

## Breast CA Survival Stats

US new cases 2022 287,850

US deaths 2022 43,250

64% localized to primary site; 5 year relative survival 99%

29% spread to locoregional lymph nodes; 5 year relative survival 86%

6% distant metastases; 5 year relative survival 30%

2% unstaged; 5 year relative survival 60%

*ref National Cancer Institute. SEER. 2022*

## Breast CA Staging

<https://www.cancer.org/cancer/breast-cancer/understanding-a-breast-cancer-diagnosis/stages-of-breast-cancer.html>

### How is the stage determined?

The staging system most often used for breast cancer is the American Joint Committee on Cancer (AJCC) **TNM system**. The most recent AJCC system, effective January 2018, has both clinical and pathologic staging systems for breast cancer:

The **pathologic stage** (also called the **surgical stage**) is determined by examining tissue removed during an operation. Sometimes, if surgery is not possible right away or at all, the cancer will be given a **clinical stage** instead. This is based on the results of a physical exam, biopsy, and imaging tests. The clinical stage is used to help plan treatment. Sometimes, though, the cancer has spread further than the clinical stage estimates, and may not predict the patient's outlook as accurately as a pathologic stage.

In both staging systems, 7 key pieces of information are used:

**The extent (size) of the tumor (T):** How large is the cancer? Has it grown into nearby areas?

**The spread to nearby lymph nodes (N):** Has the cancer spread to nearby lymph nodes? If so, how many?

**The spread (metastasis) to distant sites (M):** Has the cancer spread to distant organs such as the lungs or liver?

**Estrogen Receptor (ER) status:** Does the cancer have the protein called an estrogen receptor?

**Progesterone Receptor (PR) status:** Does the cancer have the protein called a progesterone receptor?

**Her2 status:** Does the cancer make too much of a protein called Her2?

**Grade of the cancer (G):** How much do the cancer cells look like normal cells?

[In addition, Oncotype Dx® Recurrence Score](#) results may also be considered in the stage in certain circumstances.

**Details about the first three factors (the TNM categories) are below. However, the addition of information about ER, PR, and Her2 status along with grade has made stage grouping for breast cancer more complex than for other cancers.**

### Details of the TNM staging system

Numbers or letters after T, N, and M provide more details about each of these factors. Higher numbers mean the cancer is more advanced.

### T categories for breast cancer

T followed by a number from 0 to 4 describes the main (primary) **tumor** size and if it has spread to the skin or to the chest wall under the breast. Higher T numbers mean a larger tumor and/or wider spread to tissues near the breast.

**TX:** Primary tumor cannot be assessed.

**T0:** No evidence of primary tumor.

**Tis:** Carcinoma in situ (DCIS, or Paget disease of the breast with no associated tumor mass)

**T1** (includes T1a, T1b, and T1c): Tumor is 2 cm (3/4 of an inch) or less across.

**T2:** Tumor is more than 2 cm but not more than 5 cm (2 inches) across.

**T3:** Tumor is more than 5 cm across.

**T4** (includes T4a, T4b, T4c, and T4d): Tumor of any size growing into the chest wall or skin. This includes inflammatory breast cancer.

### N categories for breast cancer

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 involved. A deposit of cancer cells must contain at least 200 cells or be at least 0.2 mm across (for it to change the N stage. An area of cancer spread that is smaller than 0.2 mm (or fewer than 200 cells) doesn't change the stage, but is recorded with abbreviations (i+ or mol+) that indicate the type of special test used to find the spread.

If the area of cancer spread is at least 0.2 mm (or 200 cells), but still not larger than 2 mm, it is called a micrometastasis. Micrometastases are counted only if there aren't any larger areas of cancer spread.

Areas of cancer spread larger than 2 mm are known to affect outlook and do change the N stage.

**NX:** Nearby lymph nodes cannot be assessed (for example, if they were removed previously).

**N0:** Cancer has not spread to nearby lymph nodes.

**N0(i+):** The area of cancer spread contains fewer than 200 cells and is smaller than 0.2 mm. The abbreviation "i+" means that a small number of cancer cells (called isolated tumor cells) were seen in routine stains or when a special type of staining technique, called *immunohistochemistry*, was used.

**N0(mol+):** Cancer cells cannot be seen in underarm lymph nodes (even using special stains), but traces of cancer cells were detected using a technique called *RT-PCR*. RT-PCR is a molecular test that can find very small numbers of cancer cells. (This test is not often used to find breast cancer cells in lymph nodes because the results do not influence treatment decisions.)

**N1:** Cancer has spread to 1 to 3 axillary (underarm) lymph node(s), and/or tiny amounts of cancer are found in internal mammary lymph nodes (those near the breast bone) on sentinel lymph node biopsy.

**N1mi:** Micrometastases (tiny areas of cancer spread) in the lymph nodes under the arm. The areas of cancer spread in the lymph nodes are at least 0.2mm across, but not larger than 2mm.

**N1a:** Cancer has spread to 1 to 3 lymph nodes under the arm with at least one area of cancer spread greater than 2 mm across.

**N1b:** Cancer has spread to internal mammary lymph nodes on the same side as the cancer, but this spread could only be found on sentinel lymph node biopsy (it did not cause the lymph nodes to become enlarged).

**N1c:** Both N1a and N1b apply.

**N2:** Cancer has spread to 4 to 9 lymph nodes under the arm, or cancer has enlarged the internal mammary lymph nodes

**N2a:** Cancer has spread to 4 to 9 lymph nodes under the arm, with at least one area of cancer spread larger than 2 mm.

**N2b:** Cancer has spread to one or more internal mammary lymph nodes, causing them to become enlarged.

**N3:** Any of the following:

**N3a:** either:

Cancer has spread to 10 or more axillary lymph nodes, with at least one area of cancer spread greater than 2 mm,

OR

Cancer has spread to the lymph nodes under the collarbone (infraclavicular nodes), with at least one area of cancer spread greater than 2 mm.

**N3b:** either:

Cancer is found in at least one axillary lymph node (with at least one area of cancer spread greater than 2 mm) and has enlarged the internal mammary lymph nodes,

OR

Cancer has spread to 4 or more axillary lymph nodes (with at least one area of cancer spread greater than 2 mm), and tiny amounts of cancer are found in internal mammary lymph nodes on sentinel lymph node biopsy.

**N3c:** Cancer has spread to the lymph nodes above the collarbone (supraclavicular nodes) with at least one area of cancer spread greater than 2 mm.

### **M categories for breast cancer**

M followed by a 0 or 1 indicates whether the cancer has spread to distant organs -- for example, the lungs, liver, or bones.

**MX:** Distant spread (metastasis) cannot be assessed.

**M0:** No distant spread is found on x-rays (or other imaging tests) or by physical exam.

**cM0(i+):** Small numbers of cancer cells are found in blood or bone marrow (found only by special tests), or tiny areas of cancer spread (no larger than 0.2 mm) are found in lymph nodes away from the underarm, collarbone, or internal mammary areas.

**M1:** Cancer has spread to distant organs (most often to the bones, lungs, brain, or liver).