



## The Association of Minimally Invasive Gynecologic Surgeons

...dedicated to safe, state-of-the-art surgery and health life-styles for women of all ages

### How Is Breast Cancer Staged?

Cancers are divided into different groups, called **stages**, based on whether the cancer is invasive or non-invasive, the size of the tumor, how many lymph nodes are involved, and whether there is spread to other parts of the body. **Staging** is the process of finding out how widespread a cancer is when it is diagnosed. The stage of a cancer is the most important factor in considering treatment options. A **staging system** is a standardized way for the cancer care team to summarize information about how far a cancer has spread.

Depending on the results of your physical exam and biopsy, your doctor may want you to have certain imaging tests such as a chest x-ray, mammograms of both breasts, bone scans, and computed tomography (CT) or magnetic resonance imaging (MRI) scans. (All are discussed in the section, "Imaging Tests to Detect Breast Cancer Spread.") Blood tests to evaluate your overall health and help detect whether the cancer has spread to certain organs may also be done.

The 2002 American Joint Committee on Cancer (AJCC) TNM System

The most common system used to describe the stages of cancers is the **American Joint Committee on Cancer (AJCC) TNM system**. This staging system classifies cancers based on their T, N, and M stages:

- **T** stands for **tumor** (its size and how far it has spread within the breast and to nearby organs).
- **N** stands for spread to lymph **nodes** (bean-shaped collections of immune system cells that help fight infections and cancers).
- **M** is for **metastasis** (spread to distant organs).

The stage of a breast cancer can be based on the results of physical exam and imaging tests (called clinical stage) or on the results of these and surgery (called pathologic stage). The approach to staging used here is based on the pathologic stage, the findings after surgery, when the pathologist has looked at the breast mass and lymph nodes.

Additional letters or numbers appear after T, N, and M to provide more details about the tumor, lymph nodes, and metastasis:

- The letter T followed by a number from 0 to 4 describes the tumor's size and spread to the skin or to the chest wall under the breast. Higher T numbers indicate a larger tumor and/or wider spread to tissues near the breast.
- The letter N followed by a number from 0 to 3 indicates whether the cancer has spread to lymph nodes near the breast and, if so, how many lymph nodes are affected.
- The letter M followed by a 0 or 1 indicates whether the cancer has spread to distant organs, for example, the lungs or bones, or to lymph nodes that are not next to the breast, such as those above the collarbone.

Once the T, N, and M categories have been determined, this information is combined in a process called **stage grouping** to determine your disease stage. The stages refer to the extent of the disease and similar stages have a similar outlook and thus are treated in a similar way. Stage is expressed as stage 0 and in Roman numerals from stage I (the least advanced stage) to stage IV (the most advanced stage).

Breast Cancer T, N, M Categories and Stage Groupings

#### Primary tumor (T):

TX: Primary tumor cannot be assessed.

T0: No evidence of primary tumor (this sometimes happens).

Tis: Pure carcinoma in situ; intraductal carcinoma, lobular carcinoma in situ, or Paget disease of the nipple with no associated tumor mass.

T1: Tumor 2 cm (about ¾ of an inch) or less in greatest dimension.

T2: Tumor more than 2 cm but not more than 5 cm (2 inches) in greatest dimension.

T3: Tumor more than 5 cm in greatest dimension.

T4: Tumor of any size growing into the chest wall or skin.

### **Regional (nearby) lymph nodes (N) pathologic staging (based on looking at them under a microscope):**

NX: Regional lymph nodes cannot be assessed (for example, removed previously).

N0: Cancer has not spread to regional lymph nodes.

N1: Cancer has spread to 1 to 3 lymph node(s) under the arm

N2: Cancer has spread to 4 to 9 lymph nodes under the arm

N3: Cancer has spread to 10 or more lymph nodes under the arm or also involves lymph nodes in other areas around the breast.

### **Metastasis (M):**

MX: Presence of distant spread (metastasis) cannot be assessed.

M0: No distant spread.

M1: Spread to distant organs is present.

## **Summary of Breast Cancer Stages**

**Stage 0: Tis, N0, M0:** Ductal carcinoma in situ (DCIS) is the earliest form of breast cancer. In DCIS, cancer cells are located within a duct and have not invaded the surrounding fatty breast tissue. Lobular carcinoma in situ (LCIS) is sometimes classified as stage 0 breast cancer, but most oncologists believe it is not a true breast cancer. In LCIS, abnormal cells grow within the lobules or milk-producing glands, but they do not penetrate through the wall of these lobules. Paget disease of the nipple is stage 0. In all cases the cancer has not spread to lymph nodes or distant sites.

**Stage I: T1, N0, M0:** The tumor is 2 cm (about 3/4 of an inch) or less in diameter and has not spread to lymph nodes or distant sites.

**Stage IIA: T0, N1, M0 / T1, N1, M0 / T2, N0, M0:** No tumor is found in the breast but it is in 1 to 3 axillary lymph nodes; or the tumor is less than 2 cm and has spread to 1 to 3 axillary lymph nodes; or cancer is found by sentinel node biopsy as microscopic disease in internal mammary nodes, but not on imaging studies or by clinical exam; or the tumor is larger than 2 cm in diameter and less than 5 cm, but hasn't spread to axillary nodes. In all cases the cancer has not spread to distant sites.

**Stage IIB: T2, N1, M0 / T3, N0, M0:** The tumor is larger than 2 cm in diameter and less than 5 cm and has spread to 1 to 3 axillary lymph nodes; or cancer is found by sentinel node biopsy as microscopic disease in internal mammary nodes; or the tumor is larger than 5 cm and does not grow into the chest wall and has not spread to lymph nodes. In all cases, the cancer hasn't spread to distant sites.

**Stage IIIA: T0-2, N2, M0 / T3, N1-2, M0:** The tumor is smaller than 5 cm in diameter and has spread to 4 to 9 axillary lymph nodes; or it is found through imaging studies or clinical exam to have spread to internal mammary nodes; or the tumor is larger than 5 cm and has spread to 1 to 9 axillary nodes, or to internal mammary nodes. In all cases, the cancer hasn't spread to distant sites.

**Stage IIIB: T4, N0-2, M0:** The tumor has grown into the chest wall or skin and may have spread to no lymph nodes or to as many as 9 axillary nodes. It may or may not have spread to internal mammary nodes. The cancer hasn't spread to distant sites.

**Stage IIIC: T0-4, N3, M0:** The tumor is any size, has spread to 10 or more nodes in the axilla; or to 1 or more lymph nodes under the clavicle (infraclavicular) or above the clavicle (supraclavicular); or to internal mammary lymph nodes, which are enlarged because of the cancer. All of these are on the same side as the breast cancer.

The cancer hasn't spread to distant sites.

Inflammatory breast cancer is classified as stage III, unless it has spread to distant organs or lymph nodes that are not near the breast, in which case it would be stage IV.

**Stage IV: T0-4, N0-3, M1:** The cancer, regardless of its size, has spread to distant organs such as bone, liver, or lung, or to lymph nodes far from the breast.

## Breast Cancer Survival by Stage

The numbers below are based on patients diagnosed many years ago and can be expected to be a little different for women diagnosed recently. One reason for this is that the staging system was revised in 2002. Another reason is that treatments have greatly improved since 1998. Because of these improved treatments, the survival rates for women diagnosed now should be better. These numbers come from the American College of Surgeons National Cancer Data Base.

Stage	5-year Relative Survival Rate
0	100%
I	100%
IIA	92%
IIB	81%
IIIA	67%
IIIB	54%
IV	20%

(Survival rates are not yet available for stage IIIC breast cancer because this stage was defined only a few years ago.)

The 5-year survival rate refers to the percentage of patients who live at least 5 years after their cancer is diagnosed. This means that they may or may not be cancer-free during this 5 year period. Five-year rates are used to produce a standard way of discussing prognosis. Of course, many people live much longer than 5 years. Five-year relative survival rates assume that people will die of other causes and compares the observed survival with that expected for people without breast cancer. That means that relative survival only talks about deaths from breast cancer.