ASCOanswers

Breast Cancer

Trusted Information to Help Manage Your Care from the American Society of Clinical Oncology
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The American Society of Clinical Oncology (ASCO) is the world’s leading professional organization representing oncology physicians of all oncology subspecialties who care for people with cancer. ASCO’s more than 30,000 members from the United States and abroad set the standard for patient care worldwide and lead the fight for more effective cancer treatments, increased funding for clinical and translational research, and, ultimately, cures for the many different types of cancer that strike an estimated 12 million people worldwide each year.

ABOUT CANCER.NET
The best cancer care starts with the best cancer information. Well-informed patients are their own best advocates and invaluable partners for physicians. Cancer.Net (www.cancer.net) brings the expertise and resources of the American Society of Clinical Oncology (ASCO), the voice of the world’s cancer physicians, to people living with cancer and to those who care for and about them. All the information and content on Cancer.Net was developed and approved by the cancer doctors who are members of ASCO, making Cancer.Net an up-to-date and trusted resource for cancer information on the Internet. Cancer.Net is supported by the Conquer Cancer Foundation, which provides funding for breakthrough cancer research, professional education, and patient and family support.

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# Breast Cancer

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**ASCO ANSWERS** is a collection of oncologist-approved patient education materials developed by ASCO for people with cancer and their caregivers.

The ideas and opinions expressed in ASCO Answers: Breast Cancer do not necessarily reflect the opinions of ASCO or the Conquer Cancer Foundation. The information in this guide is not intended as medical or legal advice, or as a substitute for consultation with a physician or other licensed health care provider. Patients with health-related questions should call or see their physician or other health care provider promptly, and should not disregard professional medical advice, or delay seeking it, because of information encountered in this guide. The mention of any product, service, or treatment in this guide should not be construed as an ASCO endorsement. ASCO is not responsible for any injury or damage to persons or property arising out of or related to any use of ASCO’s patient education materials, or to any errors or omissions.
Introduction

It is one of many people’s biggest fears—sitting in the doctor’s office and hearing the word cancer. People diagnosed with breast cancer often say they were stunned by their diagnosis and couldn’t hear, much less remember, what was said afterward. However, absorbing the news of a cancer diagnosis is a key part of the coping process.

In the weeks to come, you may find it helpful to have a family member or a friend come to your appointments with you. They will not only give you some much needed support, but they can also help listen to and remember the information given by your health care team. Using this ASCO Answers guide may also be helpful. This booklet was designed to explain some of the medical terms doctors may use when talking about your cancer and help you keep track of the specifics of your breast cancer diagnosis and treatment plan. Throughout this guide, you will find questions to ask your doctor, nurse, or another member of your health care team, as well as plenty of space to write down their answers or other important information. There are also check boxes you can use to identify the tests, procedures, and treatments that will make up your cancer care plan.

However you choose to accurately keep track of this information, it is important to do so. Getting the specific facts about your diagnosis will help you make the best decisions based on your situation in the coming days. Additionally, being an informed, involved patient and voicing your questions and concerns will help you and your health care team form a partnership in your care. Tell your doctor and nurse how you prefer to be given information about your diagnosis, treatment, and prognosis (chance of recovery), as well as how much information you want. Don’t be afraid to ask questions or to let your health care team know you don’t know what questions to ask.
My Health Care Team

Medical Oncologist: __________________________
Contact Information: __________________________
____________________________________________

Radiation Oncologist: __________________________
Contact Information: __________________________
____________________________________________

Surgeon / Surgical Oncologist: __________________
Contact Information: __________________________
____________________________________________

Plastic / Reconstructive Surgeon: __________________
Contact Information: __________________________
____________________________________________

Counselor / Therapist: __________________________
Contact Information: __________________________
____________________________________________

Nutritionist / Dietitian: __________________________
Contact Information: __________________________
____________________________________________

Pharmacist: __________________________
Pharmacy: __________________________
Contact Information: __________________________
____________________________________________

OTHER TEAM MEMBERS:

Name: __________________________
Specialty: __________________________
Contact Information: __________________________
____________________________________________

Name: __________________________
Specialty: __________________________
Contact Information: __________________________
____________________________________________

Name: __________________________
Specialty: __________________________
Contact Information: __________________________
____________________________________________

Breast Cancer 3
Breast Cancer Basics

The breast is mostly made up of fatty tissue. Within this tissue is a network of lobes, which are made up of small, tube-like structures called lobules that contain milk glands. Tiny ducts connect the glands, lobules, and lobes, carrying the milk from the lobes to the nipple, located in the middle of the areola (darker area that surrounds the nipple). Blood and lymph vessels also run throughout the breast. Blood nourishes the cells, and the lymphatic system drains bodily waste products. The lymph vessels connect to lymph nodes, which are tiny, bean-shaped organs that help fight infection.

Breast cancer development

In the United States, breast cancer is the most common cancer diagnosed in women (excluding skin cancer). Men may also develop breast cancer, but less than 1% of all people with breast cancer are men. Breast cancer begins when healthy cells in the breast change and grow uncontrollably, forming a mass called a tumor. A tumor can be benign (noncancerous) or malignant (cancerous). A benign tumor does not spread to other parts of the body and is rarely life threatening. A malignant tumor, on the other hand, can spread beyond where it began to other parts of the body.

Most breast cancers start in the ducts, but some begin in the lobules. Almost 75% of all breast cancers begin in the cells lining the milk ducts and are called ductal carcinomas. Cancer that begins in the lobules is called lobular carcinoma. The difference between ductal and lobular cancer is determined by a pathologist (a doctor who specializes in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease) after examining a piece of the tumor removed during a biopsy.

If the disease has spread outside the duct or lobule and into the surrounding tissue, it is called invasive or infiltrating ductal or lobular carcinoma. Cancer that is located only in the duct or lobule is called in situ, meaning “in place.” Most in situ breast cancers are ductal carcinoma in situ (DCIS). Currently, oncologists recommend surgery to remove DCIS to help prevent the cancer from becoming an invasive breast cancer and spreading to other parts of the breast or the body. Radiation therapy and hormonal therapy may also be recommended for DCIS.
Lobular carcinoma in situ (LCIS) is not considered cancer and is usually monitored by the doctor. LCIS in one breast is a risk factor for developing invasive breast cancer in both breasts.

Other less common types of breast cancer include medullary, mucinous, tubular, metaplastic, and papillary breast cancer, as well as other even rarer types. Inflammatory breast cancer is a faster growing type of cancer that accounts for about 1% to 5% of all breast cancers. It may be misdiagnosed as a breast infection because there is often swelling of the breast and redness of the breast skin that starts suddenly. Paget’s disease is a type of cancer that begins in the ducts of the nipple. The skin often appears scaly and may be itchy. Although it is usually in situ, it can also be an invasive cancer. These rarer types of breast cancer are not covered in this guide, but information about them can be found at www.cancer.net/cancer-types.

Breast cancer spread

As a cancerous breast tumor grows, cancer cells may break away and be carried to other parts of the body by the bloodstream or lymphatic system. During this process, known as metastasis, the cancer cells grow and develop into new tumors. One of the first places breast cancer usually spreads is to the regional lymph nodes.

Breast cancer can also spread farther away from the breast to other parts of the body, such as the bones, lungs, and liver. Less commonly, breast cancer may spread to the brain. However, even if the cancer has spread, it is still named for the area where it began. For example, if breast cancer spreads to the lungs, it is called metastatic breast cancer, not lung cancer. No matter the size, location, whether the cancer has spread, or how far it has spread, breast cancer can be treated and/or managed.
Breast cancer genetics

Although most women who develop breast cancer have no known risk factors and no family history of breast cancer, about 5% to 10% of breast cancers are caused by gene mutations (changes) that are passed down from one generation to the next. Breast cancer may run in a family if first-degree relatives (mothers, sisters, brothers, children) or many close relatives (first-degree relatives, grandmothers, aunts, nieces, granddaughters, cousins) have been diagnosed with breast cancer, especially before the age of 50.

There are several genes linked to an increased risk of breast cancer, but two of the most common are breast cancer genes 1 and 2 (BRCA1 and BRCA2). A mutation in either of these genes gives a woman an increased risk of developing breast cancer and ovarian cancer during her life. Men who inherit these gene mutations also have an increased risk of developing breast cancer, as well as prostate cancer.

Blood tests (genetic testing) are available to test for known mutations in these genes, but they are not recommended for everyone. In addition, they are only recommended after a person has received appropriate genetic counseling.

QUESTIONS TO ASK THE DOCTOR

- Who will be part of my health care team, and what will each member do?
- If I have a family history of breast cancer, what is the chance my cancer is hereditary (genetic)?
- Should I see a genetic counselor? Should my family members?
- Where can I find more information about breast cancer?

NOTES:
Understanding Your Diagnosis

The process of diagnosing breast cancer usually begins when a woman or her doctor discovers an abnormality in the breast during a clinical or self-examination or if a mass or abnormal calcification (tiny spot of calcium) appears on a screening mammogram. After this, the doctor will use a number of tests and procedures to determine whether the mass is cancerous and, if it is, to figure out if the cancer has spread.

However, not every test is right for every person. Your doctor may consider factors such as your age, medical condition, symptoms, and previous test results when deciding whether a specific diagnostic test is right for you.

Imaging tests

☐ Diagnostic mammography
Mammography is a type of x-ray specifically designed to view the breast. The x-ray films produced by mammography, called mammograms, can find small tumors or irregularities in the breast. Diagnostic mammography is similar to screening mammography except that more views (pictures) are taken, and it is often used when a woman is experiencing signs, such as nipple discharge or a new lump. Diagnostic mammography may also be used if something suspicious has been found on a screening mammogram.

☐ Ultrasound
An ultrasound uses high-frequency sound waves to create an image of the breast tissue. An ultrasound can distinguish between a solid mass, which may be cancer, and a fluid-filled cyst, which is usually not cancer.

☐ Magnetic resonance imaging (MRI)
An MRI uses magnetic fields, not x-rays, to produce detailed images of the body. A contrast medium (a special dye) is injected into a patient’s vein or given orally (by mouth) to create a clearer picture of the breast. A breast MRI may be used once a woman has been diagnosed with cancer to check the other breast for cancer or to find out how much the disease has grown throughout the breast.
Surgical tests

The most common surgical test used to diagnose breast cancer is a biopsy. A biopsy is the removal of a small amount of tissue for examination under a microscope. Other tests can suggest that cancer is present, but only a biopsy can make a definite diagnosis. There are different types of biopsies, classified by the technique and/or size of the needle used to collect the tissue sample.

- **Fine needle aspiration biopsy**
  This type of biopsy uses a thin needle to remove a small sample of cells from a suspicious lump.

- **Core needle biopsy**
  This procedure uses a thicker needle to remove a larger sample of tissue. This is usually the preferred biopsy technique for finding out whether an abnormality discovered during a physical examination or on an imaging test is cancer. A vacuum-assisted biopsy removes several large cores of tissue. Local anesthesia (medication to block the awareness of pain) is used to reduce a patient’s discomfort.

- **Image-guided biopsy**
  This test is done when a distinct lump can’t be felt, but an abnormality is seen with an imaging test, such as on a mammogram. During this procedure, a needle is guided to the best location with the help of an imaging technique, such as mammography, ultrasound, or MRI. A stereotactic biopsy is done using mammography to help guide the needle. A small metal clip may be put into the breast to mark where the biopsy sample was taken in case the tissue is cancerous and more surgery is needed. An image-guided biopsy can be done using a fine needle, core needle, or vacuum-assisted biopsy, depending on the amount of tissue that needs to be removed.

- **Surgical biopsy**
  This type of biopsy removes the largest amount of tissue. A surgical biopsy may be incisional (removes part of the lump) or excisional (removes the entire lump). Because surgery is best done after a cancer diagnosis has been made, a surgical biopsy is usually not the recommended procedure for diagnosing breast cancer. Most often, non-surgical core biopsies are recommended to diagnose breast cancer. This means that only one surgical procedure is needed to remove the tumor and to take samples of the lymph nodes.

Examining the tissue

After a biopsy, a pathologist will look very closely at the tissue that was removed under a microscope. Based on this examination, the pathologist can tell which area of the breast the cancer started in (ductal or lobular), whether the tumor has spread outside this area (invasive or in situ), and how different the cancer cells look from healthy breast cells (the grade). If the tumor was removed, the margins (edges of the tumor) will also be examined to see if cancer cells are present and to measure their distance from the tumor.
DIAGNOSIS SUMMARY

BREAST CANCER TYPE:

☐ Ductal carcinoma—cancer that begins in the ducts
☐ Inflammatory breast cancer—a rare condition in which cancer cells block lymph vessels in the skin of the breast
☐ Lobular carcinoma—cancer that begins in the lobules
☐ Medullary carcinoma—a less common type of invasive ductal carcinoma that takes its name from the brain-like color of the cancer cells
☐ Metaplastic carcinoma—a rare form of breast cancer that contains types of cancer cells not usually found in the breast, such as cells that resemble muscle, cartilage, or bone
☐ Mucinous carcinoma—a rare type of invasive ductal carcinoma in which the cancer cells produce mucus
☐ Paget’s disease of the breast—a rare form of early breast cancer that affects the skin of the nipple, usually the areola
☐ Papillary carcinoma—a rare type of breast cancer similar to ductal carcinoma in situ
☐ Tubular carcinoma—a rare type of invasive ductal carcinoma in which the cancer cells look like small tubes
☐ Other: ____________________________________________

SPREAD:

☐ In situ—the tumor has not spread outside the area of origin, literally means “in place”
☐ Invasive / Infiltrating—the tumor has spread outside the area of origin, “invading” surrounding tissue
Molecular testing

Your doctor may recommend performing additional laboratory tests on the tumor sample removed during a biopsy to identify specific genes, proteins, and other factors unique to your tumor. The results of these tests will help your doctor recommend the most effective treatment options.

- **Estrogen receptor (ER) and progesterone receptor (PR) tests**
  Breast cancer cells with these structures depend on the hormones estrogen and/or progesterone to grow. The presence of these receptors helps determine both the risk of recurrence (cancer coming back after treatment) and the type of treatment most likely to prevent recurrence. Generally, hormonal therapy works well for ER-positive or PR-positive tumors, but chemotherapy is also used in specific situations. About 75% to 80% of breast cancers have estrogen and/or progesterone receptors.

- **HER2 tests**
  About 20% to 25% of breast cancers have more copies of a gene called the human epidermal growth factor receptor 2 (HER2) than normal. Because this gene makes a protein that fuels tumor cell growth, HER2-positive cancers usually grow more quickly. The tumor’s HER2 status also helps determine whether a certain type of drug, such as trastuzumab (Herceptin), lapatinib (Tykerb), pertuzumab (Perjeta), or ado-trastuzumab emtansine (Kadcyla), might help treat the cancer.

- **Oncotype DX™**
  This test evaluates 16 cancer-related genes and five reference genes to produce a number called the Recurrence Score. This score estimates the risk of distant recurrence (return of the cancer in a place other than the breast) within 10 years after diagnosis for women with stage I or stage II, node-negative, ER-positive breast cancer treated with hormonal therapy alone. It is mainly used to help make decisions about whether chemotherapy should be added to a person’s treatment.

- **Mammaprint™**
  This test uses information about 70 genes to predict the risk of the cancer coming back for early-stage, low-risk breast cancer. However, it is not yet known if this test can predict whether chemotherapy will work.

Genomic testing of the tumor

Tests that look at the biology of a tumor are sometimes used to understand more about breast cancer, especially if the cancer has not spread to other parts of the body. These tests look at groups of genes found in breast cancer cells (not the genes in healthy cells, which you inherited from your parents) to choose the most effective treatment and predict the risk that the cancer might come back.

Other tests

Your doctor may recommend several types of blood and/or imaging tests to learn more about the cancer depending on your medical history, symptoms, how much the disease has grown in the breast and lymph nodes, and the results of your physical examination.
MOLECULAR AND GENETIC TESTING RESULTS

ESTROGEN RECEPTOR (ER) STATUS:
- Positive (ER+) — tumor depends on estrogen for growth; generally responds to hormonal therapy
- Negative (ER-) — tumor does not depend on estrogen for growth; generally does not respond to hormonal therapy

PROGESTERONE RECEPTOR (PR) STATUS:
- Positive (PR+) — tumor depends on progesterone for growth; generally responds to hormonal therapy
- Negative (PR-) — tumor does not depend on progesterone for growth; generally does not respond to hormonal therapy

HER2 STATUS:
- Clearly Positive (HER2+) — too much of the HER2 protein is present, or there is an increased number of gene copies
- Clearly Negative (HER2-) — normal numbers of the HER2 protein or gene copies are present
- Retesting Needed — results were unclear

NOTE: If you checked all three negative boxes, your cancer may be referred to as “triple-negative.” Triple-negative breast cancers make up about 15% of invasive breast cancers and are often very fast growing.

ONCOTYPE DX™:
- Recurrence Score lower than 18 — low risk of recurrence
- Recurrence Score between 18 and 31 — medium risk of recurrence
- Recurrence Score higher than 31 — high risk of recurrence

MAMMAPRINT™:
- High Risk
- Low Risk

OTHER TEST RESULTS:
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____________________________________________________________________________________
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Stages

People with breast cancer are usually given a stage along with their diagnosis. The stage is a way of describing where the cancer is located, if or where it has spread, and whether it is affecting other parts of the body. Doctors use diagnostic tests to figure out a cancer’s stage so information about staging may not be available until all the tests are finished. Knowing the stage will help your doctor decide which treatment plan will be most effective and help predict your prognosis.

Doctors assign the stage of breast cancer using a number zero (0) through four (Roman numerals I through IV).

Stage 0. The disease can only be found in the ducts and/or lobules of the breast and has not spread to the surrounding breast tissue. It is also called in situ or noninvasive cancer.

Stage IA. The tumor is small and invasive, but it has not spread to the lymph nodes.

Stage IB. A small number of cancer cells have spread to the axillary lymph nodes under the arm and formed tiny clusters larger than 0.2 mm but smaller than 2 mm in size. There is either no evidence of a tumor in the breast, or the tumor in the breast is 20 mm or smaller.

Stage IIA. The cancer has any of the following characteristics:
- There is no evidence of a tumor in the breast, but there is cancer in the axillary lymph nodes.
- The tumor is 20 mm or smaller and has spread to the axillary lymph nodes.
- The tumor is between 20 mm and 50 mm and has not spread to the axillary lymph nodes.

Stage IIB. The cancer has either of the following characteristics:
- The tumor is between 20 mm and 50 mm and has spread to one to three axillary lymph nodes.
- The tumor is larger than 50 mm but has not spread to the axillary lymph nodes.
STAGE IB

No evidence of cancer in the breast

Micrometastases in axillary nodes > 0.2 mm and < 2 mm

Invasive tumor is ≤ 20 mm

Micrometastases in axillary nodes > 0.2 mm and < 2 mm

STAGE IIA

No evidence of cancer in the breast

Invasive tumor is ≤ 20 mm

Cancer in 1-3 axillary lymph nodes

Invasive tumor is > 20 and ≤ 50 mm

Cancer in 1-3 axillary lymph nodes

No cancer in lymph nodes
Stage IIIA. The tumor may be any size, but it has spread to four to nine axillary lymph nodes. It has not spread to other parts of the body. Stage IIIA may also describe a tumor larger than 50 mm that has spread to one to three axillary lymph nodes.

Stage IIIB. The tumor has spread to the chest wall, caused swelling or ulceration of the breast, or is diagnosed as inflammatory breast cancer. It may or may not have spread to the lymph nodes under the arm, but it has not spread to other parts of the body.

Stage IIIC. The tumor can be any size, but it has spread to 10 or more lymph nodes under the arm or another lymph node cluster. The cancer has not spread to distant parts of the body.

STAGE IIB

- Invasive tumor is > 20 and ≤ 50 mm
- Invasive tumor is > 50 mm

STAGE IIC

- Invasive tumor is > 50 mm

STAGE IIIA

- No evidence of cancer in the breast
- Invasive tumor is ≤ 20 mm
- Invasive tumor is > 20 and ≤ 50 mm
- Invasive tumor is > 50 mm

Cancer in 4-9 axillary lymph nodes
Cancer in 1-3 axillary lymph nodes
Cancer in 4-9 axillary lymph nodes
Cancer in 1-3 axillary lymph nodes
Cancer in internal mammary lymph nodes (without axillary lymph nodes involved)
Cancer in internal mammary lymph nodes (without axillary lymph nodes involved)
**Stage IV (metastatic).** The tumor can be any size, but the distinguishing characteristic is that it has spread to another organ (bones, lungs, brain, or liver), distant lymph nodes, or the chest wall.

**Recurrent.** The breast cancer has come back after treatment.

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**STAGE IIIB**

- Tumor of any size with extension to skin and/or chest
- No cancer in lymph nodes
- Cancer in 1-3 axillary lymph nodes
- Cancer in ≥10 axillary lymph nodes
- Cancer in infraclavicular lymph nodes
- Cancer in supraclavicular lymph nodes
- Cancer in internal mammary lymph nodes and at least one axillary lymph node

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**STAGE IIIC**

- Invasive tumor of any size
- Cancer in ≥10 axillary lymph nodes
- Cancer in infraclavicular lymph nodes
- Cancer in supraclavicular lymph nodes
- Cancer in internal mammary lymph nodes

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**STAGE IV**

- Cancer in any distant site beyond the breast and regional lymph nodes (i.e. bone, lung, liver)
- Tumor of any size
- Any amount of lymph node involvement

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STAGE AND GRADE

STAGE:
- Stage 0
- Stage IA
- Stage IB
- Stage IIA
- Stage IIB
- Stage IIIA
- Stage IIIB
- Stage IIIC
- Stage IV (metastatic)
- Recurrent

GRADE:
- GX—cannot be assessed, undetermined
- G1—similar to healthy breast tissue, well differentiated, low grade
- G2—still has some features of healthy breast tissue, moderately differentiated, intermediate grade
- G3—very different from healthy breast tissue, poorly differentiated, high grade

QUESTIONS TO ASK THE DOCTOR ABOUT YOUR DIAGNOSIS
- What type and stage of breast cancer do I have? What does this mean?
- What other diagnostic tests or procedures may be necessary?
- How can I prepare myself for each test or procedure?
- Where do I need to go to have these tests?
- When will I get the results? How will I get the results (over the phone, at the next appointment, etc.)?
- Who will explain these results to me?
- Should I see another doctor for a second opinion? Can you give me referrals (names of doctors to see)?
- If I seek a second opinion, will I have to repeat any tests or procedures?
- What is my prognosis?

NOTES:
In cancer care, different types of doctors often work together to create an overall treatment plan that combines different types of treatments. The treatment options and recommendations your doctor gives you will depend on several factors, including the stage and grade of the tumor, whether the cancer has spread, your menopausal status, your age and overall health, the tumor’s hormone receptor (ER, PR) and HER2 status, and the presence of known mutations in inherited breast cancer genes (BRCA1 or BRCA2).

When making treatment decisions, you are also encouraged to consider participating in a clinical trial. A clinical trial is a research study that tests whether a new treatment is safe, effective, and possibly better than the standard treatment.

Before treatment begins, it is important to discuss the goals and possible side effects of treatment with your doctor, including the likelihood that the treatment will work and its potential effect on your quality of life. To start a conversation with your doctor, you may want to ask:

• What are my treatment options?
• Will I need more than one type of treatment?
• What treatment plan do you recommend for me? Why?
• What is the goal of the treatment(s) you are recommending? Is it to eliminate the cancer? To relieve my symptoms? Or both?
• What is the expected timeline for my treatment plan?
• When do I need to make a decision about starting treatment?

**Surgery**

Surgery to remove the tumor from the breast and/or evaluate the lymph nodes for cancer is often one of the first treatments for someone diagnosed with breast cancer. A surgeon or surgical oncologist (a doctor who specializes in treating cancer using surgery) performs this procedure. The goal of breast cancer surgery

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**MY TREATMENT PLAN**

- Surgery
- Radiation therapy
- Chemotherapy
- Targeted therapy
- Hormonal therapy
- Clinical trial
- Palliative/supportive care

**TREATMENT GOALS**

- Eliminate the cancer
- Slow cancer growth/spread
- Shrink the tumor
- Relieve symptoms
- Manage side effects
- Other:

  __________________________
  __________________________
is to remove the tumor along with a small area of healthy tissue around it, known as a margin. Generally, the smaller the tumor, the more surgical options a person has. These options include:

☐ Lumpectomy
This surgery removes the tumor as well as a small, clear (cancer-free) margin of healthy tissue around it. Most of the breast remains. For both DCIS and invasive cancer, follow-up radiation therapy to the remaining breast tissue is generally recommended. A lumpectomy may also be called breast-conserving surgery, a partial mastectomy, or a segmental mastectomy.

☐ Mastectomy
This surgery removes the entire breast and may or may not be combined with reconstructive (plastic) surgery.

Surgery is also used to evaluate nearby lymph nodes for cancer cells. This helps the doctor figure out the most appropriate treatment. Lymph nodes serve as collecting stations for lymph, a clear fluid that flows throughout the body. As lymph drains out of the breast and into nearby lymph nodes, it can transport cancer cells that may have detached from the original tumor before it was removed. If there is cancer in the lymph nodes, the cancer is called lymph node-positive breast cancer (or node-positive, for short). If there is no cancer in the lymph nodes, the cancer is called lymph node-negative breast cancer (node-negative).

The type of procedure you have will depend on a variety of factors, including the type of breast cancer and whether there is obvious evidence of cancer in the lymph nodes before surgery. The options are:

☐ Sentinel lymph node biopsy
During a sentinel lymph node biopsy, the surgeon finds and removes the sentinel lymph nodes (usually about one to three nodes) that are the first to receive drainage from the breast. The pathologist then examines them for cancer cells. To find the sentinel lymph nodes, the surgeon injects a dye and/or a radioactive tracer into the area of the cancer and/or around the nipple. The dye or tracer travels to the lymph nodes, arriving at the sentinel nodes first. The surgeon can find these nodes when they change color (if the dye is used) or gives off radiation (if the tracer is used).
If the sentinel lymph nodes are cancer-free, research has shown that there is a good possibility that the remaining lymph nodes will also be free of cancer and no further surgery will be needed. If the sentinel lymph nodes show evidence of cancer, then the surgeon may perform an axillary lymph node dissection to remove more lymph nodes and look for additional cancer cells, depending on the type of breast surgery planned (lumpectomy versus mastectomy), the stage of the cancer, and the number of cancer cells found in the sentinel lymph nodes.

- Axillary lymph node dissection.
  During an axillary lymph node dissection, the surgeon removes lymph nodes from under the arm, which are then examined by a pathologist for cancer cells. Researchers have found that an axillary lymph node dissection may not be needed for all women with early-stage breast cancer who have small amounts of cancer in the sentinel lymph nodes. Women having a lumpectomy and radiation therapy who have a smaller tumor and no more than two sentinel lymph nodes with cancer may avoid a full axillary lymph node dissection, which helps reduce the risk of side effects and does not decrease survival.

After surgery (mastectomy or lumpectomy) to treat breast cancer, the breast may be scarred and may have a different shape or size than before surgery. The area around the surgical site may also become harder. If any lymph nodes were removed as part of the surgery, or were affected during treatment, lymphedema (swelling of the hand and/or arm) may occur, and this is a life-long risk.

Lymphedema develops when a blockage in the lymphatic system makes fluid build up in the arm. Lymphedema can be acute (lasting no more than six months) or chronic (lasting years). Talk with your health care team about ways to reduce your risk of lymphedema, any lymphedema symptoms you may experience, and ways to manage this condition.

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**SURGICAL SUMMARY**

**MARGINS:**
- Clear / Negative / Clean—no cancer cells found at the edge of the tissue removed during surgery
- Positive / Involved—cancer cells come out to the edge of the removed tissue
- Close—cancer cells come close to the edge of the removed tissue

**LYMPH NODE INVOLVEMENT:**
- Node-positive—lymph nodes show evidence of cancer
- Node-negative—lymph nodes show no evidence of cancer
QUESTIONS TO ASK THE DOCTOR ABOUT SURGERY

• Am I a candidate for a lumpectomy? Why or why not?
• If I have a lumpectomy, will my breast differ in size and shape compared to my other breast?
• If I have a lumpectomy, will I be able to breastfeed if I have a child in the future?
• Do I need to have a mastectomy? If so, would you recommend immediate breast reconstruction (plastic surgery)?
  What are the advantages and disadvantages of this?
• Do the lymph nodes under my arm need to be removed? Do you recommend a sentinel lymph node biopsy? If not, do you recommend an axillary lymph node dissection instead?
• Will I need to be admitted to a hospital for this operation? If so, how long will I need to stay in the hospital?
• Am I at risk for developing lymphedema? If so, how can we reduce this risk?
• Where will the scar be, and what will it look like?
• What kind of pain will I be in after surgery? What can be done to manage this pain?
• Will my arm be affected by surgery? If so, for how long? Will I need physical therapy?

NOTES:
Many women who have a mastectomy consider breast reconstruction surgery to rebuild and restore the appearance of a natural breast. Breast reconstruction can help a woman regain her sense of femininity and sexuality, which may have been lost after a mastectomy, and reduce feelings of self-consciousness. Most women who have had a mastectomy are able to undergo breast reconstruction. A woman who has had a lumpectomy usually doesn’t need to have reconstructive surgery.

Reconstruction may be done with tissue from another part of the body or with a synthetic implant. Depending on your choice and treatment options, breast reconstruction is either done at the same time as the mastectomy or months or years later. In general, the reconstruction results are better when done during a mastectomy because the skin and other soft tissues surrounding the area haven’t tightened and scarred. However, delaying this surgery may be recommended if radiation therapy is part of your treatment plan following surgery.

If you choose not to have reconstructive surgery or need to delay surgery, you may want to consider an external breast prosthesis or artificial breast form. Breast prostheses are custom-designed for most women and help balance the body, keep your bra on the side of the mastectomy from riding up, and allow you to look the same in clothing as you did before the surgery.

QUESTIONS TO ASK THE DOCTOR ABOUT BREAST RECONSTRUCTION / PROSTHESIS
- What type of reconstructive surgery do you recommend? Why?
- Will this surgery interfere with chemotherapy or radiation therapy?
- What results can I expect?
- Do you have photographs of reconstructed breasts I can see?
- How will my reconstructed breast feel? Will it match my other breast in size and shape?
- What type of sensation (feeling) will the reconstructed breast have?
- What if I become pregnant in the future?
- Is a prosthesis a better option for me?
- How can I get fitted for a breast prosthesis?
- Will my insurance cover this?
Radiation therapy

Radiation therapy uses high-energy x-rays or other particles to destroy cancer cells. The most common type of radiation treatment is called external-beam radiation therapy, which is radiation given from a machine located outside the body. When radiation treatment is given using a probe in the operating room, it is called brachytherapy. A doctor who specializes in giving radiation therapy to treat cancer is called a radiation oncologist.

Radiation therapy is most often given after a lumpectomy to help lower the risk of recurrence in the breast. Rarely, radiation therapy may be given before surgery to shrink a large tumor, making it easier to remove; this is called neoadjuvant radiation therapy. With modern surgery and radiation therapy, recurrence rates in the breast may now be less than 5% in the 10 years following treatment, and survival is often the same with a lumpectomy plus radiation therapy as with a mastectomy.

Standard radiation therapy after a lumpectomy is external-beam radiation therapy given Monday through Friday for five to six weeks. This often includes radiation therapy to the whole breast for the first four to five weeks, followed by a more focused treatment (known as a boost) to the area in the breast where the tumor was located for the remaining treatments. For women with a low risk of recurrence, the boost may be optional. It is also possible for radiation therapy to be given in as short a period as three and a half weeks. It is important to discuss these treatment approaches with your doctor.

Adjuvant radiation therapy may also be recommended for some women after a mastectomy, depending on her age; the size of the tumor; the number of lymph nodes under the arm that contained cancer; the width of healthy tissue around the tumor removed by the surgeon; the ER, PR, and HER2 status of the tumor; and other factors. This treatment is given to the chest wall for five days (Monday through Friday) for five to six weeks.

Newer radiation schedules and techniques, such as partial breast irradiation (PBI; a technique where radiation is given only to the tumor area and not the entire breast) and intensity-modulated radiation therapy (IMRT; a form of external-beam radiation therapy where the intensity of the radiation is varied to better target the tumor), are becoming more common, but PBI and IMRT are not used for every patient with breast cancer.

Radiation therapy can cause side effects, including fatigue, swelling of the breast, redness and/or skin discoloration, and pain in the skin where the radiation was aimed, sometimes with blistering or peeling. Rarely, a small amount of the lung can be affected by the radiation, causing pneumonitis (radiation-related swelling of the lung tissue). Some people experience breathlessness, a dry cough, and/or chest pain two to three months after finishing radiation therapy because the treatment can cause swelling and fibrosis (hardening or thickening) of the lungs. These side effects are usually temporary.
QUESTIONS TO ASK THE DOCTOR ABOUT RADIATION THERAPY

• Which type of radiation therapy do you recommend? Why?
• Where on my body will the radiation be focused?
• How often will my radiation treatments occur, and how long will I receive treatment?
• How much time will each treatment take?
• What will I experience when I receive radiation therapy? Will it hurt or cause me discomfort?
• If I decide to have reconstructive surgery, how would it affect my treatment plan?
• What are the possible short- and long-term side effects of this treatment? How can these side effects be prevented and/or managed?

NOTES:
Chemotherapy

Chemotherapy is the use of drugs to destroy cancer cells, usually by stopping their ability to grow and divide. Chemotherapy is given as an adjuvant therapy (after surgery to lower the risk of recurrence) or sometimes as a neoadjuvant therapy (before surgery to shrink the tumor). It is also used to treat metastatic or recurrent breast cancer. A medical oncologist, a doctor who specializes in treating cancer with medication, prescribes chemotherapy.

Systemic chemotherapy is delivered through the bloodstream to reach cancer cells throughout the body. Chemotherapy for breast cancer may be given intravenously (IV, injected into a vein) or orally (by mouth). Patients may have to have treatment once a week, once every two weeks (also called dose-dense), once every three weeks, or even once every four weeks. The type of chemotherapy a person receives and how often it is given will depend on what worked best in clinical trials for that type and stage of cancer. A person may take one drug at a time or a combination of different drugs.

The following drugs or combinations of drugs may be used as adjuvant therapy to treat breast cancer:
- Cyclophosphamide (Cytoxan, Neosar)
- Methotrexate (multiple brand names)
- Fluorouracil (5-FU, Adrucil)
- Doxorubicin (Adriamycin)
- Epirubicin (Ellence)
- Paclitaxel (Taxol)
- Docetaxel (Taxotere, Docefrez)
- CMF (cyclophosphamide, methotrexate, and 5-FU)
- CAF (cyclophosphamide, doxorubicin, and 5-FU)
- CEF (cyclophosphamide, epirubicin, and 5-FU)
- EC (epirubicin and cyclophosphamide)
- AC (doxorubicin and cyclophosphamide)
- TAC (docetaxel, doxorubicin, and cyclophosphamide)
- AC followed by T (doxorubicin and cyclophosphamide, followed by paclitaxel or docetaxel)
- TC (docetaxel and cyclophosphamide)

In addition to the drugs and combinations of drugs listed above, the following drugs may be used to treat recurrent breast cancer.
Breast Cancer

or metastatic breast cancer, either individually or in combination:
- Vinorelbine (Navelbine)
- Capecitabine (Xeloda)
- Protein-bound paclitaxel (Abraxane)
- Pegylated liposomal doxorubicin (DOXIL, LipoDox)
- Gemcitabine (Gemzar)
- Carboplatin (Paraplatin)
- Cisplatin (Platinol)
- Ixabepilone (Ixempra)
- Eribulin (Halaven)

Depending on the type of chemotherapy and the treatment schedule, your doctor may recommend that you have minor surgery before starting treatment to insert an implantable port. A port is a round metal or plastic disk that is used as the entry site for IV medications, eliminating the need to find a vein at each treatment session.

The side effects of chemotherapy depend on the individual, the drug, and the dose used. In general, side effects include fatigue, risk of infection, fever, nausea and vomiting, hair loss, loss of appetite, and diarrhea. These side effects usually go away once treatment has finished. Rarely, long-term side effects may occur, such as heart or nerve damage.

QUESTIONS TO ASK THE DOCTOR ABOUT CHEMOTHERAPY
- Which type of chemotherapy do you recommend? Why?
- How long will I need to have chemotherapy?
- How will the treatment be given? Do I need a port?
- How will we know if the treatment is working?
- How will chemotherapy affect my daily life? Will I be able to work, exercise, and perform my usual activities?
- What are the potential short- and long-term side effects of each medication? Will I lose my hair?
- Where can I get more information about the medication(s) I will be taking?
- If I am worried about the cost of treatment, who can help me with this concern?

NOTES:
Targeted therapy

Targeted therapy is a type of drug treatment that targets the cancer’s specific genes, proteins, or the tissue environment that contributes to cancer growth and survival. This type of treatment blocks the growth and spread of cancer cells while limiting damage to healthy cells.

Research studies show that not all breast tumors have the same targets. To find the most effective treatment, your doctor may run specialized tests to identify genes, proteins, and other factors specific to your tumor. These results can help better match you to the most effective treatment option. Currently, the main type of targeted therapy approved to treat breast cancer is targeted at HER2.

If your cancer is HER2 positive, your doctor may recommend medications that only affect HER2-positive cancer cells. These anti-HER2 treatments block HER2 to stop the growth of cancer cells.

☐ Trastuzumab (Herceptin)
Trastuzumab is approved for both the treatment of advanced breast cancer and as an adjuvant therapy for early-stage HER2-positive tumors. At this time, one year of trastuzumab is recommended for early-stage breast cancer. For metastatic cancer, trastuzumab is given as long as it continues to work. Patients receiving trastuzumab have a small (2% to 5%) risk of heart problems, and this risk is increased if a patient has other risk factors for heart disease. These heart problems do not always go away, but they are usually treatable with medication.

☐ Pertuzumab (Perjeta)
Pertuzumab is approved for the treatment of advanced breast cancer and is being studied as a treatment for early-stage disease. For people with advanced breast cancer that have not yet received treatment, pertuzumab is usually combined with trastuzumab and chemotherapy with either docetaxel or paclitaxel.

☐ Lapatinib (Tykerb)
Lapatinib is commonly used for women with HER2-positive breast cancer when trastuzumab no longer works. The combination of lapatinib and capecitabine is approved to treat advanced or metastatic HER2-positive breast cancer when chemotherapy and trastuzumab have already been used. The combination of lapatinib and letrozole (Femara) is also approved for treatment of metastatic HER2-positive and ER-positive breast cancer. Lapatinib is being studied for early-stage breast cancer as well.

☐ Ado-trastuzumab emtansine (Kadcyla)
Ado-trastuzumab emtansine is approved for the treatment of advanced breast cancer for patients who have previously received trastuzumab and chemotherapy with either paclitaxel or docetaxel.
QUESTIONS TO ASK THE DOCTOR ABOUT TARGETED THERAPY

• Based on my test results, will I benefit from targeted therapy? Why or why not?
• How long will I need to have this treatment?
• How will the treatment be given?
• What are the possible side effects of this treatment? How will these side effects be managed?
• How will my treatment be monitored?
• If I am worried about managing the cost of treatment, who can help me with this concern?

NOTES:
Hormonal therapy

For women with estrogen or progesterone receptor-positive (ER-positive or PR-positive) breast cancer, hormonal therapy may be recommended. Because these types of tumors use hormones to fuel their growth, blocking the hormones can help reduce the risk of recurrence when used as an adjuvant treatment or can be used to shrink a metastatic tumor.

☐ Tamoxifen (Novaldex, Soltamox)
Tamoxifen blocks estrogen from attaching to breast cancer cells. It is effective at reducing the risk of recurrence in the breast that had cancer, the risk of developing cancer in the other breast, and the risk of distant recurrence. It is also approved to reduce the risk of breast cancer in women at high risk for developing the disease and for reducing local recurrence for women with DCIS who had a lumpectomy.

The side effects of tamoxifen include hot flashes; vaginal dryness, discharge, or bleeding; a small increased risk of uterine (endometrial) cancer and uterine sarcoma; and an increased risk of blood clots. However, tamoxifen improves bone health and cholesterol levels and can be effective for both premenopausal and postmenopausal women.

☐ Aromatase inhibitors (AIs)
Drugs such as anastrozole (Arimidex), letrozole, and exemestane (Aromasin) decrease the amount of estrogen made by tissues other than the ovaries in postmenopausal women. Research shows that all three AI drugs work equally well and have similar side effects, which may include muscle and joint pain, hot flashes, vaginal dryness, an increased risk of osteoporosis and fractures (broken bones), and higher cholesterol levels.

Women who have not yet gone through menopause should not take AIs because they do not block the effects of estrogen made by the ovaries. Often, doctors will monitor blood estrogen levels in women whose periods have recently stopped, or whose periods stop with chemotherapy, to make sure the ovaries are no longer producing this hormone.

☐ Ovarian suppression
Stopping the ovaries from making estrogen is one of the oldest hormone treatments for hormone receptor-positive breast cancer and for premenopausal women with metastatic breast cancer. Medications called gonadotropin or luteinizing releasing hormone (GnRH or LHRH) analogues stop the ovaries from making estrogen, causing temporary menopause. Goserelin (Zoladex) and leuprolide (Eligard, Lupron, Viadur) are drugs given by injection under the skin that stop the ovaries from making estrogen for one to three months. These drugs may be given alone (less common), along with tamoxifen, or in some situations, even with AIs. Surgical removal of the ovaries (called an oophorectomy) may also be considered for some patients; however, the hormonal effects of this surgery are permanent.
QUESTIONS TO ASK THE DOCTOR ABOUT HORMONAL THERAPY

• Which type of hormonal therapy do you recommend? Why?
• How long will I need to continue this treatment?
• Are there any reasons why I might not benefit from hormonal therapy?
• What is my current menopausal status? How does this affect my options for hormonal therapy?
• Could this treatment affect my sex life? If so, how and for how long?
• Could this treatment affect my ability to become pregnant in the future? If so, should I talk with a fertility specialist before treatment begins?
• How do the side effects of AIs compare with tamoxifen?

NOTES:
Clinical trials

Doctors and scientists are always looking for better ways to treat people with breast cancer. To make scientific advances, doctors conduct research studies involving volunteers, called clinical trials.

Many clinical trials are focused on evaluating whether a new treatment is safe, effective, and possibly better than the current (standard) treatment. These types of studies evaluate new drugs, different combinations of existing treatments, new approaches to radiation therapy or surgery, and new methods of treatment. There are also clinical trials that study new ways to ease symptoms and side effects during treatment and ways to manage late effects that may occur after treatment.

People who participate in clinical trials are often among the first to receive new treatments before they are widely available. However, there is no guarantee the new treatment will be safe, effective, or better than the standard treatment.

People decide to participate in clinical trials for many reasons. For some people with breast cancer, a clinical trial is the best treatment option available. Because standard treatments are not perfect, patients are often willing to face the added uncertainty of a clinical trial in the hope of a better result. Other people volunteer for clinical trials because they know these studies are the only way to make progress in treating breast cancer. Even if they do not benefit directly from the clinical trial, their participation may help other people with breast cancer in the future.

Some people worry if they participate in a clinical trial they may receive no treatment by being given a placebo or a “sugar pill.” However, the use of placebos in cancer clinical trials is rare. When a placebo is used in a study, it is done with the full knowledge of the participants.

If you decide to join a clinical trial, you will participate in a process known as informed consent. During informed consent, the doctor should list all of your options and help you understand how the new treatment is different from the standard treatment. The doctor must also list all of the risks of the new treatment, which may or may not be different from the risks of the standard treatment. Finally, the doctor must explain what will be required of each patient in order to participate in the clinical trial, including the number of doctor visits, tests, the schedule of treatment, and the costs you may need to pay.

Keep in mind, even if you decide to participate in a clinical trial you may stop participating at any time for any personal or medical reason.

To learn more about clinical trials, visit www.cancer.net/clinicaltrials.
Managing symptoms and side effects

In addition to treatment to slow, stop, or eliminate breast cancer, an important part of cancer care is relieving a person’s symptoms and side effects. This approach is called palliative or supportive care, and it includes supporting the patient with his or her physical, emotional, and social needs.

Palliative care can help a person at any stage of illness. People often receive treatment for the cancer and treatment to ease side effects at the same time. In fact, patients who receive both often have less severe symptoms, better quality of life, and report they are more satisfied with treatment.

Palliative treatments vary widely and often include medication, nutritional changes, relaxation techniques, and other therapies. You may also receive palliative treatments similar to those meant to eliminate the cancer, such as surgery and radiation therapy, so it is important to understand the goals of each treatment in your treatment plan. For people with breast cancer, palliative care may include:

- **Bisphosphonates**
  Bisphosphonates are drugs that block the cells that destroy bone (osteoclasts). Bisphosphonates are commonly used in low doses to prevent and treat osteoporosis (thinning of the bones). In patients with breast cancer that has spread to the bone, higher doses of bisphosphonates have been shown to reduce the side effects of cancer in the bone, including bone fractures and pain.
Pamidronate (Aredia) and zoledronic acid (Zometa) are two intravenous bisphosphonates used to treat breast cancer bone metastasis. These drugs may also be able to reduce breast cancer recurrence when given after treatment, although the research on this use is conflicting.

- **Denosumab (Xgeva)**
  Recent studies have shown that denosumab works well to treat breast cancer bone metastases and may be better than bisphosphonates at controlling the symptoms of bone metastases.

- **Radiation therapy**
  Radiation therapy is often used to treat painful bone metastases.

- **Pain medications**
  Most hospitals and cancer centers have pain control specialists who provide pain relief, even for very severe cancer pain.

- **Comprehensive cancer rehabilitation**
  Rehabilitation helps a person with breast cancer have the best physical, social, psychological, and work-related function possible both during and after cancer treatment.

The goal of rehabilitation is to help people regain control over many aspects of their lives and remain as independent and productive as possible.

For more information about palliative care, visit www.cancer.net/palliativecare.

### QUESTIONS TO ASK THE DOCTOR ABOUT PALLIATIVE / SUPPORTIVE CARE
- What can be done to manage any symptoms and side effects I may experience?
- Can you recommend someone who specializes in palliative care?
- Where can I receive palliative care services?
- If I am taking a bisphosphonate or denosumab, what is the risk of developing osteonecrosis (bone loss/weakening) of the jaw? What signs or symptoms should I watch for?
- What support services are available to me? To my family?

### NOTES:

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Developing a treatment plan

Even though the doctor will specifically tailor a treatment plan for each patient and the specific characteristics of the tumor, there are some general steps for treating breast cancer.

**DCIS AND EARLY-STAGE INVASIVE BREAST CANCER**

For both DCIS and early-stage invasive breast cancer, doctors generally recommend surgery to remove the tumor. To make sure the entire tumor is removed, the surgeon will also remove a small margin of healthy tissue around the tumor. Although the goal of surgery is to remove all of the visible cancer, microscopic cells may be left behind, either in the breast or elsewhere. In some situations, this means another surgery could be needed to remove the remaining cancer cells. For larger invasive cancers, or those that are growing more quickly, doctors may recommend treatment with chemotherapy before surgery (called neoadjuvant therapy). Neoadjuvant hormonal therapy may also be recommended in other situations.

After surgery, the next step in managing early-stage invasive breast cancer is to reduce the risk of recurrence and to get rid of any remaining cancer cells using adjuvant therapies like radiation therapy, chemotherapy, targeted therapy, and/or hormonal therapy. Whether adjuvant therapy is needed depends on the likelihood that any cancer cells remain in the breast or the body and the chance that a specific treatment will work to treat the cancer. Although adjuvant therapy lowers the risk of recurrence, it does not completely get rid of this risk.

**METASTATIC BREAST CANCER**

If breast cancer has spread to another location in the body, it is called metastatic cancer. People with this diagnosis are encouraged to talk with doctors who are experienced in treating this stage of cancer because there can be different opinions about the best treatment plan. You may want to seek a second opinion before starting treatment so you are comfortable with your treatment plan.

Your health care team may recommend a treatment plan that combines chemotherapy, targeted therapy, radiation therapy, and/or hormonal therapy to shrink the cancer. Palliative/supportive care will also be important to help relieve symptoms and side effects. For example, radiation therapy is often used to treat painful bone metastases.

For most patients, a diagnosis of metastatic cancer is very stressful and, at times, difficult to bear. Patients and their families are encouraged to talk about the way they are feeling with doctors, nurses, social workers, or other members of the health care team. It may also be helpful to talk with other patients, including through a support group.

**RECURRENT BREAST CANCER**

If breast cancer returns after treatment for early-stage disease, it is called recurrent cancer. Cancer recurs because small areas of cancer cells are difficult to find and can sometimes remain in the body after treatment. Over time, these cells may multiply and grow large enough to be found and diagnosed.
Breast cancer may come back in the same place (called a local recurrence), in the chest wall or lymph nodes under the arm or in the chest (regional recurrence), or in another part of the body, such as the bones, lungs, liver, and brain (distant recurrence).

If a recurrence occurs, the cycle of testing will begin again to learn as much as possible about the recurrence. A biopsy of the recurrent site is often recommended to be certain of the diagnosis and to check for ER, PR, and HER2 status because this may have changed from the time of the original diagnosis.

The treatment of recurrent breast cancer depends on the previous treatment(s), the time since the original diagnosis, the location of the recurrence, and the characteristics of the tumor (such as ER, PR, and HER2 status).

For women with a local recurrence within the breast after initial treatment with lumpectomy and adjuvant radiation therapy, the recommended treatment is mastectomy. Usually the cancer is completely removed during this surgery.

For women with a local or regional recurrence in the chest wall after an initial mastectomy, surgical removal of the recurrence followed by radiation therapy to the chest wall and lymph nodes is the recommended treatment, unless radiation therapy has already been given. Radiation therapy cannot usually be given at full dose to the same area more than once. Women with a local or regional recurrence may also benefit from additional systemic (total-body) therapy, such as hormonal therapy, chemotherapy, and/or targeted therapy, which can reduce the chance of a future distant recurrence.

Distant recurrence is generally considered incurable, but treatable. Some patients live for years after a distant recurrence of breast cancer.

Women with recurrent breast cancer often experience emotions such as disbelief or fear. Patients are encouraged to talk with their health care team about these feelings and ask about support services to help them cope.

For more information about breast cancer treatment, visit www.cancer.net/breast.
QUESTIONS TO ASK THE DOCTOR ABOUT YOUR TREATMENT PLAN

• Who will be coordinating my overall treatment and follow-up care?
• What is the goal of my treatment plan?
• What clinical trials are open to me?
• What is my prognosis?
• Whom should I contact for support and emotional help for me? For my family?

NOTES:

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Coping With Side Effects

Fearing the side effects of breast cancer treatment is common, but it may help to know that preventing and controlling side effects is a major focus of your health care team. Before starting treatment, talk with your doctor or nurse about which side effects are most likely to happen (and which are not). Then, once treatment begins, let your health care team know what side effects you are experiencing so they can help manage them.

Everyone’s experience with breast cancer treatment is different. The specific side effects that may occur during and after treatment depend on a number of factors, including the cancer’s location, your individual treatment plan, and your overall health. However, some of the potential physical, emotional, and social effects experienced by people receiving treatment for breast cancer are described in this section.

Physical effects

Fatigue. Cancer and its treatment often cause a persistent sense of tiredness or exhaustion. Most people receiving cancer treatment experience some type of fatigue, which can make even a small effort, such as walking across a room, seem like too much. Fatigue often seriously affects people’s daily activities, including the ability to be involved with their family or to socialize. It is important to tell your doctor if you are experiencing fatigue because there are things your health care team can do to help.

Pain. Pain can be caused by the tumor, be a side effect of cancer treatment, or result from causes not related to the cancer at all. Untreated pain can make other aspects of cancer seem worse, such as fatigue, weakness, nausea, constipation, sleep disturbances, depression, anxiety, and mental confusion. However, it is important to know that up to 95% of cancer pain can be treated successfully using medication or other strategies. Your doctor or a pain specialist can help you find an effective pain-relief strategy.

For more information about managing side effects, visit www.cancer.net/sideeffects.
Lymphedema. Lymphedema is the abnormal buildup of fluid in an arm or leg caused by a blockage in the lymphatic system. It can happen immediately after surgery or radiation therapy, or months or years after cancer treatment has ended. In some cases, the swelling goes away on its own as the body heals and normal lymph fluid flow resumes. However, lymphedema may become chronic when the lymphatic system changes and can no longer meet the body’s demands for fluid drainage. There is no cure for chronic lymphedema; however, there are ways to treat it. Talk with a member of your health care team about the best way to prevent and manage lymphedema.

Infertility. Some treatments for breast cancer may cause temporary or permanent infertility (inability to become pregnant or have children). If this is a concern for you, talk with your doctor about the possible fertility-related side effects of your treatment plan and the options for preserving your fertility before treatment begins.

Nausea and vomiting. Nausea and vomiting are common side effects of many cancer treatments. Nausea is feeling the urge to vomit or throw up. Vomiting may happen in expectation of treatment, within 24 hours after treatment, or two or more days after treatment.

Mild nausea and vomiting can be quite uncomfortable, but they usually do not cause serious problems. Severe vomiting, on the other hand, can cause dehydration, electrolyte imbalances (loss of minerals from the body, such as potassium and sodium), weight loss, and depression. In addition to medications that help prevent nausea and vomiting, many people find that behavioral treatments can help control these side effects. Talk with your health care team about ways to change the expectation and fear of nausea and vomiting.

Hair loss. Many chemotherapy drugs can cause partial or complete hair loss. Hair may fall out entirely, gradually, or in sections. In some cases, hair will simply become thin, sometimes unnoticeably, and may become duller or dryer. This is most noticeable on the scalp, but it may affect other parts of the body, such as the face (eyebrows and eyelashes), arms, legs, underarms, and pubic area. Hair loss is usually temporary, and in most cases, hair will grow back after treatment has finished.

Chemo brain. Cancer survivors commonly use the term “chemo brain” to describe difficulty thinking clearly after cancer treatment. Approximately 20% of people who undergo chemotherapy will experience some cognitive side effects. These difficulties vary in severity and sometimes make it hard to complete daily activities. People who experience severe problems concentrating, multitasking, or understanding or remembering things should talk with their doctor or another member of the health care team to learn about medication, cognitive rehabilitation and training, and other ways to manage these issues.

Psychosocial effects

In addition to physical side effects, you may experience psychosocial (emotional and social) effects. For many people, the diagnosis and treatment of breast cancer is stressful and can trigger difficult emotions. Common physical changes that occur during treatment, such as
having a breast removed, hair loss, weight gain or weight loss, or scars from surgery, can make a person feel uncomfortable and self-conscious. Even changes that aren’t visible to others, such as infertility or early menopause, can make you feel differently about yourself.

Research has shown that sharing fears and anxieties with family or friends, counselors, clergy, or support groups helps strengthen patients emotionally, and perhaps even physically. Because not all people find it easy to open up to others, you may want to express your feelings in other ways, such as:

- Writing in a journal or starting a blog
- Artistic projects, such as painting
- Praying or meditating
- Reading
- Slowing down and reflecting

However, even with outlets to express their feelings, sometimes patients (and those closest to them) may continue to experience psychosocial effects. If you are feeling anxious, depressed, or stressed about your diagnosis and treatment, think about telling a member of your health care team, such as an oncology nurse. Oncology nurses not only have a wealth of experience and knowledge about cancer, cancer treatment, and side effects, but they can also provide you with emotional and social support, as well as help you develop effective coping strategies.

Another good resource is an oncology social worker. An oncology social worker can help you navigate the health care system; find support to manage the day-to-day challenges of living with cancer; and provide counseling, education, information services, discharge and home care planning services, and referrals to community resources for both you and your family and friends. Oncology social workers practice in many settings, including cancer centers, hospitals, doctors’ offices, cancer-related agencies, hospices, and private practices. If there is not an oncology social worker at the place where you receive treatment, call the nearest cancer center or university/teaching hospital and ask if there is one on staff.

Learn more about coping with the physical and emotional effects of breast cancer at www.cancer.net/coping. For a list of support organizations and other resources, visit www.cancer.net/support.
QUESTIONS TO ASK THE DOCTOR ABOUT SIDE EFFECTS

• What are the potential short- and long-term side effects of each treatment in my treatment plan?
• Are there ways to help me prepare for treatment and decrease the chance of experiencing side effects?
• What can be done to manage any side effects I may experience?
• What support services are available to me? To my family?

NOTES:
Follow-Up Care

After treatment for breast cancer ends, talk with your doctor about developing a follow-up care plan. This plan may include regular physical examinations and medical tests, like mammography, to monitor your recovery for the coming months and years. It will also involve managing any ongoing or late effects of treatment. For example, patients who received trastuzumab or certain types of chemotherapy called anthracyclines may be at risk of developing heart problems. Talk with your doctor about the best ways to check for heart problems.

Additionally, women taking tamoxifen should have yearly pelvic exams because this drug can increase the risk of uterine cancer. Tell your doctor or nurse if you notice any abnormal vaginal bleeding or other new symptoms. Women who are taking an AI should have a bone density test before they start treatment and as recommended by their doctor after that because these drugs may cause some bone weakness or bone loss.

Breast cancer care does not end when active treatment has finished.

Women recovering from breast cancer may also experience other side effects that continue after treatment has finished. However, these can usually be managed with the help of your health care team. For example, there are a number of drugs to help manage neuropathy (tingling or numbness in the feet or hands), menopausal symptoms, and joint pain. Treatment for vaginal dryness and lowered libido (sex drive), which are also common during and after treatment for breast cancer, is individualized for each patient and the type of cancer and may be best managed by a gynecologist working with your oncologist. Some patients may be able to visit a survivorship clinic, which specializes in the post-treatment needs of people diagnosed with breast cancer.

It is also very important for you to keep an eye out for signs that the cancer has come back—even if this thought is scary. The symptoms of a breast cancer recurrence include:

- A new lump in the breast, under the arm, or along the chest wall
- Pain that is long lasting and not relieved by over-the-counter medication
- Bone pain or fractures
- Headaches or seizures
- Chronic coughing or trouble breathing
- Abdominal pain or jaundice (yellow skin or eyes)
- Extreme fatigue
- Feeling ill or generally unwell
Talk with your doctor if you have any of these or other symptoms.

Women recovering from breast cancer are also encouraged to follow established guidelines for good health, such as maintaining a healthy weight, not smoking, minimizing alcohol intake, eating a balanced diet, and having recommended cancer screening tests. Talk with your doctor or nurse to develop a plan that is best for your needs. Moderate physical activity can help rebuild your strength and energy level and may lower the risk of cancer recurrence. Your health care team can help you create a safe exercise plan based upon your needs, physical abilities, and fitness level.

For cancer treatment summary forms and follow-up care plans, visit www.cancer.net/survivorship.

QUESTIONS TO ASK THE DOCTOR ABOUT FOLLOW-UP CARE

- After treatment has ended, what will my follow-up care plan be?
- What follow-up tests will I need, and how often will I need them?
- How often will I need to see a doctor?
- What is the chance that the cancer will return?
- Is there anything I can do to reduce the risk of recurrence?
- What symptoms should I tell you about right away?

NOTES:
Breast Cancer Dictionary

**Adjuvant therapy:** Treatment given after the main treatment to reduce the chance of cancer coming back by eliminating any remaining cancer cells. It usually refers to chemotherapy, radiation therapy, hormonal therapy, and/or targeted therapy given after surgery.

**Aromatase inhibitor (AI):** A type of hormonal therapy drug that decreases the amount of estrogen in the body by blocking the activity of the aromatase enzyme, which is needed to make estrogen.

**Benign:** A tumor that is not cancerous. The tumor does not usually invade nearby tissue or spread to other parts of the body.

**Biopsy:** The removal of a small amount of tissue for examination under a microscope. Other tests can suggest breast cancer is present, but only a biopsy can make a definite diagnosis.

**Bone-modifying drugs:** Medications, such as bisphosphonates and denosumab, used to help strengthen bones and reduce pain and fractures (bone breaks) from bone metastases.

**Brachytherapy:** Radiation treatment given using a probe in the operating room or by placing small radioactive “seeds” or pellets inside the body near the tumor (also called internal radiation therapy).

**BRCA1 / BRCA2:** Breast cancer genes that can increase a person’s risk of developing breast cancer and other cancers if they contain genetic changes (mutations).

**Carcinoma:** Cancer that starts in skin or tissues that line the inside or cover the outside of internal organs.

**Cells:** The basic units that make up the human body.

**Chemotherapy:** The use of drugs to destroy cancer cells.

**Clinical trial:** A research study that involves volunteers. Many clinical trials test new treatments and/or prevention methods to find out whether they are safe, effective, and possibly better than the current standard of care (the best known treatment).

**Computed or computerized axial tomography (CT or CAT) scan:** An imaging technique that creates a 3D picture of the inside of the body using an x-ray machine.

**Cure:** To fully restore health. This term is sometimes used when a person’s cancer has not returned for at least five years after treatment. However, the concept of “cure” is difficult to apply to cancer because undetected cancer cells can sometimes remain in the body after treatment, causing the cancer to return later. Recurrence after five years is still possible.

**Duct:** Tube-like structures in the breast that connect the glands, lobules, and lobes and carry milk from the lobe to the nipple.

**External-beam radiation therapy:** Radiation therapy given from a machine located outside the body.
External breast prosthesis: An artificial breast form made out of silicone gel, foam, fiberfill, or other material that has a similar weight and feel to natural breast tissue and can be worn after a mastectomy to re-create a natural appearance without surgery.

Fibrosis: Hardening or thickening of soft tissue. Fibrosis can occur in the lungs as a side effect of radiation therapy for breast cancer.

Follow-up care plan: A personalized schedule of follow-up examinations and tests that the doctor recommends after a patient’s active treatment period. This may include regular physical examinations and/or medical tests to monitor the patient’s recovery for the coming months and years. This may also be called a survivorship care plan; it is often used in conjunction with a treatment summary.

Grade: A way of describing how much a tumor looks like healthy breast tissue when viewed under a microscope. In general, the pathologist is looking for differences in the size, shape, and staining characteristics of the cells. A tumor that looks more like healthy tissue is called low grade or well differentiated, while a tumor that looks less like healthy tissue is called high grade, poorly differentiated, or undifferentiated.

HER2: A protein that normally helps control how breast cells grow, divide, and repair themselves but can lead to tumor development if too much is present.

Hormonal therapy: Treatment that removes or blocks hormones to destroy or slow the growth of cancer cells (also called hormone therapy or endocrine therapy).

Hormone receptors: Proteins usually found inside a cell that a specific hormone can attach to. When a hormone binds to its receptor, it can trigger a number of different reactions and processes to take place inside the cell, including cell growth and division.

Imaging test: A procedure that creates pictures of internal body parts, tissues, or organs to make a diagnosis, plan treatment, check whether treatment is working, or observe a disease over time.

In situ: In place. Refers to cancer that has not spread to nearby tissue (also called localized or noninvasive cancer).

Invasive cancer: Cancer that has spread outside the layer of tissue in which it started and has the potential to grow into other tissues or parts of the body (also called infiltrating cancer).

Laboratory test: A procedure that evaluates a sample of blood, urine, or other substance from the body to make a diagnosis, plan treatment, check whether treatment is working, or observe a disease over time.

Late effects: Side effects of cancer treatment, such as chemotherapy, radiation therapy, or surgery, that occur months or years after treatment has finished.

Lobe: A structure in the breast that is made up of smaller parts called lobules (the glands that produce breast milk).

Lumpectomy: Surgery that only removes the cancer and other abnormal tissue, leaving the rest of the breast intact (also known as breast-conserving or breast-sparing surgery).

Lymphatic system: A network of small vessels, ducts, and organs that carry fluid to and from the bloodstream and body tissues. Through the lymphatic system, cancer can spread to other parts of the body.

Lymphedema: An abnormal buildup of fluid (lymph) that causes swelling, usually in the arms or legs.
**Lymph nodes:** Tiny, bean-shaped organs that help fight infection. Lymph nodes are identified based on their location. Internal mammary lymph nodes are located in the breast; axillary lymph nodes are located under the arms; cervical lymph nodes are located in the neck; and supraclavicular lymph nodes are located just above the collarbone. Sentinel lymph nodes are the first lymph nodes that are likely to collect cancer cells that have broken away from a tumor.

**Malignant:** Refers to a tumor that is cancerous. It may invade nearby healthy tissue or spread to other parts of the body.

**Mammography:** A type of x-ray specifically designed to view the breast. The x-ray films produced by mammography, called mammograms, can find small tumors or irregularities in the breast.

**Margin:** A small area of healthy tissue around the tumor that is removed during surgery. The goal of breast cancer surgery is to achieve clear surgical margins (no cancer cells at the edge of the tissue removed during surgery).

**Mass:** A lump in the body.

**Mastectomy:** Surgical removal of the breast in order to treat breast cancer. A total mastectomy, also called a simple mastectomy, is the surgical removal of the entire breast. In a simple mastectomy, the surgeon does not remove the lymph nodes under the arm and the muscle tissue beneath the breast. During a modified radical mastectomy, the surgeon removes the entire breast and the axillary lymph nodes. When the tumor is large and has spread to the muscles of the chest wall, a radical mastectomy, the most extensive type of mastectomy, may be necessary. This surgery involves the removal of the entire breast, the axillary lymph nodes, and the chest wall muscles beneath the breast.

**Metastasis:** The spread of cancer from the place where it began to another part of the body. This occurs when cancer cells break away from the primary tumor and travel through the blood or the lymphatic system to the lymph nodes, brain, lungs, bones, liver, or other organs.

**Neoadjuvant therapy:** Treatment given before the main treatment, which is usually surgery (lumpectomy or mastectomy). It may include chemotherapy, radiation therapy, or hormonal therapy given before surgery to shrink a tumor so it is easier to remove.

**Oncologist:** A doctor who specializes in treating people with cancer. The five main types are medical, surgical, radiation, gynecologic, and pediatric oncologists.

**Osteonecrosis:** An uncommon but serious side effect of treatment with bisphosphonates and denosumab. The symptoms of osteonecrosis of the jaw include pain, swelling, and infection of the jaw; loose teeth; and exposed bone.

**Ovarian ablation:** A type of hormonal therapy given after other treatments, such as surgery, chemotherapy, and/or radiation therapy for early-stage breast cancer. Ovarian ablation using medication temporarily stops the ovaries from producing hormones and may be appropriate for women with hormone-positive breast cancer who have not been through menopause. The surgical removal of the ovaries (called an oophorectomy) permanently stops the ovaries from producing hormones.

**Palliative/supportive care:** Any form of treatment that concentrates on reducing a patient’s symptoms or treatment-related side effects, improving quality of life, and supporting patients and their families.

**Pathologist:** A doctor who specializes in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease.
**Pneumonitis:** Radiation-related swelling of the lung tissue.

**Positron emission tomography (PET) scan:** A diagnostic test used to detect cancer and find out the cancer’s stage. This scan is sometimes used to evaluate the effectiveness of cancer treatments, such as chemotherapy or radiation therapy. A PET scan is often used to complement information gathered from a computed tomography (CT) scan, magnetic resonance imaging (MRI), or a physical examination.

**Primary cancer:** The area in the body where a cancer started.

**Prognosis:** Chance of recovery; a prediction of the outcome of a disease.

**Psychosocial effects:** Emotional and social concerns related to cancer and cancer treatment that can greatly affect patients’ well-being. These may include lack of information and support; emotional difficulties, including depression and anxiety; lack of transportation; disruptions to work, school, and family life; and insufficient financial resources.

**Radiation therapy:** The use of high-energy x-rays or other particles to destroy cancer cells (also called radiotherapy).

**Reconstruction:** Plastic surgery that rebuilds and restores the appearance of a natural breast. This surgery can be done either at the same time as a mastectomy or months or years later.

**Recurrence:** Cancer that has returned after a period during which the cancer could not be detected. Local recurrence means that the cancer has come back in the same general area where the original cancer was located. Regional recurrence refers to cancer that has come back in the lymph nodes or other tissues near the original cancer site, usually by direct spread. Distant recurrence refers to cancer that has come back and has spread to other parts of the body, usually by traveling through the lymphatic system or bloodstream.

**Regimen:** A treatment plan that includes which treatments and procedures will be done, medications and their doses, the schedule of treatments, and how long the treatment will last.

**Response:** Shrinkage of the cancer as a result of chemotherapy, radiation therapy, hormonal therapy, targeted therapy, or other treatment.

**Risk:** The likelihood of an event.

**Screening:** The process of checking whether a person has a disease or has an increased chance of developing a disease when the person has no symptoms.

**Secondary cancer:** Describes either a new primary cancer (a different type of cancer) that develops after treatment for the first type of cancer or cancer that has spread to other parts of the body from the place where it started (see metastasis).

**Side effect:** An undesirable result of treatment, such as fatigue, nausea, vomiting, or hair loss.

**Stage:** A way of describing where the cancer is located, if or where it has spread, and whether it is affecting other parts of the body.
Standard of care: Care that experts agree or guidelines show is the most appropriate and/or effective for a specific disease.

Surgery: The removal of cancerous tissue from the body during an operation.

Survivorship: This term means different things to different people. Two common definitions include having no disease after the completion of treatment and the process of living with, through, and beyond cancer.

Targeted treatment: Treatment that targets specific genes, proteins, or other molecules that contribute to cancer growth and survival.

Tumor: A mass formed when healthy cells change and grow uncontrollably. A tumor can be benign (noncancerous) or malignant (cancerous, meaning it can spread to other parts of the body).

Treatment summary: A written summary of the therapy(ies) that the patient had during the active treatment period. This is often used in conjunction with a follow-up care plan to help monitor a survivor’s long-term health.

For more definitions of common terms you may hear before, during, and after treatment, visit www.cancer.net/dictionaryresources.