes breast milk.

luteinizing hormone-releasing hormone (LHRH)
A hormone in the brain that helps control the making of estrogen by the ovaries.

lymph
A clear fluid containing white blood cells.

lymphatic system
Germ-fighting network of tissues and organs that includes the bone marrow, spleen, thymus, lymph nodes, and lymphatic vessels. Part of the immune system.

lymphedema
Swelling in the body caused by a buildup of fluid called lymph.

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 insides of the body.

mammogram
A picture of the insides of the breast that is made using x-rays.

mastectomy
An operation that removes the whole breast.

menopause
12 months after the last menstrual period.

modified radical mastectomy
An operation that removes the whole breast and lymph nodes under the arm (axilla).

nipple-areola complex (NAC)
The ring of darker breast skin is called the areola. The raised tip within the areola is called the nipple.

pathologic stage (p)
A rating of the extent of cancer given after examining tissue removed during surgery.

pathologist
A doctor who's an expert in testing cells and tissue to find disease.

postmenopause
The state of having no more menstrual periods.

premenopause
The state of having menstrual periods.

progesterone (PR)
A hormone involved in sexual development, periods, and pregnancy.

prognosis
The likely course and outcome of a disease based on tests.

radiation therapy (RT)
A treatment that uses high-energy rays. Also called radiotherapy.

radical mastectomy
An operation that removes the whole breast, lymph nodes under the arm (axilla), and chest wall muscles under the breast.

selective estrogen receptor degrader (SERD)
A drug that blocks and destroys estrogen receptors.

selective estrogen receptor modulator (SERM)
A drug that blocks the effect of estrogen inside of cells.

sentinel lymph node (SLN)
The first lymph node to which cancer cells spread after leaving a tumor.

sentinel lymph node biopsy (SLNB)
An operation to remove the disease-fighting structures (lymph nodes) to which cancer first spreads. Also called sentinel lymph node dissection.

side effect
An unhealthy or unpleasant physical or emotional response to treatment.

supportive care
Health care that includes symptom relief but not cancer treatment. Also called palliative care or best supportive care.

total mastectomy
An operation that removes the entire breast with a flat closure. Also called simple mastectomy.

NCCN Contributors

This patient guide is based on the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Breast Cancer, Version 1.2025. It was adapted, reviewed, and published with help from the following people:

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