Breast Cancer in Men Early Detection, Diagnosis, and Staging

Detection and Diagnosis

Catching cancer early often allows for more treatment options. Some early cancers may have signs and symptoms that can be noticed, but that is not always the case.

Stages and Outlook (Prognosis)

After a cancer diagnosis, staging provides important information about the extent of cancer in the body and anticipated response to treatment.

Can Breast Cancer in Men Be Found Early?

Finding breast cancer early improves the chances that male breast cancer can be treated successfully. However, because breast cancer is so uncommon in men, there is unlikely to be any benefit in screening men in the general population for breast cancer with mammograms or other tests.

Differences in early detection of breast cancers in men and women

There are many similarities between breast cancer in men and women, but there are some important differences that affect finding it early.

Breast size

The most obvious difference between the male and female breast is size. Because men have very little breast tissue, it is easier for men and their health care professionals to feel small masses (tumors). On the other hand, because men have so little breast tissue, cancers do not need to grow very far to reach the nipple, the skin covering the breast, or the muscles underneath the breast. So even though breast cancers in men tend to be slightly smaller than in women when they are first found, more often have already spread to nearby tissues or lymph nodes. The extent of spread is one of the most important factors in the prognosis (outcome) of a breast cancer.

Lack of awareness

Another difference is that breast cancer is common among women and rare among men. Women tend to be aware of this disease and its possible warning signs, but many men do not think that they can get it at all. Some men ignore breast lumps or think they are caused by an infection or some other reason, and don't get medical treatment until the mass has had a chance to grow. Some men are embarrassed when they find a breast lump and worry that someone might question their masculinity. This could also delay diagnosis and reduce a man's chances for successful treatment.

For men who are or may be at high risk

Careful breast exams might be useful for screening men with a strong family history of breast cancer and/or with *BRCA* mutations found by genetic testing. Screening men for breast cancer has not been studied to know if it is helpful, and mammography (x-rays of the breast) and ultrasound is usually only done if a lump is found. Men who are at high risk for breast cancer[1] should discuss how to manage their risk with their doctor.

Genetic counseling and testing

If you have a strong family history of breast cancer (in men or women), ovarian cancer, pancreatic cancer, and/or prostate cancer that might be caused by a *BRCA* mutation, and/or if someone else in your family is known to have a *BRCA* mutation, you might want to consider genetic testing to determine if you have inherited a mutated *BRCA* gene. If the test detects a mutated *BRCA* gene, you and your health care team can watch carefully for early signs of cancer. Other cancers including prostate cancer, pancreatic cancer, and testicular cancer have been linked to *BRCA* mutations. .

Because breast cancer in men can be caused by *BRCA* mutations, men with breast cancer should also consider genetic testing[2].

If you are thinking about having genetic testing, it is strongly recommended that you talk first to a professional qualified to explain and interpret these tests, such as a genetic counselor or a nurse or doctor with special training. It is very important to understand what genetic testing can and can't tell you, and to carefully weigh the benefits and risks of testing before having it done. Test results are not always clear cut, and even if they are, it's not always clear what should be done about them. There may be other concerns as well, such as what the results might mean for other family members.

Hyperlinks

1. www.cancer.org/cancer/breast-cancer-in-men/causes-risks-prevention/risk-factors.html
2. www.cancer.org/cancer/cancer-causes/genetics.html

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Signs and Symptoms of Breast Cancer in Men

Possible symptoms of breast cancer to watch for include:

- A lump or swelling, which is often (but not always) painless
- Skin dimpling or puckering
- Nipple retraction (turning inward)
- Redness or scaling of the nipple or breast skin
- Discharge from the nipple

Sometimes a breast cancer can spread to lymph nodes under the arm or around the collar bone and cause a lump or swelling there, even before the original tumor in the breast is large enough to be felt.

These changes aren't always caused by cancer, but if you notice any breast changes, you should see a health care professional as soon as possible.

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Tests for Breast Cancer in Men

Medical history and physical exam

If there is a chance you have breast cancer, your doctor will want to get a complete personal and family medical history. This may give some clues about the cause of any symptoms you are having and if you might be at increased risk for breast cancer.

A complete breast exam will be done to find any lumps or suspicious areas and to feel their texture, size, and relationship to the skin and muscle. The doctor may also examine the rest of your body to look for any evidence of possible spread, such as enlarged lymph nodes (especially under the arm).

Imaging tests for breast cancer in men

If you have signs or symptoms that could mean breast cancer or another breast disease, your doctor might recommend one or more or the following imaging tests.

Diagnostic mammogram

A mammogram[1] is a low dose x-ray exam of the breast that allows doctors called radiologists to look for changes in breast tissue. It is called a *diagnostic* mammogram when it is done because problems are present.

A mammogram uses a machine designed to look only at breast tissue. The breast is pressed between 2 plates to flatten and spread the tissue. The compression only lasts a few seconds and may be uncomfortable briefly, but it is necessary to get a better picture. In some cases, special images known as *cone* or *spot views with magnification* are taken to make a small area of abnormal breast tissue easier to evaluate.

The results of this test might suggest that a biopsy is needed to tell if the abnormal area is cancer. Mammography is often more accurate in men than women, since men do not have dense breasts or other common breast changes that might interfere with the test.

Breast ultrasound

Breast ultrasound[2] is often used to examine some types of breast changes.

Breast ultrasound uses sound waves to make a computer picture of the inside of the

breast. A gel is put on the skin of the breast, and a wand-like instrument called a **transducer** is moved over the skin. The transducer sends out sound waves and picks up the echoes as they bounce off body tissues. The echoes are made into a picture on a computer screen. You might feel some pressure as the transducer is moved across the breast, but it should not be painful.

This test does not expose you to radiation.

Breast ultrasound is often used to look at breast changes that are found during a mammogram or physical exam. It is useful because it can often tell the difference between fluid-filled cysts[3] (which are unlikely to be cancer) and solid masses (which might need further testing to be sure they're not cancer).

In someone with a breast tumor, ultrasound can also be used to check if the lymph nodes under the arm are enlarged. If they are, ultrasound can be used to guide a needle to take a sample (a biopsy) to look for cancer cells there and in the breast tissue.

Nipple discharge test

Fluid leaking from the nipple is called *nipple discharge*. It can look clear, cloudy or bloody. If you have nipple discharge, you should have it checked by your doctor. If there is blood in this fluid, you might need more tests[4]. One test collects some of the fluid to look at it in the lab to see if cancer cells are there. This test is often not helpful, since a breast cancer can still be there even when no cancer cells are found in the nipple discharge. Other tests, such as a mammogram or breast ultrasound, may be more helpful. If you have a breast mass, you will probably need a biopsy, even if the nipple discharge does not contain cancer cells or blood.

Breast Biopsy

When other tests show that you might have breast cancer, you will probably need to have a biopsy.[5] Needing a breast biopsy doesn’t necessarily mean you have cancer. Most biopsy results are not cancer, but a biopsy is the only way to find out. During a biopsy, a doctor will remove cells from the suspicious area so they can be looked at in the lab to see if cancer cells are present. It typically takes at least a few days for you to find out the results.

If your doctor thinks you don’t need a biopsy, but you still feel there’s something wrong with your breast, follow your instincts. Don’t be afraid to talk to your doctor about this or go to another doctor for a second opinion. A biopsy is the only sure way to diagnose breast cancer.

There are different types of breast biopsies. The type you have depends on your situation.

Fine needle aspiration biopsy (FNA):[6] This type of biopsy is often used to look for cancer spread in the nearby lymph nodes. The doctor uses a very thin, hollow needle attached to a syringe to withdraw (aspirate) a small amount of tissue or fluid from a suspicious area. A local anesthetic (numbing medicine) may or may not be used. The biopsy sample is then checked to see if there are cancer cells in it.

If the area to be biopsied can be felt, the needle can be guided into it while the doctor is feeling it. If the lump can't be felt easily, the doctor might watch the needle on an ultrasound screen as it moves into the area. This is called an **ultrasound-guided biopsy**.

An FNA biopsy is the easiest type of biopsy to have, but it can sometimes miss a cancer if the needle does not go into the cancer cells.

If the results of the FNA biopsy do not give a clear diagnosis, or your doctor still has concerns, you might need to have a second biopsy or a different type of biopsy.

Core needle biopsy (CNB)[7]**:** This is the most common type of biopsy used to make a breast cancer diagnosis. The doctor uses a wide, hollow needle to take out pieces of breast tissue from a suspicious area. The needle used in this technique is larger than that used for FNA and allows the doctor to remove larger cylinders (cores) of tissue. Several cylinders are often removed. The biopsy is done with local numbing medicine and with the doctor either feeling the abnormal area or using an imaging test (like ultrasound or MRI) to find the spot to biopsy.

In addition to the standard CNB, there are two other types of CNBs:

- Stereotactic core needle biopsy[8]
- Vacuum-assisted core biopsy[9]

If the results of the CNB do not give a clear diagnosis, or your doctor still has concerns, you might need to have a second biopsy or a different type of biopsy.

Surgical (open) biopsy: Most breast cancer can be diagnosed with a needle biopsy. Rarely, surgery is needed to remove all or part of the lump for testing. Most often, the surgeon removes the entire mass or abnormal area, as well as a surrounding margin of normal-appearing breast tissue.

There are 2 types of surgical biopsies:

- An **incisional biopsy** removes only part of the suspicious area, enough to make a diagnosis.
- An **excisional biopsy** removes the entire tumor or abnormal area, with or without trying to take out an edge of normal breast tissue (depending on the reason for the biopsy).

Lymph node biopsy: The doctor may also need to biopsy the lymph nodes under the arm to check them for cancer spread. This might be done at the same time as biopsy of the breast tumor, or during surgery to remove the breast tumor. This is done by needle biopsy, or with a sentinel lymph node biopsy and/or an axillary lymph node dissection[10].

Hyperlinks

1. www.cancer.org/cancer/breast-cancer/screening-tests-and-early-detection/mammograms.html
2. www.cancer.org/cancer/breast-cancer/screening-tests-and-early-detection/breast-ultrasound.html
3. https://www.cancer.org/cancer/breast-cancer/non-cancerous-breast-conditions/fibrosis-and-simple-cysts-in-the-breast.html
4. www.cancer.org/cancer/breast-cancer/screening-tests-and-early-detection/breast-biopsy.html
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9. www.cancer.org/cancer/breast-cancer/screening-tests-and-early-detection/breast-biopsy/core-needle-biopsy-of-the-breast.html
10. www.cancer.org/cancer/breast-cancer-in-men/treating/surgery.html

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How Is Breast Cancer in Men Classified?

Breast cancer is classified in different ways, based on the results of lab tests after biopsy or surgery. Breast cancer is given a type, based on the type of cells it started from; a grade, based on how the cells look and how quickly they grow; and other classifications based on the results of tests for different hormone receptors or genes in the cancer cells.

Breast cancer type

The tissue removed during the biopsy (or during surgery) is first looked at in the lab to see if cancer is present and whether it is a carcinoma or some other type of cancer (like a sarcoma). If there is enough tissue, the pathologist may be able to determine if the cancer is in situ (not invasive) or invasive. The biopsy is also used to determine the cancer's type[1], such as invasive ductal carcinoma or invasive lobular carcinoma.

Breast cancer grade

Cancer cells are given a **grade** when they are removed from the breast and checked in the lab. The grade is based on how much the cancer cells look like normal breast cells.

For invasive cancers, a lower grade number (1) usually means the cancer is slower-growing, and less likely to spread. A higher number (3) means a faster-growing cancer that's more likely to spread. The grade is used to help predict your outcome (prognosis) and help figure out what treatments might work best. Sometimes words such as "well differentiated," "moderately differentiated," and "poorly differentiated" are used to describe the grade instead of numbers:

- **Grade 1 or well differentiated:** The cells are slower-growing, and look more like normal breast tissue.
- **Grade 2 or moderately differentiated**: The cells are growing at a speed of and look like cells somewhere between grades 1 and 3.
- **Grade 3 or poorly differentiated:** The cancer cells look very different from normal cells and will probably grow and spread faster.

Our information about pathology report[2]s[3] can help you understand details about your breast cancer.

Ductal carcinoma in situ is also graded, but the grade is based only on how

abnormal the cancer cells look. Areas of **necrosis** (dead or dying cancer cells) are also noted. If there is necrosis, it means the tumor is growing quickly. See Understanding Your Pathology Report: Ductal Carcinoma In Situ[4] for more on how DCIS is described.

Tests to classify breast cancers

Estrogen receptor (ER) and progesterone receptor (PR)

Receptors are proteins in or on cells that can attach to certain substances in the blood. Normal breast cells and some breast cancer cells have receptors that attach to the hormones estrogen and progesterone, and depend on these hormones to grow. Cancers are called hormone receptor-positive or hormone receptor-negative based on whether or not they have these receptors (proteins). Knowing the hormone receptor status[5] is important in deciding treatment options. Keeping these receptors from attaching to the hormones can help keep the cancer from growing and spreading. There are drugs that can be used to do this[6].

Breast cancer cells may have one, both, or none of these receptors:

- **ER-positive (ER+) breast cancers** have estrogen receptors.
- **PR-positive (PR+) breast cancers** have progesterone receptors.

HER2/neu status

In a small number of breast cancers in men, the cells have too much of a growth-promoting protein called HER2/neu[7] (often just shortened to HER2). Tumors with increased levels of HER2/neu are referred to as *HER2-positive.* Cells become HER2-positive breast cancers by having too many copies of the HER2/neu gene (known as *gene amplification*). Cancer cells with greater than normal amounts of the HER2/neu protein tend to grow and spread more aggressively than other breast cancers.

All newly-diagnosed breast cancers should be tested for HER2/neu because the outlook for HER2-positive cancers is improved if drugs that target the HER2/neu protein, such as trastuzumab (Herceptin®) and lapatinib (Tykerb®) are used as part of treatment. See Targeted Therapy for Breast Cancer in Men[8]for more information on drugs that target this protein.

The biopsy or surgery sample is usually tested[9] in 1 of 2 ways:

- **Immunohistochemistry (IHC):** In this test, special antibodies that identify the HER2/neu protein are applied to the sample, which cause it to change color if abnormally high levels are present. The test results are reported as 0, 1+, 2+, or 3+.
- **Fluorescent in situ hybridization (FISH):** This test uses fluorescent pieces of DNA that specifically stick to copies of the HER2/neu gene in cells, which can then be counted under a special microscope.

Many breast cancer specialists think the FISH test gives more accurate results than IHC, but it is more expensive and takes longer to get the results. Often the IHC test is used first.

- If the results are 1+ (or 0), the cancer is considered **HER2-negative**. People with HER2-negative tumors are not treated with drugs that target HER2.
- If the test comes back 3+, the cancer is **HER2-positive**. People with HER2-positive tumors may be treated with drugs that target HER2.
- When the result is 2+, the HER2 status of the tumor is not clear and the tumor is then tested with FISH. Some institutions also use FISH to confirm HER2 status that is 3+ by IHC and some perform only FISH.

A newer type of test, known as *chromogenic in situ hybridization* (CISH), works similarly to FISH, by using small DNA probes to count the number of HER2 genes in breast cancer cells. But this test doesn't require a special microscope and looks for color changes (not fluorescence) which may make it less expensive. Right now, it is not being used as much as IHC or FISH.

Classifying breast cancer based on hormone receptors and HER2 status

Doctors often divide invasive breast cancers into groups based on the presence of hormone receptors (ER and PR) and whether or not the cancer has too much HER2.

Hormone receptor-positive: If the breast cancer cells contain either estrogen or progesterone receptors, they can be called hormone receptor-positive (or just hormone-positive). Breast cancers in men that are hormone receptor-positive can be treated with hormone therapy drugs that lower estrogen levels, block estrogen receptors, or affect androgen (male hormone) levels (see Hormone Therapy for Breast Cancer in Men[10]). This includes cancers that are ER-negative but PR-positive. Hormone receptor-positive cancers tend to grow more slowly than those that are hormone receptor-negative (and don’t have either estrogen or progesterone receptors). Patients with these cancers tend to have a better outlook in the short-term, but cancers that are hormone receptor-

positive can sometimes come back many years after treatment. About 9 out of 10 male breast cancers are hormone receptor-positive.

Hormone receptor-negative: If the breast cancer cells don't have either estrogen or progesterone receptors, they are said to be hormone receptor-negative (or just hormone-negative). Treatment with hormone therapy drugs is not helpful for these cancers. These cancers tend to grow more quickly than hormone receptor-positive cancers. If they return after treatment, it is more often in the first few years.

HER2 positive: Cancers that have too much HER2 protein or gene are called HER2 positive. These cancers can be treated with drugs that target HER2[11].

HER2 negative: Cancers that don't have excess HER2 are called HER2 negative. These cancers do not respond to treatment with drugs that target HER2.

Triple-negative: If the breast cancer cells don't have estrogen or progesterone receptors and don't have too much HER2, they are called triple-negative (HER2 negative, ER negative, and PR negative). Triple-negative breast cancers tend to grow and spread more quickly than most other types of breast cancer. Because the tumor cells don't have hormone receptors, hormone therapy is not helpful in treating these cancers. Because they don't have too much HER2, drugs that target HER2 aren't helpful, either. Chemotherapy[12] can still be useful, though.

Triple-positive: This term is used to describe cancers that are ER-positive, PR-positive, and have too much HER2. These cancers can be treated with hormone drugs as well as drugs that target HER2.

Other lab tests

Tests of ploidy and cell proliferation rate

Finding out more information about the DNA in the breast cancer cells can help predict how fast the cancer cells are dividing and growing.

The **ploidy** of cancer cells refers to how much DNA they contain.

- If there's a normal amount of DNA in the cells, they are said to be *diploid*. These cancers tend to grow and spread more slowly.
- If the amount is abnormal, then the cells are described as *aneuploid*. These cancers tend to be more aggressive and grow and spread faster.)

Tests of ploidy may help determine prognosis (outcome), but they rarely change treatment and are considered optional. They are not usually recommended as part of a routine breast cancer work-up.

Cell proliferation is how quickly a cancer cell copies its DNA and divides into 2 cells. If the cancer cells are dividing more rapidly, it means the cancer is faster growing or more aggressive. DNA is copied when the cell is getting ready to divide into 2 new cells. The *S-phase fraction* is the percentage of cells in a sample that are copying their DNA. The rate of cancer cell division can also be estimated by a Ki-67 test. If the S-phase fraction or Ki-67 test is high, it means that the cancer cells are dividing more rapidly, which can indicate a more aggressive cancer.

Gene expression tests

Tests that look at the patterns of certain genes (sometimes referred to as *gene expression profiling*) can help predict if some early-stage (stage 1 or 2) breast cancer are likely to come back after initial treatment. Doctors can use this information to know who will most likely benefit from chemotherapy[13][14] after breast surgery.[15]

The **Oncotype DX®** and the **MammaPrint®** are examples of tests that look at different sets of breast cancer genes. There are more tests in development. Tests like these are part of what's being called "personalized medicine" – learning more about your cancer to specifically tailor your treatment.

More information is needed to decide how useful this test is for breast cancer in men. But there is enough data that this test can help men with early stage breast cancer make decisions about chemotherapy after surgery. Ask your doctor if these tests might be appropriate.

Hyperlinks

1. www.cancer.org/cancer/breast-cancer-in-men/about/what-is-breast-cancer-in-men.html
2. www.cancer.org/treatment/understanding-your-diagnosis/tests/understanding-your-pathology-report.html
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Tests to Look for Breast Cancer Spread in Men

If you have been diagnosed with breast cancer, you might need more tests if your doctor thinks the cancer might have spread based on your symptoms, the results of your physical exam, or the size of your tumor. Your doctor will talk with you about which (if any) of these tests you will need.

Chest x-ray

This test may be done to see if the breast cancer has spread to the lungs.

Computed tomography (CT) scan

A CT scan[1]uses x-rays taken from different angles, which are combined by a computer to make detailed pictures of the organs. This test is most often used to look at the chest and/or belly (abdomen) to see if breast cancer has spread to other organs. It can also be used to guide a biopsy needle into an area of concern.

Magnetic resonance imaging (MRI) scan

A MRI scan[2]makes detailed pictures using radio waves and strong magnets instead of x-rays. This test can be helpful in looking at your brain and spinal cord. MRIs can be more uncomfortable than CT scans because they take longer and you often need to lie in a narrow tube while the test is done.

Ultrasound

For anultrasound[3], a wand that gives off sound waves is moved over the skin to take pictures of the inside of the body. A gel is often put on your skin first. This test can be used to diagnose breast cancer but it can also be used to look for cancer that has spread to other parts of the body.

Abdominal ultrasound can be used to look for tumors in the liver or other abdominal organs.

Bone scan

A bone scan[4] can help show if a cancer has metastasized (spread) to the bones. It can show all of the bones in the body at the same time and can find small areas of cancer spread not seen on plain x-rays.

Bone changes show up as "hot spots" on your skeleton. They attract the radioactivity. These areas may suggest metastatic cancer, but arthritis or other bone diseases can also cause the same pattern. To distinguish between these conditions, your cancer care team may use other imaging tests such as simple x-rays or CT,MRI or PET scans to get a better look at the abnormal areas or they may even take biopsy samples of the bone.

Positron emission tomography (PET) scan

For this test, a form of radioactive sugar is put into a vein and travels throughout the body. Cancer cells absorb high amounts of this sugar. A special camera then takes

pictures that show the areas where the sugar collected throughout the body.

A PET scan[5] is useful when your doctor thinks the cancer may have spread but doesn't know where. The picture is not as finely detailed as a CT or MRI scan, but it can provide helpful information about your whole body. Some machines can perform both a PET and CT scan at the same time (PET/CT scan). The radiologist can compare areas of higher radioactivity on the PET with the appearance of that area on the CT.

This test can be useful in looking for cancer that has spread to distant organs, but it is not as helpful in looking for small deposits of cancer cells in the lymph nodes under the arm (axillary lymph nodes).

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Breast Cancer Stages in Men

After someone is diagnosed with breast cancer, doctors will try to figure out if it has spread, and if so, how far. This process is called **staging**. The stage of a cancer describes how much cancer is in the body. It helps determine how serious the cancer is and how best to treat it. Doctors also use a cancer's stage when talking about survival statistics.

The staging system used for breast cancer in men is the same as the one used for breast cancer in women.

The earliest stage breast cancers are stage 0 (carcinoma in situ). It then ranges from stage I (1) through IV (4). As a rule, the lower the number, the less the cancer has spread. A higher number, such as stage IV, means cancer has spread more. And within a stage, an earlier letter means a lower stage.

How is the stage determined?

The staging system most often used for breast cancer is the American Joint Committee on Cancer (AJCC) TNM system, which is based on 7 key pieces of information:

- The extent (size) of the **t**umor **(T):** How large is the cancer? Has it grown into nearby areas?
- The spread to nearby lymph **n**odes **(N):** Has the cancer spread to nearby lymph nodes? If so, how many?
- The spread (**m**etastasis) 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/neu **(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?

Oncotype Dx® Recurrence Score results may also be considered in the stage in certain circumstances.

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.

Numbers or letters after T, N, and M provide more details about each of these factors. Higher numbers mean the cancer is more advanced. Once a person's T, N, and M categories, as well as ER, PR, HER2 status and grade of the cancer have been determined, this information is combined in a process called **stage grouping** to assign an overall stage. For more information see Cancer Staging.[1] Detailed explanations of the TNM categories are seen below. The addition of information about ER, PR, and HER2 status along with grade has made stage grouping complex, so, it is best to ask your doctor about your specific stage and what it means.

Details of the TNM staging system

T categories for breast cancer

T followed by a number from 0 to 4 describes the main (primary) tumor's 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 nipple 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.

Lymph node staging for breast cancer is based on how the nodes look under the microscope, and has changed as technology has improved. Newer methods have made it possible to find smaller and smaller collections of cancer cells, but experts haven't been sure how much these tiny deposits of cancer cells affect outlook.

It's not yet clear how much cancer in the lymph node is needed to see a change in outlook or treatment. This is still being studied, but for now, a deposit of cancer cells must contain at least 200 cells or be at least 0.2 mm across (less than 1/100 of an inch) 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** (one mm is about the size of the width of a grain of rice). 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. These larger areas are sometimes called **macrometastases**, but are more often just called metastases.

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 less 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).

Examples using the new staging system

Example #1

If the cancer size is between 2 and 5 cm (T2) but it has not spread to the nearby lymph nodes (N0) or to distant organs (M0) **AND** is:

- Grade 3
- HER2 negative
- ER positive
- PR positive

The cancer stage is IB.

Example #2

If the cancer is larger than 5 cm (T3) and has spread to 4 to 9 lymph nodes under the

arm or to any internal mammary lymph nodes (N2) but not to distant organs (M0) **AND** is:

- Grade 2
- HER2 positive
- ER positive
- PR positive

The cancer stage is IB.

Example #3

If the cancer is larger than 5 cm (T3) and has spread to 4 to 9 lymph nodes under the arm or to any internal mammary lymph nodes (N2) but not to distant organs (M0) **AND** is:

- Grade 2
- HER2 negative
- ER negative
- PR negative

The cancer stage is IIIB.

Hyperlinks

1. www.cancer.org/treatment/understanding-your-diagnosis/staging.html

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Breast Cancer Survival Rates in Men

Survival rates can give you an idea of what percentage of people with the same type and stage of cancer are still alive a certain amount of time (usually 5 years) after they were diagnosed. They can't tell you how long you will live, but they may help give you a better understanding of how likely it is that your treatment will be successful.

Keep in mind that survival rates are estimates and are often based on previous outcomes of large numbers of people who had a specific cancer, but they can't predict what will happen in any particular person's case. These statistics can be confusing and may lead you to have more questions. Talk with your doctor about how these numbers may apply to you, as he or she is familiar with your situation.

What is a 5-year relative survival rate?

A **relative survival rate** compares people with the same type and stage of cancer to people in the overall population. For example, if the **5-year relative survival rate** for a specific stage of breast cancer in men is 80%, it means that men who have that cancer are, on average, about 80% as likely as men who don't have that cancer to live for at least 5 years after being diagnosed.

Where do these numbers come from?

The American Cancer Society relies on information from the SEER* database, maintained by the National Cancer Institute (NCI), to provide survival statistics for different types of cancer.

The SEER database tracks 5-year relative survival rates for breast cancer in men in the United States, based on how far the cancer has spread. The SEER database, however, does not group cancers by AJCC TNM stages (stage 1, stage 2, stage 3, etc.). Instead, it groups cancers into localized, regional, and distant stages:

- **Localized:** There is no sign that the cancer has spread outside of the breast.
- **Regional:** The cancer has spread outside the breast to nearby structures or lymph nodes.
- **Distant:** The cancer has spread to distant parts of the body, such as the lungs or brain.

5-year relative survival rates for breast cancer in men

(Based on men diagnosed with cancer of the breast between 2008 and 2014.)

SEER stage	5-year relative survival rate
Localized	96%
Regional	83%
Distant	23%
All SEER stages combined	83%

Understanding the numbers

- **These numbers apply only to the stage of the cancer when it is first diagnosed.** They do not apply later on if the cancer grows, spreads, or comes back after treatment.
- **These numbers don't take everything into account.** Survival rates are grouped based on how far the cancer has spread. But other factors, such as your age and overall health, whether the cancer cells have certain gene or protein changes, and how well the cancer responds to treatment, can also affect your outlook.
- **Men now being diagnosed with breast cancer may have a better outlook than these numbers show.** Treatments improve over time, and these numbers are based on men who were diagnosed and treated at least 5 years earlier.

*SEER = Surveillance, Epidemiology, and End Results

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