Treating Breast Cancer in Men

If you've been diagnosed with breast cancer, your cancer care team will discuss your treatment options with you. It's important that you think carefully about each of your choices. Weigh the benefits of each treatment option against the possible risks and side effects.

Local treatments

Some treatments are called *local therapies*, meaning they treat the tumor without affecting the rest of the body. These treatments are more likely to be useful for earlier stage (less advanced) cancers, although they might also be used in some other situations. Types of local therapy used fR5 breast canced iclude:5

Most of the information about treating male breast cancer comes from doctors' experience with treating female breast cancer. Because so few men have breast cancer, it is hard for doctors to study the treatment of male breast cancer patients separately in clinical trials.

- Treatment of Breast Cancer in Men, by Stage

Adjuvant therapy

Patients who have no detectable cancer after surgery are often given **treatment to help keep the cancer from coming back**. This is known as *adjuvant therapy*. Even in the early stages of breast cancer, cancer cells may break away from the main breast tumor and begin to spread. These cells can't be felt on a physical exam or seen on x-rays or other imaging tests, and they cause no symptoms. But they can become new tumors in nearby tissues and other organs (and bones). The goal of adjuvant therapy is to kill these hidden cells. Systemic therapy and radiation can both be used as adjuvant therapy.

mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular

cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it's important to talk to your doctors and you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- If Cancer Treatments Stop Working

The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask your cancer care team any questions you may have about your treatment options.

Surgery for Breast Cancer in Men

- Surgery to remove breast cancer
- Surgery to remove nearby lymph nodes
- More information about surgery
- Chronic pain after breast surgery

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Your doctor may recommend a certain operation based on your breast cancer features and your medical history, or you may have a choice about which type to have. It's important to know your options so you can talk about them with your doctor and make the choice that is right for you.

Surgery to remove breast cancer

There are two main types of surgery to remove breast cancer:

Mastectomy

In this surgery, the entire breast is removed, including all of the breast tissue and sometimes other nearby tissues. Most men with breast cancer will undergo a mastectomy since men have a small amount of breast tissue. There are several types of mastectomies:

- In a **simple** or **total mastectomy**, the surgeon removes the entire breast, including the nipple, but does not remove underarm lymph nodes or muscle tissue from beneath the breast.
- In a **modified radical mastectomy**, the surgeon extends the incision to remove the entire breast and lymph nodes under the arm as well.
- If the tumor is large and growing into the chest muscles, the surgeon must do a **radical mastectomy**, a more extensive operation removing the entire breast, axillary lymph nodes, and the chest wall muscles under the breast. This is only needed if the cancer has grown into the pectoral muscles under the breast.

Breast-conserving surgery ,g the entire breast,

Possible side effects of breast surgery

Aside from post-surgical pain, temporary swelling, and a change in the appearance of the breast, possible side effects of surgery include bleeding and infection at the surgical site, *hematoma* (buildup of blood in the wound), and *seroma* (buildup of clear fluid in the wound).

Surgery to remove nearby lymph nodes

To find out if the breast cancer has spread to axillary (underarm) lymph nodes, one or more of these lymph nodes may be removed and looked at in the lab. This is an important part of figuring out the stage[1] (extent) of the cancer.

Lymph nodes may be removed either as part of the surgery to remove the breast cancer or as a separate operation.

Two types of surgery can be used to remove the lymph nodes:

- **Sentinel lymph node biopsy (SLNB):** A procedure in which the surgeon removes only the lymph node(s) under the arm to which the cancer would likely spread first. Removing only one or a few lymph nodes lowers the risk of side effects from the surgery.
- **Axillary lymph node dissection (ALND):** A procedure in which the surgeon removes many lymph nodes from under the arm. ALND is not done as often as it was in the past, but it might still be the best way to look at the lymph nodes in some situations.

Either of these procedures can usually be done at the same time as mastectomy or lumpectomy, but they might also be done in a second operation.

For a **sentinel lymph node biopsy**, the surgeon finds and removes the *sentinel node (or nodes)* — the first lymph node(s) into which a tumor drains, and the one(s) most likely to contain cancer cells if they have started to spread.

To do this, the surgeon injects a substance into the area around the tumor, into the skin over the tumor, or into the tissues just under the areola (the colored area around the nipple). This can be done with either:

- A radioactive substance and/or a blue dye, OR
- A liquid containing iron oxide particles

Lymph vessels will carry these substances into the sentinel node(s) over the next few hours. The sentinel nodes can then be found by:

- Using a special machine to detect either radioactivity or iron oxide particles
- Looking for nodes that have turned blue (or brown, if iron oxide particles were injected)

The doctor then makes an incision (cut) in the skin over the area in the armpit and removes the nodes. These nodes (often 2 or 3) are then looked at in the lab.

The lymph nodes can sometimes be checked for cancer during surgery. If cancer is found in the sentinel lymph node, the surgeon may go on to do a full ALND. If no cancer cells are seen in the lymph node at the time of the surgery, or if the sentinel node is not checked during surgery, the lymph node(s) will be examined more closely over the next several days. If cancer is found in the lymph node, the surgeon may recommend a full ALND at a later time.

If there are no cancer cells in the sentinel node(s), it's very unlikely that the cancer has spread to other lymph nodes, so no further lymph node surgery is needed. This lets you avoid some of the potential side effects of a full ALND.

A SLNB might not always be the best option for checking the lymph nodes. If an underarm lymph node looks or feels large or abnormal by touch or by a test like ultrasound, it may be checked by fine needle aspiration (FNA)[2]. If cancer is found, a full ALND is typically recommended, so a SLNB is not needed.

SLNB is a complex technique that requires a great deal of skill. It should only be doneded.

thought to be in the range of 20-30% after an ALND, and it is less common after a SLNB. Lymphedema seems to be more common if radiation is given after surgery. Sometimes this starts soon after surgery, but it can take a long time to develop. For some people, the swelling lasts for only a few weeks and then goes away. Other times, the swelling lasts a long time. If your arm is swollen, tight, or painful after lymph node surgery, be sure to tell someone on your cancer care team right away. For more information about ways to prevent or manage lymphedema after breast surgery, see Lymphedema[3].

Limited arm and shoulder movement: You may also have limited movement in your arm and shoulder after surgery. This is more common after an ALND than a SLNB. Your doctor may give you exercises to ensure that you do not have permanent problems with movement (a frozen shoulder).

Some patients notice a rope-like structure that begins under the arm and can extend down toward the elbow. This, sometimes called *axillary web syndrome* or *lymphatic cording.* It is more common after an ALND than SLNB. Symptoms might not appear for weeks or even months after surgery. It can cause pain and limit movement of the arm and shoulder. This often goes away without treatment, although some people seem to find physical therapy helpful.

Numbness: Numbness of the skin of the upper, inner arm is another common side effect because the nerve that controls sensation here travels through the lymph node area.

Chronic pain after breast surgery

Some patients have problems with nerve (neuropathic) pain in the chest wall, armpit, and/or arm after surgery that doesn't go away over time. This is called post-mastectomy pain syndrome (PMPS) because it was first described in women who had mastectomies, but it occurs after breast-conserving therapy, as well.

PMPS is thought to be linked to damage done to the nerves in the armpit and chest during surgery. But the causes are not known. Between 20% and 30% of women develop symptoms of PMPS after surgery. It isn't clear how common this is in men after breast cancer surgery. It seems to be more common in younger patients, those who had a full ALND (not just a SLNB), and those who were treated with radiation after surgery. Because ALNDs are done less often now, PMPS is less common than it once was.

Symptoms of PMPS include:

- Pain and tingling in the chest wall, armpit, and/or arm
- Pain in the shoulder or surgical scar
- Numbness
- Burning or shooting pain
- A "pins and needles" sensation
- Severe itching

Most patients with PMPS say that their symptoms are not severe, but PMPS can cause you to not use your arm the way you should, and over time you could lose the ability to use it normally. Tell your doctor if you are having pain or other symptoms of PMPS.

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- More information about radiation therapy

Some men with breast cancer will need radiation, often in addition to other treatments. The recommendations for radiation therapy in men with breast cancer is largely taken from those for female breast cancer because not enough studies have been done in men. The need for radiation depends on what type of surgery you had or whether your cancer has spread to the lymph nodes or somewhere else in your body. Tumors that are large or involve the skin might also need radiation. You could have just one type of radiation, or a combination of different types.

Radiation therapy is treatment with high-energy rays (such as x-rays) or particles that destroy cancer cells. The most common type of radiation therapy for men with breast cancer is called *external beam radiation*. A machine focuses the radiation on the area

ended. It uses the same machine, with lower amounts of radiation, but the beams are aimed at the tumor bed.
- If cancer was found in the lymph nodes under the arm (axillary lymph nodes), this area may be given radiation, as well. In some cases, the area treated might also include the nodes above the collarbone (supraclavicular lymph nodes) and the nodes beneath the breast bone in the center of the chest (internal mammary lymph nodes).

When will I get radiation therapy?

If you will need external radiation therapy after surgery, it is usually not started until your surgery site has healed, which is often a month or longer. If you are getting chemotherapy as well, radiation treatments are usually delayed until chemotherapy is complete.

Breast radiation is most often given 5 days a week (Monday thru Friday) for about 6 to 7 weeks.

Preparing for external beam radiation therapy

Before your treatment starts, the radiation team will carefully figure out the correct angles for aiming the radiation beams and the proper dose of radiation. They will make some ink marks or small tattoos on your skin to focus the radiation on the right area. Check with your health care team whether the marks they use will be permanent.

External radiation therapy is much like getting an x-ray, but the radiation is stronger. The procedure itself is painless. Each treatment lasts only a few minutes, but the setup time—getting you into place for treatment—usually takes longer.

Possible side effects of radiation therapy

The main short-term side effects of external beam radiation therapy to the breast are:

- Swelling in the breast or chest wall
- Skin changes in the treated area similar to a sunburn (redness, skin peeling, darkening of the skin)
- Fatigue

Your health care team may advise you to avoid exposing the treated skin to the sun because it could make the skin changes worse. Most skin changes get better within a few months. Changes to the breast tissue usually go away in 6 to 12 months, but it can take longer.

External beam radiation therapy can also cause side effects later on:

- Radiation to the breast or chest wall can sometimes damage some of the nerves to the arm. This is called **brachial plexopathy** and can lead to numbness, pain, and weakness in the shoulder, arm, and hand.
- Radiation to the underarm lymph nodes can cause lymphedema, a type of pain and swelling in the arm or chest.
- In rare cases, radiation therapy may weaken the ribs, which could lead to a fracture.
- In the past, parts of the lungs and heart were more likely to get some radiation, which could lead to long-term damage of these organs. Modern radiation therapy equipment allows doctors to better focus the radiation beams, so these problems are rare today.
- A very rare complication of radiation to the breast or chest wall is the development of another cancer called an angiosarcoma.

More information about radiation therapy

To learn more about how radiation is used to treat cancer, see Radiation Therapy[1].

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects[2].

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/treatment-types/radiation.html
2. www.cancer.org/cancer/managing-cancer/side-effects.html

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Chemotherapy for Breast Cancer in Men

benefit from chemo after breast surgery. See How is Breast Cancer in Men Classified?[2] for more information.

Which chemotherapy drugs are used for breast cancer?

In most cases (especially as adjuvant or neoadjuvant treatment), chemo is most effective when combinations of drugs are used. Today, doctors use many different combinations, and it's not clear that any single combination is clearly the best.

the mouth and intestines, and the hair follicles, also divide quickly. These cells are likely to be affected by chemo too, which can lead to side effects. Some men have many side effects while other men may have few.

The side effects of chemotherapy depend on the type of drugs, the amount taken, and the length of treatment. Some of the most common possible side effects include:

- Hair loss
- Mouth sores
- Loss of appetite (or increased appetite)
- Nausea and vomiting
- Low blood cell counts

Chemo can affect the blood-forming cells of the bone marrow, which can lead to:

- Increased chance of infections (from low white blood cell counts)
- Easy bruising or bleeding (from low blood platelet counts)
- Fatigue (from low red blood cell counts or other reasons)

These side effects are usually short-term and go away after treatment is finished. Let your cancer care team know if you have any side effects, because there are often ways to lessen them. For example, drugs can be given to help prevent or reduce nausea and vomiting.

Several other side effects are also possible. Some of these are only seen with certain chemotherapy drugs. Ask your cancer care team about the possible side effects of the specific drugs you are getting.

Nerve damage (neuropathy): Many drugs used to treat breast cancer, including the taxanes (docetaxel and paclitaxel), platinum agents (carboplatin, cisplatin), vinorelbine, erubulin, and ixabepilone, can damage nerves outside the brain and spinal cord. This can sometimes lead to symptoms (mainly in the hands and feet) such as numbness, pain, burning or tingling sensations, sensitivity to cold or heat, or weakness. In most cases this goes away once treatment is stopped, but it might last a long time in some men.

Heart damage: Doxorubicin, epirubicin, and some other drugs may cause permanent heart damage (called *cardiomyopathy*). The risk is highest if the drug is used for a long time or in high doses. Most doctors check your heart function with a test like a MUGA or echocardiogram(an ultrasound of the heart) before starting one of these drugs. They

also carefully control the doses and watch for symptoms of heart problems, and may repeat the heart test to monitor heart function during treatment. If the heart function begins to worsen, treatment with these drugs will be temporarily or permanently

to let your doctor or nurse know about it. Exercise, naps, and conserving energy may be recommended. If there are problems with sleep, these can be treated. Sometimes there is depression, which may be helped by counseling and/or medicines.

More information about chemotherapy

For more general information about how chemotherapy is used to treat cancer, see Chemotherapy[7].

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects[8].

Hyperlinks

1. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/imaging-radiology-tests-for-cancer.html
2. www.cancer.org/cancer/types/breast-cancer-in-men/detection-diagnosis-staging/classifying.html
3. www.cancer.org/cancer/types/breast-cancer-in-men/detection-diagnosis-staging/classifying.html
4. www.cancer.org/cancer/managing-cancer/making-treatment-decisions/tubes-lines-ports-catheters.html
5. www.cancer.org/cancer/types/myelodysplastic-syndrome.html
6. www.cancer.org/cancer/types/acute-myeloid-leukemia.html
7. www.cancer.org/cancer/managing-cancer/treatment-types/chemotherapy.html
8. www.cancer.org/cancer/managing-cancer/side-effects.html

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Hormone Therapy for Breast Cancer in Men

Hormone therapy (sometimes called endocrine therapy) is a way to treat cancer by using hormones or drugs or other treatments that affect hormones. Hormone therapy is a form of systemic therapy, meaning it can reach nearly all parts of the body.

Hormone therapy can be used after surgery (adjuvant therapy) to help lower the risk of cancer coming back, or before surgery (neoadjuvant treatment). It can also be used to treat cancer that has spread, or cancer that has come back after treatment (recurred).

Some breast cancers grow in response to the hormones estrogen or progesterone. Estrogen and progesterone are usually thought of as female hormones, but men have them in their bodies, too, just at lower levels.

About 9 of 10 breast cancers in men are hormone receptor-positive, meaning they are estrogen receptor (ER)-positive, progesterone receptor (PR)-positive, or both. This makes them more likely to respond to hormone treatments. Hormone therapy does not help people whose tumors are both ER- and PR-negative.

What types of drugs are used in hormone therapy?

Several approaches to blocking the effects of estrogen or lowering estrogen levels are used to treat breast cancer in women. Although many of these may work in men as well, they often haven't been studied well, if at all.

Tamoxifen and toremifene

These drugs are known as **selective estrogen receptor modulators (SERMs)**. They block estrogen receptors on breast cancer cells, which can help keep the cells from growing. Both of these drugs are taken daily as pills.

Tamoxifenis the best studied hormone drug for breast cancer in men and is most often used first. If tamoxifen doesn't work (or stops working), other hormone drugs may be tried, but this is largely based on how well they work in women with breast cancer.

Large studies of women with early-stage, hormone receptor-positive cancers have shown that taking tamoxifen after surgery for 5 years reduces the chances of the cancer coming back by about half. Taking it for 10 years may help even more. Studies in men with breast cancer have been smaller, but they have also found that taking tamoxifen after surgery for early-stage breast cancer can lower the chance of the cancer coming back and improve survival.

Tamoxifen can also be used to treat metastatic breast cancer.

Toremifene (Fareston) works like tamoxifen, but it's not used as often and is only approved to treat metastatic breast cancer. It is not likely to work if tamoxifen has already been used and has stopped working.

The most common **side effects** of tamoxifen and toremifene are:

- Hot flashes
- Sexual problems
- Fatigue

Some men with cancer spread to the bones may have a **tumor flare** with pain and swelling in the muscles and bones. This usually goes away quickly, but rarely a man may also develop a high calcium level in the blood that is hard to control. If this happens, the treatment may need to be stopped for a time.

Rare, but more serious side effects are also possible:

- **Blood clots** are another uncommon, but serious side effect. They usually form in the legs (called **deep vein thrombosis** or DVT), but sometimes a piece of clot may break off and end up blocking an artery in the lungs (**pulmonary embolism** or PE). Call your doctor or nurse right away if you develop pain, redness, or swelling in your lower leg (calf), shortness of breath, or chest pain, because these can be

symptoms of a DVT or PE.
- Rarely, tamoxifen has been associated with **strokes** in post-menopausal women. The risk in men is not clear. Tell your doctor if you have a sudden severe headache, confusion, or trouble speaking or moving.

Tamoxifen may also increase the risk of **heart attacks** in some people, although this link is not clear.

Selective estrogen receptor degraders (SERDs)

Like SERMs, these drugs attach to estrogen receptors. But SERDs bind to the receptors more tightly and cause them to be broken down (degraded).

Fulvestrant (Faslodex) is used to treat metastatic breast cancer, most often after other hormone drugs (like tamoxifen and often an aromatase inhibitor) have stopped working. It is given by injection into the buttocks every 2 weeks for a month, then monthly.

Elacestrant (Orserdu) can be used to treat advanced, ER-positive, HER2-negative breast cancer when the cancer cells have an *ESR1* gene mutation, and the cancer has grown after at least one other type of hormone therapy. This drug is taken daily as pills.

The most common side effects of these drugs are **hot flashes, nausea, muscle or joint pain, headache,** and **pain at the injection site**. Elacestrant can also increase cholesterol and fat levels in the blood.

Aromatase inhibitors

This group of drugs includes **anastrozole (Arimidex), letrozole (Femara)**, and **exemestane (Aromasin)**. These drugs stop estrogen production by blocking an enzyme (aromatase) in fat tissue that converts male hormones from the adrenal glands into estrogen.

Aromatase inhibitors are taken daily as pills. They have been very effective in treating breast cancer in women, but they have not been well-studied in men. Still, some doctors use them to treat advanced breast cancer in men, often combined with a **luteinizing hormone-releasing hormone (LHRH) analog** to turn off hormone production by the testicles (discussed below). These drugs are generally used if tamoxifen stops working.

The main side effects are **thinning of the bones** and **pain in muscles and joints**.

Luteinizing hormone-releasing hormone (LHRH) analogs and anti-androgens

In men, **LHRH analogs** such as leuprolide (Lupron) and goserelin (Zoladex) affect the pituitary gland, which regulates testosterone production in the testicles. These drugs cause the pituitary gland to turn off production of testosterone by the testicles, leading to lower testosterone levels. They are given as shots either monthly or every few months. These drugs may be used by themselves, or combined with aromatase inhibitors or anti-androgens to treat advanced breast cancer in men.

Anti-androgens such as flutamide and bicalutamide work by blocking the effect of male hormones on breast cancer cells. These drugs are taken daily as pills.

Megestrol

Megestrol(Megace) is a progesterone-like drug. It is unclear how it stops cancer cells from growing, but it appears to compete for hormone receptor sites in the cells. This is an older drug that is usually reserved for men who are no longer responding to other forms of hormone therapy. Megestrol may **increase the risk for blood clots** and **frequently causes weight gain** by increasing appetite.

Orchiectomy (castration)

Surgical removal of the testicles (orchiectomy) is another way to regulate hormones that might affect breast cancer growth. Removing the testicles greatly lowers the levels of testosterone and other androgens (male hormones). Most male breast cancers have androgen receptors that may cause the cells to grow. Androgens can also be converted into estrogens in the body.

Orchiectomy shrinks most male breast cancers, and it may help make other treatments like tamoxifen more likely to work.

This was once a common treatment for breast cancer in men, but it is now used less often because medicines such as LHRH analogs can now be used to lower androgen levels.

Possible side effects of hormone therapy

Although some of these drugs have unique side effects (see descriptions above), in general they can cause **loss of sexual desire, trouble getting erections, weight gain, hot flashes,** and **mood swings.** Be sure to discuss any such side effects with

your cancer care team because there may be ways to treat them.

More information about hormone therapy

To learn more about how hormone therapy is used to treat cancer, see Hormone Therapy[1].

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects[2].

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/treatment-types/hormone-therapy.html
2. www.cancer.org/cancer/managing-cancer/side-effects.html

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Targeted Drug Therapy for Breast Cancer in Men

As researchers have learned more about changes in cancer cells that cause them to grow out of control, they've developed new types of drugs that target some of these cell changes. These targeted drugs work differently from chemotherapy (chemo) drugs.

Targeted drugs sometimes work even when chemo drugs do not. Some targeted drugs can help other types of treatment work better. Targeted drugs also tend to have different side effects than chemo.

Several targeted drugs have been approved for use in treating breast cancer, although using these drugs in men is often based largely on how well they work in women.

Targeted therapy for HER2-positive breast cancer

In some men with breast cancer, the cancer cells have too much of a growth-promoting protein known as HER2 (or HER2/neu) on their surface. These cancers, known as *HER2-positive breast cancers*, tend to grow and spread more aggressively.

Different types of drugs have been developed that target the HER2 protein.

Monoclonal antibodies

Monoclonal antibodies are man-made versions of immune system proteins (antibodies) that are designed to attach to a specific target. In this case, they attach to the HER2 protein on cancer cells, which can help stop the cells from growing.

Trastuzumab (Herceptin, other brand names[1]): Trastuzumab can be used to treat both early-stage and advanced breast cancer. This drug is often given with chemo, but it might also be used alone (especially if chemo alone has already been tried). When started before (neoadjuvant) or after (adjuvant) surgery to treat early breast cancer, this drug is usually given for 6 months to a year. For advanced breast cancer, treatment is often given for as long as the drug is helpful. This drug is given into a vein (IV).

Another form of trastuzumab, called **trastuzumab and hyaluronidase injection (Herceptin Hylecta)**, is also available. It is given as a subcutaneous (under the skin)

shot over a few minutes.

Pertuzumab (Perjeta): This monoclonal antibody can be given with trastuzumab and chemo, either before or after surgery to treat early-stage breast cancer, or to treat advanced breast cancer. This drug is given into a vein (IV).

For people getting both of these monoclonal antibodies as part of their treatment, a combination of **trastuzumab, pertuzumab, and hyaluronidase (Phesgo)** is also available as a single injection. It is given as a subcutaneous (under the skin) shot over several minutes.

Margetuximab (Margenza): This monoclonal antibody can be used along with chemo to treat advanced breast cancer, typically after at least 2 other drugs that target HER2 have been tried. This drug is given into a vein (IV).

Antibody-drug conjugates

An antibody-drug conjugate (ADC) is a monoclonal antibody linked to a chemotherapy drug. In this case, the anti-HER2 antibody acts like a homing signal by attaching to the HER2 protein on cancer cells, bringing the chemo directly to them.

Ado-trastuzumab emtansine (Kadcyla or TDM-1): This antibody-drug conjugate is used by itself to treat early-stage breast cancer after surgery (when chemo and trastuzumab were given before surgery, and there was cancer still present at the time of surgery), or to treat advanced breast cancer in men who have already been treated with trastuzumab and chemo. This drug is given in a vein (IV).

Fam-trastuzumab deruxtecan (Enhertu): This antibody-drug conjugate can be used by itself to treat breast cancer that can't be removed with surgery or that has spread (metastasized) to another part of the body, typically after at least 2 other anti-HER2 targeted drugs have been tried. This drug is given in a vein (IV).

Fam-trastuzumab deruxtecan can also be used to treat HER2-low[2] breast cancers that can't be removed with surgery or that has spread to another part of the body, typically after chemotherapy has been tried or if the cancer recurs within 6 months of finishing adjuvant chemotherapy.

Kinase inhibitors

HER2 is a type of protein known as a *kinase*. Kinases are proteins in cells that normally relay signals (such as telling the cell to grow). Drugs that block kinases are called

kinase inhibitors.

Lapatinib (Tykerb): This drug is a pill taken daily. Lapatinib is used to treat advanced breast cancer, typically along with the chemo drug capecitabine or with certain hormone therapy drugs.

Neratinib (Nerlynx): This kinase inhibitor is a pill taken daily. Neratinib is used to treat early-stage breast cancer after completing one year of trastuzumab, and it is usually given for one year. It can also be given along with the chemo drug capecitabine to treat people with metastatic disease, typically after at least 2 other anti-HER2 targeted drugs have been tried.

Tucatinib (Tukysa): This kinase inhibitor is taken as pills, typically twice a day. Tucatinib is used to treat advanced breast cancer, after at least one other anti-HER2 targeted drug has been tried. It is typically given along with trastuzumab and the chemo drug capecitabine.

Side effects of HER2 targeted drugs

The side effects of HER2 targeted drugs are often mild, but some can be serious. Discuss what you can expect with your doctor.

The monoclonal antibodies and antibody-drug conjugates can sometimes cause **heart damage** during or after treatment. This can lead to **congestive heart failure**. For most (but not all) people, this effect lasts a short time and gets better when the drug is stopped. The risk of heart problems is higher when these drugs are given with certain chemo drugs that also can cause heart damage, such as doxorubicin (Adriamycin) and epirubicin (Ellence). Because these drugs can cause heart damage, doctors often check your heart function (with an echocardiogram or a MUGA scan) before treatment, and regularly while you are taking the drug. Let your doctor know if you develop symptoms such as **shortness of breath**, **leg swelling**, and **severe fatigue**.

Lapatinib, neratinib, tucatinib, and the combination of pertuzumab with trastuzumab can cause **severe diarrhea**, so it’s very important to let your health care team know about any changes in bowel habits as soon as they happen.

Lapatinib and tucatinib can also cause **hand-foot syndrome**, in which the hands and feet become sore and red, and may blister and peel.

Lapatinib, neratinib, and tucatinib can cause **liver problems**. Your doctor will do blood tests to check your liver function during treatment. Let your health care team know right away if you have possible signs or symptoms of liver problems, such as itchy skin,

yellowing of the skin or the white parts of your eyes, dark urine, or pain in the right upper belly area.

Fam-trastuzumab deruxtecan (Enhertu) can cause **serious lung disease** in some people. In some cases this might even be life threatening. It's very important to let your doctor or nurse know right away if you're having symptoms such as coughing, wheezing, trouble breathing, or fever.

Targeted therapy for hormone receptor-positive breast cancer

In about 9 out of 10 men with breast cancer, the breast cancer cells have proteins (receptors) on the outside that can attach to hormones, like estrogen or progesterone, to help them grow. These are called **hormone receptor-positive (HR-positive) breast cancers**. Sometimes they are called estrogen receptor-positive (ER-positive) or progesterone receptor-positive (PR-positive) breast cancers. These cancers are commonly treated with hormone therapy. Certain targeted therapy drugs can make

fatigue. Nausea and vomiting, mouth sores, hair loss, diarrhea, and headache are less common side effects. Very low white blood cell counts can increase the risk of serious infection. A rare but possible life-threatening side effect is inflammation of the lungs, also called interstitial lung disease or pneumonitis.

PI3K inhibitor

Alpelisib (Piqray) is a targeted drug known as a *PI3K inhibitor*. It blocks a form of the PI3K protein in cancer cells, which can help stop them from growing.

This drug can be used along with the hormone drug fulvestrant to treat both men and postmenopausal women with advanced hormone receptor-positive, HER2-negative breast cancer with a PIK3CA gene mutation that has grown during or after treatment with an aromatase inhibitor. (The *PIK3CA* gene is the gene that tells the cell to make the PI3K protein.) Your doctor will test your blood or tumor for this mutation before starting treatment with this drug.

This drug is taken as a pill, typically once a day.

Side effects of alpelisib can include high blood sugar levels, signs of kidney, liver, or pancreatic problems, diarrhea, rash, low blood counts, nausea and vomiting, fatigue, decreased appetite, mouth sores, weight loss, low calcium levels, blood clotting problems, and hair loss. Very severe skin reactions, such as rashes with peeling and blistering, are possible and should be reported to a doctor. People with a history of severe skin reactions should tell their doctor before taking alpelisib.

AKT inhibitor

Capivasertib (Truqap) blocks forms of the AKT protein, which is part of a signaling pathway inside cells (including cancer cells) that can help them grow. Other proteins in this pathway include the PI3K and PTEN proteins.

This drug can be used along with the hormone drug fulvestrant to treat advanced hormone receptor-positive, HER2-negative breast cancer, if the cancer cells have changes in any of the *PIK3CA*, *AKT1*, or *PTEN* genes, and if the cancer has grown during or after treatment with hormone therapy. Your doctor will test your blood or tumor for these mutations before starting treatment with this drug.

This drug is taken as pills, typically twice a day for 4 days, followed by 3 days off each week.

Side effects of capivasertib can include:

- High blood sugar levels: Your cancer care team will check your blood sugar levels before and during your treatment.
- Diarrhea (which may be severe): Tell your cancer team right away if start to have loose stool or diarrhea.
- Skin rash or other skin reactions: Very severe skin reactions, such as rashes with peeling and blistering, are possible and should be reported to a doctor.

Other possible side effects can include nausea, vomiting, mouth sores, skin rash, and changes in certain blood tests.

mTOR inhibitor

Everolimus (Afinitor) is a targeted drug known as an *mTOR inhibitor*. It blocks mTOR, a protein in cells that normally helps them grow and divide. Everolimus may also stop tumors from developing new blood vessels, which can help limit their growth. When used for treating breast cancer, this drug seems to help hormone therapy drugs work better.

This drug is approved to treat advanced hormone receptor-positive, HER2-negative, breast cancer in women who have gone through menopause. It is meant to be used with exemestane (Aromasin) in these women if their cancers have grown while they were being treated with either letrozole or anastrozole (or if the cancer started growing shortly after treatment with these drugs was stopped).

Everolimus is also being studied for use for earlier stage breast cancer and combined with other treatments. Although most of the people with breast cancer in studies of everolimus are women, some studies have included men.

Everolimus is taken as a pill, typically once a day.

Common **side effects of everolimus** include mouth sores, diarrhea, nausea, fatigue, feeling weak or tired, low blood counts, shortness of breath, and cough. Everolimus can also increase blood lipids (cholesterol and triglycerides) and blood sugars, so your doctor will check your blood work periodically while you are on this drug. It can also increase your risk of serious infections, so your doctor will watch you closely for infection while you are on treatment.

Antibody-drug conjugate

An antibody-drug conjugate (ADC) is a monoclonal antibody joined to a chemotherapy drug. The antibody acts like a homing signal by attaching to a specific protein on cancer cells, bringing the chemo directly to them.

Sacituzumab govitecan (Trodelvy): In the case of this ADC, the monoclonal antibody part attaches to the Trop-2 protein on breast cancer cells and brings the chemo directly to them. (Some breast cancer cells have too much Trop-2, which helps them grow and spread quickly.)

This ADC can be used to treat advanced hormone receptor-positive, HER2-negative breast cancer, in people who have already received hormone therapy and at least 2 chemo regimens.

This drug is given into a vein (IV) weekly for 2 weeks, followed by one week off, then restarted.

Some common **side effects** of this drug include nausea, vomiting, diarrhea, constipation, feeling tired, rash, loss of appetite, hair loss, low red blood cell counts, and belly pain. Serious side effects can include very low white blood cell counts (with an increased risk of infection), severe diarrhea, and infusion reactions (similar to an allergic reaction) when the drug is infused. Medicines are normally given before each treatment to lower the chances of vomiting and infusion reactions.

Targeted therapy for men with *BRCA* mutations

Olaparib (Lynparza) and **talazoparib (Talzenna)** are drugs known as *PARP inhibitors*. PARP proteins normally help repair damaged DNA inside cells. The *BRCA* genes (*BRCA1* and *BRCA2*) also help repair DNA (in a slightly different way), but mutations in one of those genes can stop this from happening. PARP inhibitors work by blocking the PARP proteins. Because tumor cells with a mutated *BRCA* gene already have trouble repairing damaged DNA, blocking the PARP proteins often leads to the death of these cells.

Olaparib and talazoparib can be used to treat metastatic, HER2-negative breast cancer in patients with a *BRCA* mutation who have already gotten chemotherapy (and hormone therapy if the cancer is hormone receptor-positive).

Only a portion of men with breast cancer have a mutated *BRCA* gene that they are born with[3], and which is in all the cells of the body (as opposed to the gene change being acquired and found only in the cancer cells). If you are not known to have a *BRCA* mutation, your doctor will test your blood to be sure you have one before

starting treatment with one of these drugs.

These drugs come in pills that are taken once or twice a day.

Side effects can include nausea, vomiting, diarrhea, fatigue, loss of appetite, taste changes, low red blood cell counts (anemia), low platelet counts, low white blood cell counts, belly pain, and muscle and joint pain. Rarely, some people treated with a PARP inhibitor have developed a blood cancer, such as myelodysplastic syndrome[4] or acute myeloid leukemia (AML)[5].

Targeted therapy for triple-negative breast cancer

In triple-negative breast cancer (TNBC), the cancer cells don't have estrogen or progesterone receptors, and they make very little or none of the HER2 protein.

Antibody-drug conjugate

An antibody-drug conjugate (ADC) is a monoclonal antibody joined to a chemotherapy drug. The antibody acts like a homing signal by attaching to a specific protein on cancer cells, bringing the chemo directly to them.

Sacituzumab govitecan (Trodelvy): In the case of this ADC, the monoclonal antibody part attaches to the Trop-2 protein on breast cancer cells and brings the chemo directly to them. (Some breast cancer cells have too much Trop-2, which helps them grow and spread quickly.)

This antibody-drug conjugate can be used by itself to treat advanced TNBC, after at least 2 other chemo regimens have been tried. This drug is given in a vein (IV) weekly
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To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects[7].

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/treatment-types/biosimilar-drugs/list.html
2. www.cancer.org/cancer/types/breast-cancer-in-men/detection-diagnosis-staging/classifying.html
3. www.cancer.org/cancer/types/breast-cancer-in-men/causes-risks-prevention/what-causes.html
4. www.cancer.org/cancer/types/myelodysplastic-syndrome.html
5. www.cancer.org/cancer/types/acute-myeloid-leukemia.html
6. www.cancer.org/cancer/managing-cancer/treatment-types/targeted-therapy.html
7. www.cancer.org/cancer/managing-cancer/side-effects.html

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Immunotherapy for Breast Cancer in Men

Immunotherapy is the use of medicines to stimulate a person's own immune system to recognize and destroy cancer cells more effectively. Immunotherapy can be used to treat some types of breast cancer.

Immune checkpoint inhibitors

An important part of the immune system is its ability to keep itself from attacking normal cells in the body. To do this, it uses "checkpoints," which are proteins on immune cells that need to be turned on (or off) to start an immune response. Breast cancer cells sometimes use these checkpoints to avoid being attacked by the immune system. Drugs that target these checkpoint proteins help to restore the immune response against breast cancer cells.

PD-1 inhibitor

Pembrolizumab (Keytruda) for breast cancer

Pembrolizumab (Keytruda) is a drug that targets PD-1, a protein on immune system cells called *T cells* that normally help keep these cells from attacking other cells in the body. By blocking PD-1, these drugs boost the immune response against breast cancer cells. This can often shrink tumors.

It can be used with chemotherapy to treat triple-negative breast cancer[1] (that makes the

PD-L1 protein) that:

- has come back (recurred) locally but can't be removed by surgery and hasn't been treated with chemotherapy this time OR
- has spread to other parts of the body and has not been treated with chemotherapy this time.

This drug is given as an intravenous (IV) infusion, typically every 3 or 6 weeks.

Possible side effects of immune checkpoint inhibitors

Side effects of these drugs can include fatigue, cough, nausea, skin rash, poor appetite, constipation, and diarrhea.

Other, more serious side effects occur less often.

Infusion reactions: Some people might have an infusion reaction while getting these drugs. This is like an allergic reaction, and can include fever, chills, flushing of the face, rash, itchy skin, feeling dizzy, wheezing, and trouble breathing. It's important to tell your doctor or nurse right away if you have any of these symptoms while getting these drugs.

Autoimmune reactions: These drugs remove one of the safeguards on the body's immune system. Sometimes the immune system starts attacking other parts of the body, which can cause serious or even life-threatening problems in the lungs, intestines, liver, hormone-making glands, kidneys, or other organs.

It's very important to report any new side effects to your health care team quickly. If serious side effects do occur, treatment may need to be stopped and you may get high doses of corticosteroids to suppress your immune system.

More information about immunotherapy

To learn more about how drugs that work on the immune system are used to treat cancer, see Cancer Immunotherapy[2].

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects[3].

Hyperlinks

1. www.cancer.org/cancer/types/breast-cancer-in-men/detection-diagnosis-staging/classifying.html
2. www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy.html
3. www.cancer.org/cancer/managing-cancer/side-effects.html

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Treatment of Breast Cancer in Men, by Stage

checked for spread, most often with a sentinel lymph node biopsy. If cancer cells are found in the sentinel lymph node, it means the tumor must contain some invasive cancer, and the man will be treated based on his invasive cancer stage.

Stage I

These cancers are still relatively small and either have not spread to the lymph nodes (N0) or there is a tiny area of cancer spread in the sentinel lymph node (N1mi).

The main treatment for stage I breast cancer is to remove it with surgery. This is usually done by mastectomy, but breast-conserving surgery (BCS) might occasionally be an option. If breast-conserving surgery is done, it is usually followed by radiation therapy.

The lymph nodes under the arm will be checked for cancer spread, either with an axillary lymph node dissection (ALND) or sentinel node biopsy (SLNB). If the sentinel lymph node contains cancer, a full ALND may be needed, depending on the size of the cancer in the lymph node as well as what other treatment is planned.

Hormone therapy, chemotherapy (chemo) and/or targeted therapy may be recommended as adjuvant (after surgery) therapy, based on the tumor size and results of lab tests. Hormone therapy with tamoxifen is usually recommended for hormone receptor-positive tumors. Adjuvant chemo is commonly used for tumors larger than 1 cm (about 1/2 inch) across and some smaller tumors that may be more likely to spread (based on features such as grade or a high growth rate). Men with HER2-positive tumors may also receive targeted therapy with trastuzumab (Herceptin).

Stage II

These cancers tend to be larger than stage I cancers and/or have spread to a few nearby lymph nodes.

Systemic (drug) therapy is often recommended for men with stage II breast cancer. Some systemic therapies are given before surgery (neoadjuvant therapy), and others are given after surgery (adjuvant therapy). Neoadjuvant treatments may be an option for men with large tumors, because they can shrink the tumor before surgery, possibly enough to make breast-conserving surgery (BCS) an option. The lymph nodes under the arm will be checked for cancer spread, either with an axillary lymph node dissection (ALND) or sentinel lymph node biopsy. If the sentinel lymph node contains cancer, a full ALND may be needed, depending on the size of the cancer in the lymph node as well as what other treatment is planned.

Radiation therapy may be given after surgery if the tumor is large or if it is found to have spread to several lymph nodes. Radiation therapy lowers the risk of the cancer coming back (recurrence).

The drugs used will depend on the man's age and the tumor's hormone-receptor status and HER2 status. They may include:

Chemotherapy**:** Chemo can be given before or after surgery.

HER2 targeted drugs**:** If the cancer is HER2-positive, HER2 targeted drugs are started along with chemo. Both trastuzumab (Herceptin) and pertuzumab (Perjeta) may be used as a part of neoadjuvant treatment. Then trastuzumab is continued after surgery for a total of one year of treatment.

Hormone therapy**:** If the cancer is hormone receptor-positive, hormone therapy with tamoxifen is typically used for 5 years after surgery.

Stage III

This stage includes more advanced tumors (large or growing into nearby skin or muscle) and cancers with spread to many nearby lymph nodes.

Most often, these cancers are treated with chemo before surgery (neoadjuvant chemo). For HER2-positive tumors, the targeted drug trastuzumab is given as well, sometimes along with pertuzumab. This is usually followed by a mastectomy. Most men with this stage need a full axillary lymph node dissection (ALND). Often, radiation therapy is recommended after surgery. Adjuvant hormone therapy with tamoxifen is given for at least 5 years if the tumor is hormone receptor-positive. Men with HER2-positive cancers will probably also receive trastuzumab to complete one year of treatment. Adjuvant hormone therapy can typically be taken at the same time as trastuzumab.

Another option for stage III cancers is to treat with surgery first. This usually means a mastectomy with an ALND. Surgery is usually followed by adjuvant chemo. Trastuzumab is given with chemo if the tumor is HER2 positive, and then it is continued to complete one year of treatment. Radiation is recommended after surgery and chemo. Adjuvant hormone therapy is given to men with hormone receptor-positive breast cancers for at least 5 years.

Stage IV (metastatic)

Stage IV cancers have spread beyond the breast and nearby lymph nodes to other

parts of the body. Breast cancer most commonly spreads to the bones, liver, and lungs. As the cancer progresses, it may spread to the brain, but it can affect any organ and tissue.

Systemic (drug) therapy is the main treatment for stage IV breast cancer in men. Depending on many factors, this may be hormone therapy, chemo, targeted therapy, immunotherapy, or some combination of these treatments.

Radiation therapy and/or surgery may also be used in certain situations, such as:

- When the breast tumor is causing an open wound in the breast (or chest)
- To treat a small number of metastases in a certain area, such as the brain
- To help prevent bone fractures
- When an area of cancer spread is pressing on the spinal cord
- To treat a blood vessel blockage in the liver
- To relieve pain or other symptoms

If your doctor recommends such local treatments, it is important that you understand their goal, whether it is to try to cure the cancer or to prevent or treat symptoms.

In some cases, regional chemo (where drugs are delivered directly into a certain area, such as the fluid around the brain or into the liver) may be useful as well.

Treatment to relieve symptoms depends on where the cancer has spread. For example, pain from bone metastases may be treated with external beam radiation therapy and/or bisphosphonates or denosumab (Xgeva). For more information, see Bone Metastases[4].

Advanced triple-negative breast cancer[5] (TNBC) that makes the PD-L1 protein may be treated first with the immunotherapy drug atezolizumab along with albumin-bound paclitaxel (Abraxane). Another option might be treatment with the immunotherapy drug pembrolizumab (Keytruda) along with chemotherapy. The PD-L1 protein is found in about 1 out of 5 TNBCs.

Advanced cancer that progresses during treatment

Treatment for advanced breast cancer can often shrink or slow the growth of the cancer (sometimes for many years), but after a time it may stop working. Further treatment at this point depends on several factors, including previous treatments, where the cancer is located, and a man's age, general health, and desire to continue getting treatment.

Progression while on hormone therapy: For hormone receptor-positive cancers that

were being treated with hormone therapy, switching to another type of hormone therapy is sometimes helpful. Another option might be a hormone drug along with a targeted therapy drug. If this isn't helpful, chemo is usually the next step.

Progression while on chemotherapy: For cancers that are no longer responding to one chemo regimen, trying another may be helpful. Many different drugs and combinations can be used to treat breast cancer. However, each time a cancer progresses during treatment it becomes less likely that further treatment will have an effect.

For breast cancers that are considered HER2-low[6] and have spread to distant sites after trying chemotherapy, the antibody-drug conjugate fam-trastuzumab deruxtecan (Enhertu) might be an option.

For advanced hormone receptor-positive, HER2-negative breast cancer or for triple-negative breast cancer[7] in which at least 2 other chemo treatments have been tried, the antibody-drug conjugate sacituzumab govitecan (Trodelvy) might be an option.

Progression while getting HER2 drugs: HER2-positive cancers that no longer respond to trastuzumab may respond to other drugs that target the HER2 protein (sometimes along with chemo or hormone therapy drugs). Some options might include:

- Pertuzumab (Perjeta) with chemo and trastuzumab
- Ado-trastuzumab emtansine (Kadcyla)
- Fam-trastuzumab deruxtecan (Enhertu)
- Margetuximab (Margenza) with chemo
- Lapatinib (Tykerb) and the chemo drug capecitabine
- Lapatinib and an aromatase inhibitor (for hormone receptor-positive cancers)
- Neratinib (Nerlynx) and the chemo drug capecitabine (this combination can be helpful for cancers that have spread to the brain)
- Tucatinib (Tukysa), trastuzumab, and the chemo drug capecitabine (this combination can be helpful for cancers that have spread to the brain)

Because current treatments are very unlikely to cure advanced breast cancer, if you are in otherwise good health, you may want to think about taking part in a clinical trial[8] testing newer treatments. You can also read about living with later-stage cancer in Advanced Cancer, Metastatic Cancer, and Bone Metastasis[9].

Recurrent cancer

For some men, breast cancer may come back after treatment – sometimes years later. This is called a *recurrence*. **Recurrence can be local (in the same breast or in the surgery scar), regional (in nearby lymph nodes), or in a distant area.** If cancer is found in the opposite breast but nowhere else in the body, it is not a recurrence—it's a new cancer that requires its own treatment.

Treating local recurrence: This includes cancer coming back in the breast or in the chest wall (near the mastectomy scar). If a patient has a local recurrence and no evidence of distant metastases, it might still be cured. Treatment depends on what other treatments have been given already. The treatment for local recurrence may be additional surgery followed by radiation therapy. If the area has already been treated with radiation, it might not be possible to give more radiation to the area without damaging nearby tissues.

Hormone therapy, chemo, trastuzumab, or some combination of these may be used after surgery and/or radiation therapy.

You can also read about treatments for metastatic cancer in Advanced Cancer, Metastatic Cancer, and Bone Metastasis[13].

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html
2. www.cancer.org/cancer/types/breast-cancer-in-men/detection-diagnosis-staging/staging.html
3. www.cancer.org/cancer/types/breast-cancer-in-men/detection-diagnosis-staging/classifying.html
4. www.cancer.org/cancer/managing-cancer/advanced-cancer/bone-metastases.html
5. www.cancer.org/cancer/types/breast-cancer-in-men/detection-diagnosis-staging/classifying.html
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12. www.cancer.org/cancer/survivorship/long-term-health-concerns/recurrence.html
13. www.cancer.org/cancer/managing-cancer/advanced-cancer.html

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Questions to Ask Your Doctor About Breast Cancer in Men

Keep in mind that doctors aren't the only ones who can give you information. Other health care professionals, such as nurses and social workers, can answer some of your questions. To find out more about speaking with your health care team, see The Doctor-Patient Relationship[2].

When you're told you have breast cancer

- Exactly what type of breast cancer do I have?
- How big is the cancer? Where exactly is it?
- Has the cancer spread to my lymph nodes or other organs?
- What's the stage of the cancer? What does that mean?
- Will I need any other tests before we can decide on treatment?
- Do I need to see any other doctors or health professionals?
- What is the hormone receptor status of my cancer? What does this mean?
- What is the HER2 status of my cancer? What does this mean?
- How do these factors affect my treatment options and long-term outlook (prognosis)?
- What are my chances of survival, based on my cancer as you see it?
- Should I think about genetic testing? What would the pros and cons of testing be?
- How do I get a copy of my pathology report?
- If I'm concerned about the costs and insurance coverage for my diagnosis and treatment, who can help me?

When deciding on a treatment plan

- What treatments are appropriate for me? What do you recommend? Why?
- How long will treatment last? What will it involve? Where will it be done?
- What risks or side effects should I expect?
- Should I think about taking part in a clinical trial?
- What should I do to get ready for treatment?
- How much experience do you have treating this type of cancer?
- Should I get a second opinion[3]? How do I do that?
- What would the goal of the treatment be?
- How soon do I need to start treatment?
- How will treatment affect my daily activities? Can I still work fulltime?
- Will I lose my hair? If so, what can I do about it?
- What are the chances the cancer will come back (recur) after this treatment?

After treatment

- What are the chances my cancer might come back? What will we do if that happens?
- What type of follow-up will I need after treatment?
- Will I need a special diet after treatment?
- Are there any limits on what I can do?
- Am I at risk for lymphedema?
- What can I do to reduce my risk for lymphedema?
- What should I do if I notice swelling in my arm?
- What other symptoms should I watch for?What kind of exercise should I do now?
- What type of follow-up will I need after treatment?
- How often will I need to have follow-up exams, blood tests, or imaging tests?
- How will we know if the cancer has come back? What should I watch for?

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html
2. www.cancer.org/cancer/managing-cancer/finding-care/the-doctor-patient-relationship.html
3. www.cancer.org/cancer/managing-cancer/finding-care/seeking-a-second-opinion.html

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Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

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