

# Breast Cancer

## Treatment by Stage

### What is breast cancer?

Breast cancer, a common cancer in women, is a disease in which cancer cells are found in the tissues of the breast. Each breast has 15 to 20 sections called lobes. Lobes have many smaller sections called lobules. The lobes and lobules are connected by thin tubes called ducts. The most common type of breast cancer is ductal cancer. It is found in the cells of the ducts. Cancer that begins in the lobes or lobules is called lobular carcinoma. Lobular carcinoma is found in both breasts more often than other types of breast cancer.

Inflammatory breast cancer is an uncommon type of breast cancer. In this disease, the breast is warm, red, and swollen.

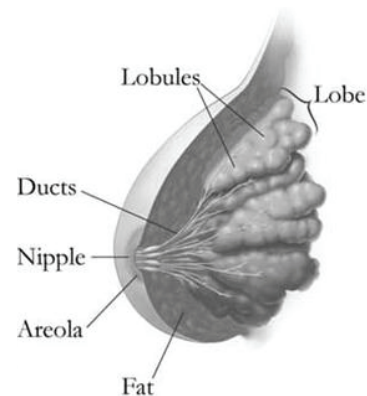


Figure 1. The Breast

The genes in your cells carry the hereditary information that you received from your parents. Sometimes, a test can be done to look for a gene that may be associated with a certain hereditary trait. A gene was found to be defective in 5 percent of breast cancer patients. Relatives of breast cancer patients who carry this defective gene may be more likely to develop breast or ovarian cancer. Tests have been developed to determine the people who have the genetic defect long before any cancer appears.

You should see your doctor if you notice changes in your breast. Women over the age of 40 should also have a special x-ray called a mammogram, which may find tumors that are too small to feel. Check with your doctor on how often you should have this x-ray.

If you have a lump in your breast, it may be necessary to cut out a small piece of it and look at it under the microscope to see if there are any cancer cells present. This is called a biopsy. Sometimes the biopsy is done by inserting a needle into the breast and drawing out some of the tissue. If the biopsy shows that there is cancer, it is important that certain tests (called estrogen and progesterone receptor tests) be done on the cancer cells.

Estrogen and progesterone receptor tests may tell whether hormones affect how the cancer grows. They may also give information about the chances of the tumor coming back (recurring). The results help your doctor decide whether or not to use hormone therapy to stop the cancer from growing. Tissue from the tumor needs to be taken for estrogen and progesterone tests at the time of biopsy because it may be difficult to get enough cancer cells later on. Newer techniques now can be used on tissue that has been stored. Your physician may order another type of test, HER2/*neu*, to see if you will be a candidate for a medication called trastuzumab (Herceptin®).

Your chance of recovery and choice of treatment depend on:

- the stage of your cancer (whether it is just in the breast or has spread to other places in the body),
- the type of breast cancer,
- certain characteristics of the cancer cells, and
- your age and the general state of your health.

## What is "staging"?

Once breast cancer has been found, more tests will be done to find out if the cancer has spread from the breast to other parts of the body. This is called staging. Your doctor needs to know the stage of your disease to plan treatment. The following stages are used for breast cancer:

- **Breast cancer in situ (Stage 0)**  
About 15-20 percent of breast cancers are very early cancers. They are sometimes called carcinoma in situ. There are two types of breast cancer in situ. One type is ductal carcinoma in situ (also known as intraductal carcinoma); the other type is lobular carcinoma in situ. Lobular carcinoma in situ is not cancer, but for the purpose of classifying the disease, it is called breast cancer in situ, carcinoma in situ, or stage 0 breast cancer. Lobular carcinoma in situ is found on some occasions when a biopsy is done for another lump or abnormality that was found on the mammogram. Patients with this condition have a 10-15 percent chance of developing breast cancer in either breast in the next 30 years.
- **Stage I**  
The cancer is no bigger than 2 centimeters (about 1 inch) and has not spread outside the breast.
- **Stage II**  
Any of the following may be true:
  - The cancer is no bigger than 2 centimeters but has spread to the lymph nodes under the arm (the axillary lymph nodes).
  - The cancer is between 2 and 5 centimeters (from 1 to 2 inches). The cancer may or may not have spread to the lymph nodes under the arm.
  - The cancer is bigger than 5 centimeters (larger than 2 inches), but has not spread to the lymph nodes under the arm.
- **Stage III**  
Stage III is divided into stages IIIA, IIIB and IIIC.
  - Stage IIIA is defined by either of the following:
    - The cancer is bigger than 5 centimeters, it has spread to the lymph nodes under the arm, and the lymph nodes have grown into each other or into other structures.
    - The cancer is bigger than 5 centimeters and has spread to lymph nodes under the arm.
  - Stage IIIB is defined by either of the following:
    - The cancer has spread to tissues near the breast (skin, chest wall, including the ribs and the muscles in the chest).
    - The cancer has spread to lymph nodes inside the chest wall along the breastbone.

- Stage IIIC is defined by the following:
  - The cancer has spread to the lymph nodes, inside the neck, near the collarbone.
- **Stage IV**  
The cancer has spread to other organs of the body, most often the bones, lungs, liver, or brain.

## Inflammatory Breast Cancer

Inflammatory breast cancer is a special class of breast cancer that is rare. The breast looks as if it is inflamed because of its red appearance and warmth. The skin may show signs of ridges and wheals (raised areas) or it may look pitted. This type of cancer tends to spread quickly.

## Recurrent

Recurrent disease means that the cancer has come back (recurred) after it has been treated. It may come back in the breast, in the soft tissues of the chest (the chest wall), or in another part of the body.

## How is breast cancer treated?

- There are treatments for all patients with breast cancer. Four types of treatment are used:
  - Surgery (an operation to remove the cancer)
  - Radiation therapy (using high-dose x-rays to kill cancer cells)
  - Chemotherapy (using drugs to kill cancer cells)
  - Hormone therapy (using hormones to stop the cells from growing)
- In addition, biological therapy (using your body's immune system to fight cancer) and bone marrow transplantation are being tested in clinical trials.
- Surgery has a role in the treatment of most patients with breast cancer. It is used to remove the cancer from the breast. Usually, some of the lymph nodes under the arm also are taken out and looked at under the microscope to see if cancer cells are present.

## A Number Of Different Therapies Are Used

### Surgery To Conserve The Breast

- **Excisional biopsy** (sometimes called lumpectomy or wide local excision) takes out the lump in the breast and some of the tissue around it. It may be followed by radiation therapy to the part of the breast that remains. Doctors may also take out some of the lymph nodes under the arm.
- **Segmental mastectomy** takes out the cancer and some of the breast tissue around it. In addition, there may be an axillary node dissection to take out some of the lymph nodes under the arm. In most cases, radiation therapy follows. This is the most common operation for breast cancer.

## Other Types Of Surgery

- **Total or simple mastectomy** removes the breast. Sometimes lymph nodes under the arm are also taken out.
- **Modified radical mastectomy** removes the breast, some of the lymph nodes under the arm, the lining over the chest muscles and sometimes part of the chest wall muscles.

## Lymph Node Mapping - Sentinel Node Biopsy

Sentinel node biopsy (SNB) is a new advance in breast cancer treatment. SNB is the removal of the sentinel lymph node during surgery. The sentinel lymph node is the first lymph node to receive lymphatic drainage from a tumor. It is the first lymph node the cancer is likely to spread to from the tumor.

SNB is a simple procedure that may reduce the amount of surgery needed. In some cases, SNB can replace a formal axillary node dissection with fewer side effects. It can also provide the physician with the necessary information he or she needs to make a prognosis (the chances of getting better). Please ask your physician or nurse for further details about this procedure.

## Breast Reconstruction

If you are going to have a mastectomy, you may want to think about having breast reconstruction (having a new breast made). This can be done at the time of the mastectomy or at some time in the future. The breast may be made with your own tissue, or by using implants. Different types of implants can be used. The Food and Drug Administration (FDA) has announced that breast implants filled with silicone gel may be used only in clinical trials. Saline-filled breast implants, which contain salt water rather than silicone gel, may also be used. Before you decide to get an implant, you may want to discuss any questions you have with your doctor.

## Radiation Therapy

This treatment uses high-energy x-rays to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external radiation therapy) or from putting materials that produce radiation through thin plastic tubes into the area where the cancer cells are found (internal radiation therapy).

## Chemotherapy

Chemotherapy is the use of special drugs to kill cancer cells. Chemotherapy may be taken by mouth, or it may be put into the body by a needle in a vein or muscle. Chemotherapy drugs enter the bloodstream, travel through the body, and can kill cancer cells outside the breast area.

## Hormone Therapy

If tests show that the breast cancer cells contain estrogen and progesterone receptors you may be given hormone therapy. Hormone therapy is used to change the way hormones in the body help cancers grow. This may be done by using drugs that block the action of hormones or by surgery that removes organs that make hormones, such as the ovaries.

Hormone therapy with tamoxifen can act on cells all over the body and may increase your chance of getting cancer of the uterus. Therefore, you should be checked regularly for this type of cancer. You should immediately report any uterine bleeding other than your menstrual period to your doctor. For women over the age of 50, an aromatase inhibitor may be used instead of tamoxifen.

### **Adjuvant Therapy**

If your doctor removes all the cancer that can be seen at the time of the operation, you may be given radiation therapy, chemotherapy, or hormone therapy after surgery to try to kill any cancer cells that may be left. Therapy given after an operation when there are no cancer cells that can be seen is called adjuvant therapy.

### **Biological Therapy**

This treatment tries to get your own body to fight the cancer. It uses materials made by your body or made in a laboratory to boost, direct, or restore your body's natural defenses against disease. Biological therapy is sometimes called biological response modifier (BRM) therapy or immunotherapy.

### **Bone Marrow Transplantation**

This procedure offers a newer type of treatment. Sometimes breast cancer becomes resistant to treatment with radiation therapy or chemotherapy. In clinical trials, very high doses of chemotherapy may then be used to treat the cancer. Because the high doses of chemotherapy can destroy your bone marrow, marrow is taken from your bones before treatment. The marrow is then frozen and you are given high-dose chemotherapy with or without radiation therapy to treat the cancer. The marrow you had taken out is then thawed and given to you through a needle in a vein to replace the marrow that was destroyed. This type of transplant is called an autologous transplant. If the marrow is taken from another person (to give to you) for the transplant, it is called an allogeneic transplant. Peripheral blood stem cells may also be used.

## **Treatment for Breast Cancer In Situ**

Your treatment depends on whether you have ductal carcinoma in situ or lobular carcinoma in situ. Since it is difficult to distinguish between these two possibilities, it may be helpful to get a second opinion and have your biopsy preparations (slides) observed through the microscope by pathologists at another hospital.

- If you have ductal carcinoma in situ (DCIS), your treatment may be one of the following:
  - Surgery to remove the whole breast (total mastectomy).
  - Surgery to remove only the cancer (lumpectomy), followed by radiation therapy.
  - Rarely, some of the lymph nodes under the arm may also be removed during the above surgeries.
- If you have lobular carcinoma in situ (LCIS), you have a marker for a higher risk of an invasive cancer in both breasts. This gives you about a 10-15 percent chance of developing breast cancer in either breast over the next 30 years. Many women with LCIS never develop

an invasive breast cancer. A large clinical trial found that women at high risk for developing breast cancer who were treated with the hormonal therapy drug tamoxifen were almost 50 percent less likely to develop cancer than women at high risk who did not receive the drug.

- For more information, call the Cancer Information Service at (800) 4-CANCER (1-800-422-6237). The treatment options for LCIS are varied and quite controversial. Your treatment may include:
  - a biopsy to diagnose the LCIS, followed by regular exams and mammograms to make sure you don't develop invasive cancer,
  - or surgery to remove both breasts (prophylactic mastectomy).

## Treatment By Stage

Treatment for breast cancer depends on the type and stage of your disease, your age, and your overall health.

You may receive treatment that is considered standard based on its effectiveness in a number of patients in past studies, or you may choose to go into a clinical trial. Not all patients are cured with standard therapy, and some standard treatments may have more side effects than are desired. For these reasons, clinical trials are designed to find better ways to treat cancer patients and are based on the most up-to-date information. Clinical trials are taking place in most parts of the country for all stages of breast cancer. If you want more information, call the Cancer Information Service toll-free at 1-800-4-CANCER (1-800-422-6237).

### Stage I Breast Cancer

- **Your treatment may be one of the following:**
  - Surgery to remove only the cancer and some surrounding breast tissue (lumpectomy) or to remove part of the breast (partial or segmental mastectomy). Some of the lymph nodes under the arm are also removed. Both types of surgery are followed by radiation therapy. This treatment provides identical long-term cure rates to those from a mastectomy. Your doctor's recommendation on which procedure to have is based on tumor size and location and the tumor's appearance on a mammogram.
  - Surgery to remove the whole breast (total mastectomy) or the whole breast and some of the lymph nodes under the arm (modified radical mastectomy).
  - Adjuvant therapy (following surgery):
    - Chemotherapy
    - Hormone therapy
    - Clinical trials of adjuvant chemotherapy or hormone therapy
    - Clinical trials of no adjuvant therapy for patients with a good chance of recovery.

### Stage II Breast Cancer

- **Your treatment may be one of the following:**
  - Surgery to remove only the cancer and some surrounding breast tissue (lumpectomy) or to remove part of the breast (partial or segmental mastectomy). Some of the lymph nodes

under the arm are also removed. Radiation therapy is given following surgery. This treatment provides identical long-term cure rates to those from a mastectomy. Your doctor's recommendation on which procedure to have is based on tumor size and location and the tumor's appearance on mammogram.

- Surgery to remove the whole breast (total mastectomy) or the whole breast and some of the lymph nodes under the arm (modified radical mastectomy).
- Adjuvant therapy (following surgery):
  - Chemotherapy
  - Hormone therapy
  - Clinical trials of chemotherapy and/or hormone therapy after surgery
  - Clinical trial of no more therapy after surgery for patients with a good chance of recovery.
- Clinical trial of chemotherapy before surgery (neoadjuvant therapy).

### **Stage III Breast Cancer**

- Stage III breast cancer is further divided into stage IIIA (can be operated on) and IIIB (surgery cannot take place until chemotherapy or hormonal therapy shrinks the tumor).
  - **Stage IIIA** cancer treatment often includes surgery, radiation therapy and multi-agent chemotherapy for most patients. Clinical trials are testing new chemotherapy with or without hormonal drugs. They are also testing chemotherapy before surgery (neoadjuvant therapy) and high-dose chemotherapy with bone marrow or peripheral stem cell transplantation. The treatments you receive will provide the greatest potential for keeping your cancer from spreading and killing the cancer cells (throughout your system) that can not be seen.
  - **Stage IIIB** cancer is considered to be inoperable. Treatment generally consists of combination chemotherapy, followed by surgery, additional chemotherapy and radiation therapy. Clinical trials are testing new chemotherapy with or without hormonal drugs. They are also testing chemotherapy before surgery (neoadjuvant therapy) and high-dose chemotherapy with bone marrow or peripheral stem cell transplantation.

### **Stage IV Breast Cancer**

- **You may have a biopsy and then be given one or more of the following:**
  - Radiation therapy, or, in some case, a mastectomy to reduce your pain or symptoms
  - Hormonal therapy
  - Chemotherapy
  - Clinical trials of new chemotherapy and hormonal drugs and new combinations of drugs and biological therapy
  - Clinical trials of high-dose chemotherapy with bone marrow or peripheral stem cell transplantation

### **Inflammatory Breast Cancer**

Your treatment will probably be a combination of chemotherapy, hormonal therapy and radiation therapy, which may be combined with surgery to remove the breast. The treatment is usually similar to that for stage IIIB or stage IV breast cancer.

## Recurrent Breast Cancer

Breast cancer that comes back (recurs) can often be treated but usually cannot be cured when it recurs in another part of the body. Some patients with recurrence in the breast or chest wall can be cured, however. Your choice of treatment depends on hormone receptor levels, the kind of treatment you had before it recurred, the length of time from first treatment to when the cancer came back, where the cancer recurred, whether you still have menstrual periods, and other factors.

Your treatment may be one or more of the following:

- Hormonal therapy
- Surgery and/or radiation therapy for the small group of patients whose cancer has come back in only one place.
- Radiation therapy to help relieve pain due to the spread of the cancer to the bones and other places.
- Chemotherapy
- A clinical trial of new chemotherapy drugs, new hormonal drugs, biological therapy, or bone marrow transplantation.

## To Learn More About Breast Cancer

### “What Would I Do? - Breast Cancer Treatment Options” (Video)

To view this video, visit one of the Learning Center locations below.

### The Learning Center

The Learning Center is a consumer health library with the latest information on cancer care, support, prevention and general health and wellness issues. Locations include:

- Law Learning Center  
*Main Building, Floor 4, near Elevator A, Room R4.1100 – (713) 745-8063*
- Levit Learning Center  
*Mays Clinic, Floor 2, near The Tree Sculpture, Room ACB2.1120 – (713) 563-8010*

### The Nellie B. Connally Breast Center Web site

[www.mdanderson.org/care\\_centers/breastcenter](http://www.mdanderson.org/care_centers/breastcenter)

Detailed information is provided on breast reconstruction and sentinel lymph node mapping.

### National Cancer Institute’s Cancer Information Service

1 – 800- 4-CANCER (1-800-422-6237)

By dialing this toll-free number, you can speak with someone who can answer your questions. The Cancer Information Service can also send you free booklets. Visit The Learning Center to find out how you can get copies of the following booklets:

- *What You Need to Know About Cancer of the Breast*
- *Chemotherapy and You*
- *Radiation Therapy and You*
- *Eating Hints for Cancer Patients: Before, During and After Treatment*
- *Coping With Advanced Cancer*
- *When Cancer Returns: Support for People With Cancer*