TREATMENT UPDATE:

Breast Cancer With Highlights from the 2025 San Antonio Breast Cancer Symposium

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Each year in the United States, there are more than 300,000 diagnoses of breast cancer. In recent years, the number of effective treatments for breast cancer has increased.

Breast cancer is not just one disease. There are several different subtypes, each with unique features. Doctors are able to tailor treatments according to the characteristics of these specific subtypes.

Both men and women can be diagnosed with breast cancer, with men representing about 1 percent of all breast cancer cases. Treatment updates often refer only to women patients, but there are risks across other populations, including men and trans women undergoing hormone treatment. This booklet is for anyone facing a breast cancer diagnosis. Your health care team will tailor a treatment plan that best fits your situation.

In this update, we talk about current available breast cancer treatments and new medicines in development. We also describe how to cope with possible treatment side effects and how to communicate most effectively with your health care team.

Types of Breast Cancer

Hormones and other chemical messengers in the bloodstream can attach to specialized proteins (called receptors) and fuel the growth of cancer cells. These receptors may lie within or on the surface of cancer cells.

There are four main subtypes of breast cancer, based on the presence or absence of specific receptors:

- **Hormone receptor (HR) positive.** Cancers that have receptors for estrogen (ER-positive) and/or progesterone (PR-positive) are considered hormone-positive. Nearly two-thirds of ER- positive cancers are also PR-positive.
- **HER2-positive.** This type of breast cancer contains an overabundance of a protein called human epidermal growth factor receptor 2 (HER2). About half of HER2-positive cancers are also HR-positive.
- **HER2-negative/HER2-low.** Breast cancers that do not contain an overabundance of the HER2 protein.
- **Triple-negative.** Breast cancers that do not have receptors for estrogen or progesterone and do not contain an overabundance of the HER2 protein.

Diagnostic Tests

Mammogram

A mammogram is an X-ray picture of the breast. It is often the first test used to check for breast cancer in those who have a lump or another sign of tumor growth. A mammogram is also used as a screening test when there are no apparent signs or symptoms of breast cancer. If the doctor sees anything suspicious, additional tests are conducted.

Ultrasound

Breast ultrasound uses sound waves to examine the breast. This is another common tool in evaluating breast lumps and other abnormal findings, especially in young patients who have breasts that are considered dense (have a relatively high amount of glandular tissue and fibrous connective tissue and a relatively low amount of fatty tissue).

Magnetic Resonance Imaging (MRI)

Breast MRI uses magnetic waves to evaluate breast tissue and breast abnormalities. For some individuals at high risk of developing breast cancer (such as anyone with strong family histories of breast cancer and/or BRCA or other gene mutations), breast MRI may be recommended as part of cancer screening. Some individuals are candidates for breast MRI for surveillance after they have completed breast cancer treatment.

Biopsy

Tests performed on tumor samples provide doctors with valuable information that helps guide treatment decisions. One such test is a biopsy, in which a doctor uses a needle to remove a tissue sample from the tumor so that it can be examined under a microscope. Some breast biopsies require surgery (known as an excisional biopsy).

Biopsies can help doctors determine whether the tumor is non-invasive (has not spread outside the milk duct or gland, where breast tumors usually begin) or invasive (has spread outside the duct or gland into nearby breast tissue). Another important piece of information that can be learned from the biopsy is the tumor's hormone receptor status, which indicates whether or not the tumor's growth is driven by hormones (ER-positive, PR-positive or HER2-positive).

There are also "liquid" biopsies that can be used in the diagnosis of breast cancer. In a liquid biopsy, the DNA that is shed into the blood by breast cancer tumors is collected via a blood test and examined for cancer cells.

Surgical Staging

In a staging surgery, the surgeon removes the tumor to determine the size and microscopic patterns of cancer cells to assess how likely the cancer is to return. The surgeon also removes one or more lymph nodes in the underarm near the affected breast to see if they contain cancer cells. Lymph nodes are part of the immune system and can be one of the first sites where cancer cells spread in cases of early breast cancer.

Genomic Tests

In certain cases of early-stage breast cancer, a test called a "genomic assay" or "gene expression profile" may be used. This test is designed to detect several types of genes or groups of genes in the cancerous cells. The expression profile of these genes can help doctors determine how likely it is that a person with early-stage breast cancer will have the cancer return after completing treatment. (A patient's recommended treatment is dependent on the type of cancer as well as other factors.) Having certain genes can also be associated with a higher likelihood of the cancer responding well to a particular drug.

Genomic assays provide a quantitative (numbers-based) analysis that can help patients and their doctors better understand the prognosis and decide if additional treatment should be pursued. Commonly used genomic assays include the Oncotype DX score, MammaPrint and others.

Treatment Options

Treatment recommendations are individualized, taking into consideration the biology of the cancer, its stage and the overall health of the individual.

Treatment for breast cancer usually includes a combination of surgery, radiation and drug therapy. Surgery and radiation focus on the disease in the breast and lymph nodes, and are referred to as "locoregional" therapies.

Drugs (medical therapies) focus on eliminating breast cancer cells that have traveled through the bloodstream and invaded other organs such as the liver, lungs or bones. Medical therapies are also often used in early-stage breast cancer to destroy microscopic cancer cells hiding in other organs, reducing the risk of advanced-stage breast cancer.

Treatment for breast cancer that has metastasized (spread beyond the breast and lymph nodes as seen on tests such as CAT scans, PET scans or bone scans) generally focuses on drugs that circulate to wherever cancer cells are located. However, localized treatment to specific metastatic lesions (collections of cancer cells) may sometimes be useful.

Surgery

In the past, doctors thought that mastectomy (full removal of the breast) was the best way to improve the chances that the cancer would not return. However, mastectomy does not completely eliminate the chances of the tumor coming back. For many, lumpectomy (removal of the tumor and surrounding tissue but preserving the breast) plus radiation is equally effective. Lumpectomy also has the advantage of offering a better cosmetic result and a shorter recovery time than mastectomy.

In either a mastectomy or a lumpectomy, the surgeon often removes one or more lymph nodes in the underarm near the affected breast to see if they contain cancer cells. In some cases, the surgeon will remove only the sentinel lymph node(s), the first few lymph node(s) into which breast cancer cells may have spread. If the sentinel lymph node is cancer-free, chances are that other lymph nodes are also unaffected and can be left in place, reducing the risk of lymphedema, a painful swelling of the arm that sometimes results from the removal of lymph nodes.

Radiation

Radiation to the entire breast, usually given over 6 weeks, has been the standard of care for those who have been treated with lumpectomy. Recent trials have shown that, in some cases, higher daily doses of radiation given over 3 weeks (with the same total combined dose of radiation) are as effective as the standard approach, with similar potential side effects.

There are other radiation options that can also be considered:

- Accelerated partial breast irradiation (APBI) is given only to the area of the breast in which the cancer is present. APBI delivers more radiation in a shorter treatment period.
- Brachytherapy uses tiny radioactive pellets or catheters, surgically inserted during a lumpectomy, to deliver a localized dose of radiation.

Some people who have undergone a mastectomy will require post-surgery radiation. Factors that increase the likelihood that radiation after a mastectomy will be required include larger tumor size, the presence of affected lymph nodes and positive margins (cancer cells at the edge of the removed tissue).

Drug Therapy

Drug therapy is an important treatment option for many who have breast cancer. These therapies work by traveling through the bloodstream to destroy cancer cells.

Chemotherapy

Chemotherapy can be an important part of treatment for both early stage and metastatic breast cancer. In particular, triple-negative breast cancer (TNBC) often responds well to chemotherapy.

Based on clinical trials over many years, doctors have learned how to use chemotherapy more effectively, either alone or in combination with other treatments. Doses and schedules of chemotherapy have been refined so that the most benefits are received from treatment with the fewest possible side effects.

Chemotherapy can be used before surgery (preoperative, also called neoadjuvant therapy) to try to shrink the tumor so the surgery can be less extensive, or after surgery (adjuvant) to try to kill any remaining cancer cells. In some cases, the use of preoperative chemotherapy can also provide the doctor with information on how sensitive the cancer cells are to the treatment, which may guide further therapy. It can also be used in cases where the breast cancer has metastasized.

The most common chemotherapy drugs used to treat breast cancer include:

- **Anthracyclines,** such as doxorubicin (Adriamycin), pegylated liposomal doxorubicin (Doxil, Caelyx) and epirubicin (Ellence).
- **Antimetabolites,** such as capecitabine (Xeloda) and gemcitabine (Gemzar).

- **Antimicrotubule agents,** such as ixabepilone (Ixempra), eribulin (Halaven) and Vinorelbine (Navelbine).
- **Platinum agents,** such as platitinol (Cisplatin) and carboplatin (Paraplatin).
- **Taxanes,** such as paclitaxel (Taxol), docetaxel (Taxotere) and albumin-bound paclitaxel

A note about chemotherapy in the treatment of metastatic breast cancer

In addition to treating triple-negative metastatic breast cancer, chemotherapy can be given for hormone-positive metastatic breast cancer that is no longer responding to hormone therapy and for HER2-positive metastatic breast cancer (in combination with anti-HER2 treatments).

Hormone (Endocrine) Therapy

Doctors will often recommend hormone therapy as a treatment for early stage and metastatic ER-positive and/or PR-positive breast cancer. Hormone treatments work in different ways. Some are designed to prevent estrogen from attaching to receptors in breast cancer cells, while others are designed to reduce the level of hormones that circulate in the body. By blocking the effects of estrogen or lowering levels of estrogen, these treatments deprive tumor cells of the stimulation that fuels their growth.

The most common hormone therapies used to treat ER-positive or PR-positive breast cancer include:

- **Tamoxifen** (Soltamox, Nolvadex) is an estrogen-blocking treatment given to both pre- and postmenopausal individuals with breast cancer. Studies have shown that taking tamoxifen for five years following surgery reduces the chance of the cancer recurring by fifty percent. For anyone with cancer in one breast, tamoxifen also lowers the risk of a new tumor developing in the unaffected breast.

  Some studies have shown that taking tamoxifen for ten years can be even more beneficial for those at higher risk of recurrence. For those with metastatic breast cancer, tamoxifen can shrink the tumor, prolong progression-free survival (the time in which the tumor does not grow) and improve overall survival.

  Tamoxifen has also been approved as chemoprevention, reducing the chance of ER-positive breast cancer developing in healthy pre- or postmenopausal individuals who are at high risk for breast cancer, with the preventive benefits of the drug extending for many years beyond when the drug is taken.

  Healthy individuals who are at high risk for developing breast cancer should talk with their doctors about whether taking tamoxifen for breast cancer prevention is a good option for them. The doctor will consider multiple factors such as age, family history, biopsy results and reproductive history.

- **Aromatase inhibitors (AIs),** another type of hormone therapy, are given to postmenopausal individuals with early-stage ER-positive breast cancer to help prevent cancer from returning after surgery. In some situations, AIs can also be used for the treatment of premenopausal individuals, along with medications to artificially induce menopause (see next section: "Ovarian Suppression"). AIs block the action of an enzyme called aromatase, cutting off the supply of estrogen (estrogen can stimulate tumor growth). AIs are also commonly used to treat metastatic breast cancer, sometimes in combination with targeted therapies. They have also shown effectiveness in breast cancer prevention.

  The AIs primarily used to treat breast cancer are anastrozole (Arimidex), letrozole (Femara) and exemestane (Aromasin). Taking AIs for five years (either alone or after five years of tamoxifen) can help reduce recurrence in postmenopausal individuals with ER-positive breast cancer.

- **Fulvestrant** (Faslodex) is another estrogen-blocking drug. It works by attaching to estrogen receptors, changing their shape and preventing the receptors from working properly, which slows the growth of breast cancer cells. Fulvestrant is given as a monthly injection and is approved for postmenopausal individuals with metastatic breast cancer.

Ovarian Suppression (Combined with Tamoxifen or Aromatase Inhibitors)

The estrogen produced by the ovaries can fuel tumor growth. Ovarian suppression uses drug therapy or surgery to stop the ovaries from producing estrogen. Some younger, premenopausal individuals with hormone receptor-positive breast cancer may benefit from treatment with ovarian suppression drugs, combined with tamoxifen or an aromatase inhibitor. Ovarian suppression drugs include leuprolide (Lupron) and goserelin (Zoladex).

Targeted Therapy

Targeted therapy focuses on specific molecules and cell mechanisms thought to be important for cancer cell survival and growth, taking advantage of what researchers have learned in recent years about how cancer cells grow.

A number of targeted therapies have been developed for the treatment of breast cancer:

- **Trastuzumab** (Herceptin) is the standard treatment for HER2-positive breast cancer. Typically taken for one year in the treatment of early-stage breast cancer, trastuzumab can also be given over longer periods to treat cases of metastatic disease.
- **Lapatinib** (Tykerb) is able to block HER2 signals from within cancer cells, and has shown to be effective in treating cases where HER2-positive breast cancer has returned, spread or continued growing after treatment with trastuzumab and chemotherapy.

- **Pertuzumab** (Perjeta) is approved by the U.S. Food and Drug Administration (FDA) for metastatic HER2-positive breast cancer and as treatment for HER2-positive breast cancer when used in combination with trastuzumab and chemotherapy (docetaxel or paclitaxel).
- **Neratinib** (Nerlynx), a tyrosine kinase inhibitor, is approved as an adjuvant therapy to further reduce recurrence in those with early-stage HER2-positive breast cancer who have finished at least one year of post-surgery therapy with trastuzumab.
- **Tucatinib** (Tukysa) is approved, in combination with trastuzumab and the chemotherapy capecitabine, for the treatment of HER2-positive metastatic breast cancer.
- **Margetuximab-cmkb (Margenza).** Margetuximab-cmkb, in combination with chemotherapy, is used for the treatment of HER2-positive metastatic breast cancer that was previously treated with at least two anti-HER2 regimens.
- **Sacituzumab govitecan-hziy (Trodelvy),** an antibody drug conjugate, is approved for the treatment of unresectable locally advanced or metastatic triple-negative breast cancer that was previously treated with two or more therapy regimens, at least one of them for metastatic disease.
- **Capivasertib (Truqap),** is used to treat HR-positive, HER2-negative locally advanced or metastatic breast cancers that test positive for certain gene mutations. Capivasertib targets the AKT protein, which helps regulate cell growth and division.
- **Iavolisib (Itovebi)** is approved for the treatment of advanced HR-positive, HER2-negative breast cancer with a PIK3CA mutation.

Other therapies that have been developed for use based on individual circumstances include:

mTOR inhibitors. Everolimus (Afinitor) is a targeted therapy that works inside cancer cells to restore their sensitivity to anti-estrogen therapies such as AIs. In treating breast cancer, everolimus seems to help hormone therapy work more effectively, but it may cause increased side effects. Taken once daily with the AI exemestane, everolimus treats advanced hormone receptor-positive, HER2-negative breast cancer in postmenopausal cases where the cancer has continued to grow after treatment with another AI.

CDK4/6 inhibitors. These therapies are designed to interrupt enzymes that promote the growth of cancer cells. The CDK4/6 inhibitors used in treating ER-positive, HER2-negative metastatic breast cancer are abemaciclib (Verzenio), palbociclib (Ibrance) and ribociclib (Kisqali). Each of these medications can be given in combination with hormone therapy, such as the AI letrozole or the hormone therapy fulvestrant. Abemaciclib can also be used as a monotherapy (a medication given alone).

- **Abemaciclib,** with endocrine therapy, is approved for the adjuvant treatment of HR-positive, HER2-negative, node-positive early breast cancer at high risk of recurrence.
- **Ribociclib,** with or without letrozole, is approved for the adjuvant treatment of HR-positive, HER2-negative early breast cancer at high risk of recurrence.

PARP inhibitors. PARP is a type of enzyme that helps repair DNA. In cancer treatment, PARP inhibitors are used to prevent cancer cells from repairing their damaged DNA. This prevention can cause the cancer cells to die, especially those with defective DNA repair pathways, such as BRCA1/2-associated breast cancers. Talazoparib (Talzenna) is approved for the treatment of BRCA-positive, HER2-negative metastatic breast cancer. Olaparib (Lynparza) is approved for the treatment of BRCA-positive, HER2- negative metastatic breast cancer that was previously treated with chemotherapy, and in the adjuvant (after surgery) setting for patients with high-risk triple negative or HR-positive breast cancer.

Immunotherapy. Pembrolizumab (Keytruda), in combination with chemotherapy, is approved for the treatment of locally recurrent unresectable (inoperable) or metastatic triple-negative breast cancer whose tumors express high levels of the protein PD-L1 and for the treatment of high-risk, early-stage triple-negative breast cancer in combination with chemotherapy as a preoperative treatment and then continued as a monotherapy after surgery.

PIK3CA inhibitor. Alpelisib (Piqray), in combination with the endocrine therapy fulvestrant, is approved to treat HR-positive, HER2-negative, PIK3CA-mutated metastatic breast cancer following treatment with an endocrine-based therapy.

Antibody-drug conjugate. An antibody drug conjugate (ADC) is formed by combining a monoclonal antibody (a lab-generated protein) to a chemotherapy. The antibody seeks out and hones in on a specific molecule on the tumor cell, bringing the chemotherapy with it. This approach can kill tumor cells or stop them from dividing while limiting the harm to normal cells.

- **Sacituzumab govitecan-hziy (Trodelvy)** is approved for metastatic triple-negative breast cancer that had been treated by at least two prior therapies and for the treatment of locally advanced or metastatic HR-positive, HER2-negative/HER2-low breast cancer that was previously treated with hormone-based therapy and at least two additional systemic therapies in the metastatic setting.
- **Ado-trastuzumab emtansine** (Kadcyla), known as T-DM1, is a combination of trastuzumab and a chemotherapy drug used to treat HER2-positive metastatic breast cancer. It is approved or the treatment of those with early-stage HER2-positive breast cancer whose tumors do not completely respond to neoadjuvant treatments.
- **Datopotamab deruxtecan-dlnk** (Datroway) is approved for unresectable or metastatic hormone receptor HR-positive, HER2-negative breast cancer previously treated with endocrine-based therapy and chemotherapy.

- **Trastuzumab deruxtecan** (Enhertu) is approved for the treatment of :
  - Unresectable (inoperable) or metastatic HER2-positive breast cancer following two or more anti-HER2-based regimens.
  - Metastatic HER2-positive breast cancer following anti-HER2 therapy.
  - Unresectable or metastatic HER2-low breast cancer previously treated with chemotherapy.
  - Unresectable or HR-positive, HER2-low breast cancer that has progressed on one or more endocrine therapies.
  - Unresectable/metastatic HR-positive HER2-low/-ultralow breast cancer that progressed on endocrine therapy in the metastatic setting.

Selective Estrogen Receptor Degrader (SERD). SERDs, also known as estrogen receptor antagonists (ERAs), stop estrogen from helping hormone receptor-positive breast cancer cells to grow.

- Elacestrant (Orserdu) is approved for the treatment of ER-positive, HER2-negative/HER2-low, ESR1-mutated advanced or metastatic breast cancer following endocrine therapy.
- Imlunestrant (Inluriyo) is approved for the treatment of ER-positive, HER2-negative, ESRI-mutated advanced or metastatic breast cancer following endocrine therapy.

The Importance of Clinical Trials

Clinical trials are the standard by which we measure the worth of new treatments and the quality of life of individuals as they receive those treatments. For this reason, doctors and researchers urge people with cancer to take part in clinical trials.

Your doctor can guide you in making a decision about whether a clinical trial is right for you. Here are a few things that you should know:

- Often, people who take part in clinical trials gain access to and benefit from new valuable treatments.
- Before you participate in a clinical trial, you will be fully informed as to the risks and benefits of the trial, including any possible side effects.
- Most clinical trials are designed to test a new treatment against a standard treatment to find out whether the new treatment has any added benefit
- You can stop taking part in a clinical trial at any time for any reason.

Promising New Treatment Approaches: A Report from the 2025 San Antonio Breast Cancer Symposium

This section presents highlights from the 2025 San Antonio Breast Cancer Symposium, which took place December 9-12 San Antonio, Texas. The information includes new findings on a number of currently used treatments, as well as promising new treatments that researchers continue to study in clinical trials.

Some of these new treatments are in the earliest phases of research and may not be available to the general public outside of a clinical trial. The information is intended for discussion with your doctor. They can let you know if these research findings affect your treatment plan and whether a clinical trial might be right for you.

Role of tucatinib in HER2-positive metastatic breast cancer maintenance therapy

According to updates from the phase III HER2CLIMB-05 trial, the addition of tucatinib to standard first-line maintenance therapy (trastuzumab and pertuzumab) significantly prolonged progression-free survival in patients with HER2-positive metastatic breast cancer.

What Patients Need to Know

Tucatinib is a type of targeted therapy called a HER2-targeted tyrosine kinase inhibitor (TKI). Trastuzumab and pertuzumab are monoclonal antibodies, a type of immunotherapy. They are used together to treat HER2-positive cancers by blocking the HER2 protein.

Combination treatment improved PFS in triple-negative breast cancer

The phase III ASCENT-04 trial found that treatment with the targeted therapy sacituzumab govitecan and the immunotherapy pembrolizumab improved progression-free survival (PFS) in PD-L1-positive triple-negative breast cancer when compared to standard of care chemotherapy.

What Patients Need to Know

The trial participants either had locally advanced disease that could not be treated with surgery or metastatic disease that had spread to distant parts of the body.

Investigational SERD evaluated in ER-positive, HER2-negative early breast cancer

Results from the lidERA trial demonstrated a statistically significant and clinically meaningful improvement in invasive disease-free survival when ER-positive, HER2-negative early breast cancer was treated with adjuvant (post-surgery) giredestrant compared with standard endocrine therapy.

What Patients Need to Know

Giredestrant is an investigational selective estrogen receptor degrader (SERD). SERDs stop estrogen from helping hormone receptor-positive (including ER-positive) breast cancer cells to grow.

ADC improved PFS in HER-2 positive advanced or metastatic breast cancer

In the phase III DESTINY-Breast09 trial, first-line treatment with trastuzumab deruxtecan plus pertuzumab significantly prolonged progression-free survival (PFS) in HER-2 positive advanced or metastatic breast cancer, compared to standard treatment with the combination of docetaxel, trastuzumab and pertuzumab. No new safety concerns were introduced.

What Patients Need to Know

Trastuzumab deruxtecan is an antibody drug conjugate (ADC), combining a targeted therapy with a chemotherapy.

Datopotamab deruxtecan-dlnk evaluated as first-line treatment for TNBC

High-level results from the TROPION-Breast02 phase III trial showed that datopotamab deruxtecan-dlnk demonstrated a clinically meaningful improvement in overall survival (OS) and progression-free survival (PFS) compared to chemotherapy as first-line treatment for locally recurrent inoperable or metastatic triple-negative breast cancer (TNBC). Datopotamab deruxtecan-dlnk is an antibody drug conjugate (ADC), which combines a targeted therapy with a chemotherapy.

What Patients Need to Know

Treatment with immunotherapy was not an option for the trial participants.

Radiation prior to surgery may boost immunotherapy response

According to results from the P-RAD trial, radiation given before surgery improved T-cell infiltration in high-risk early HR-positive, HER2-negative breast cancer when administered in combination with the immunotherapy pembrolizumab and chemotherapy.

What Patients Need to Know

Increased T-cell infiltration potentially boosts immunotherapy responses.

Treatment Side Effects

All cancer treatments can cause side effects. It's important that you report any side effects that you experience to your health care team so they can help you manage them. Report them right away—don't wait for your next appointment. Doing so will improve your quality of life and allow you to stick with your treatment plan. It's important to remember that not all patients experience all side effects, and patients may experience side effects not listed here.

There are certain side effects that may occur across different treatment approaches. Following are tips and guidance for managing these side effects.

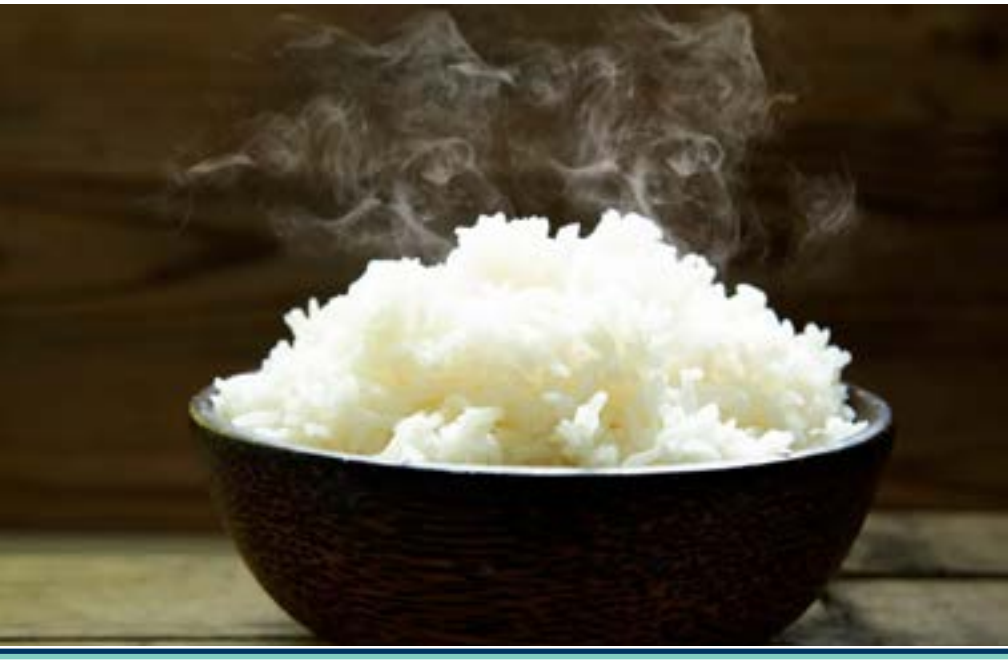
Managing Digestive Tract Symptoms

Nausea and vomiting

- Avoid food with strong odors, as well as overly sweet, greasy, fried or highly seasoned food.
- Eat meals that are chilled, which often makes food more easily tolerated.
- Nibble on dry crackers or toast. These bland foods are easy on the stomach.
- Having something in your stomach when you take medication may help ease nausea.

Diarrhea

- Drink plenty of water. Ask your doctor about using drinks such as Gatorade which provide electrolytes. Electrolytes are body salts that must stay in balance for cells to work properly.
- Over-the-counter medicines such as loperamide (Imodium A-D and others) and prescription drugs are available for diarrhea but should be used only if necessary. If the diarrhea is bad enough that you need medicine, discuss it with your doctor or nurse.
- The BRAT diet (bananas, rice, applesauce, toast) and soluble fiber such as oats, bran and barley can help with diarrhea. Foods high in insoluble fiber, such as leafy greens and most fruits should be avoided as they can worsen diarrhea. Oily foods, caffeine and alcohol should also be avoided.
- Avoid food high in refined sugar and those sweetened with sugar alcohols such as sorbitol and mannitol.



Managing loss of appetite

- Eating small meals throughout the day is an easy way to take in more protein and calories, which will help maintain your weight. Try to include protein in every meal.
- To keep from feeling full early, avoid liquids with meals or take only small sips (unless you need liquids to help swallow). Drink most of your liquids between meals.
- Keep high-calorie, high-protein snacks on hand such as hard-boiled eggs, peanut butter, cheese, ice cream, granola bars, liquid nutritional supplements, puddings, nuts, canned tuna or trail mix.
- If you are struggling to maintain your appetite, talk to your health care team about whether appetite-building medication could be right for you.

Constipation

- As hydration is important, make sure to drink plenty of fluids. Also, limit your intake of caffeine as it can cause dehydration. Discuss with your doctor whether you can drink any alcohol as it can interact with your medications and may cause you to be dehydrated.
- Include foods high in fiber in your daily diet, such as fruit (especially pears and prunes), vegetables and cereals. If your health care team approves, you may want to add synthetic fiber to your diet, such as Metamucil, Citrucel or FiberCon.
- Be as physically active as you can, after checking with your doctor on the level of physical activity that is right for you.
- If your doctor has prescribed a "bowel regimen," make sure to follow it exactly.

Managing Fatigue

Fatigue (extreme tiredness not helped by sleep) is one of the most common side effects of many cancer treatments. If you are taking a medication, your doctor may lower the dose of the drug, as long as it does not make the treatment less effective. If you are experiencing fatigue, talk to your doctor about whether taking a smaller dose is right for you.

There are a number of other tips for reducing fatigue:

- To be able to sleep well at night, avoid excessive sleep during the day.
- Take short walks or do some light exercise, if possible.
- Try easier or shorter versions of the activities you enjoy.
- Ask your family or friends to help you with tasks you find difficult or tiring.

Fatigue can be a symptom of other illnesses, such as anemia, diabetes, thyroid problems, heart disease, rheumatoid arthritis and depression. So be sure to ask your doctor if they think any of these conditions may be contributing to your fatigue.

Managing Pain

There are a number of options for pain relief, including prescription and over-the-counter medications. It's important to talk to a member of your health care team before taking any over-the-counter medication to determine if it is safe and to make sure it will not interfere with your treatment. Many pain medications can lead to constipation, which may make your pain worse. Your doctor can prescribe medications that help to avoid constipation.

Physical therapy, acupuncture and massage may also be of help in managing your pain. Consult with a member of your health care team before beginning any of these activities.

Hot Flashes

Breast cancer treatments can lead to menopausal symptoms, such as hot flashes and night sweats. If you are experiencing these side effects, speak with your health care team about ways to cope with them. There are several medications that potentially help decrease hot flashes. Talk to your doctor to determine if medication is an option for you.

The following tips may also help:

- Identify the triggers for your hot flashes. For many, hot flashes can be triggered by stress, a hot shower, caffeine or spicy foods.
- Change your lifestyle habits to cope with your specific triggers. That may mean regular exercise, using relaxation techniques and changing your diet.
- Dress in layers so that you can remove clothing if needed.
- Keep ice water handy to help you cool off.
- Avoid synthetic materials, especially at nighttime. Wear pajamas and use sheets made of cotton.
- Take a cool shower before going to bed.

Lymphedema

People with breast cancer who have undergone lymph node removal and/or radiation as part of their treatment are at risk for developing lymphedema, a condition in which the body's lymphatic fluid is unable to circulate properly. The lymphatic fluid builds up in soft tissues (usually in an arm or a leg), causing painful swelling. In addition to swelling of the affected limb, the most common problems associated with lymphedema are pain, hardening of the skin and loss of mobility.

Here are some things you can do to ease the discomfort of lymphedema:

- **Get help for your symptoms as soon as possible.** Contact your health care team at the first sign of lymphedema symptoms. If left untreated, the swelling can get worse and may cause permanent damage.
- **Consider undergoing manual lymphatic drainage (MLD).** This is a type of massage that helps move the fluid from where it has settled. Afterward, the affected limb is wrapped in low-stretch bandages that are padded with foam or gauze.
- **Learn exercises that can help prevent swelling due to fluid build-up.** Your health care team can refer you to a program of special lymphedema exercises, taught and monitored by a physical therapist.
- **Wear a compression sleeve.** This can help drain the lymphatic fluid. It's important to always wear a compression garment when flying, even on short flights.
- **Be kind to your body.** Carrying heavy packages, luggage or shoulder bags puts stress on your affected limb and could cause additional swelling and pain. Ask that any blood draws or insertion of intravenous (IV) lines be avoided on the affected arm.

Vaginal Dryness

Treatments for breast cancer can lead to vaginal dryness and a lowered sex drive. Use of a personal lubricant (such as Astroglide) and/or a moisturizer (such as Replens) can often help. If vaginal dryness persists, talk to your doctor about whether a prescription medicine is right for you. These medicines include hormone creams and suppositories (medicines inserted into the vagina). You may wish to ask for a referral to a health care professional who specializes in these issues.

Treatment-Specific Side Effects

Chemotherapy

The side effects specific to chemotherapy depend on the type and dose of drugs given and the length of time they are used. They can include the following:

- **Hair loss.** Depending on the treatment, hair loss may start anywhere from one to three weeks after the first chemotherapy session. If you choose to wear a wig, consider buying one before you lose much hair so you feel more prepared and you can match your own hair color. You can have your wig professionally fitted and styled by a full-service wig salon. Look for a salon in your community that specializes in hair loss resulting from chemotherapy. Hair usually starts to grow back after the end of treatment. It may have a different texture or color. Specially- designed scalp-cooling caps worn during chemotherapy infusions can reduce hair loss from some types of chemotherapy.

- **Nerve damage.** Some people being treated with chemotherapy experience nerve damage with symptoms that may include difficulty picking up objects or buttoning clothing, problems maintaining balance, difficulty walking and hearing loss. Peripheral neuropathy is a form of nerve damage that may cause numbness or tingling in the hands and feet. Often, nerve damage due to cancer treatments is temporary. If you are coping with this side effect, take extra care when handling hot, sharp or dangerous objects. You should also use handrails on stairs and in the tub or shower.
- **Low white blood cell counts.** Chemotherapy may lead to low white blood cell counts, a condition called neutropenia. White blood cells play a key role in fighting infection. Your doctor can prescribe medication designed to help increase white blood cell counts. If you develop a fever (a sign of infection), let your health care team know immediately so that you can get proper treatment.
- **Mouth sores (mucositis)** are also a side effect of chemotherapy. Your doctor may recommend treatments such as:
  - ✔ **Coating agents.** These medications coat the entire lining of your mouth, forming a film to protect the sores and minimize pain.
  - ✔ **Topical painkillers.** These are medications that can be applied directly to your mouth sores.
  - ✔ **Over-the-counter treatments.** These include rinsing with baking soda or salt water or using "magic mouthwash," a term given to a solution to treat mouth sores. Magic mouthwash usually contains at least three of these ingredients: an antibiotic, an antihistamine or local anesthetic, an antifungal, a corticosteroid and/or an antacid.

Chemotherapy can also cause changes in the way food and liquids taste, including an unpleasant metallic taste in the mouth. Many people find that switching to plastic utensils helps. It may also help to avoid eating or drinking anything that comes in a can and to use enamel-coated pots and pans for food preparation.

Radiation

Changes to the skin are the most common side effects of radiation therapy. Those changes can include dryness, swelling, peeling, redness and blistering. If a reaction occurs, contact your health care team so the appropriate treatment can be prescribed. It's especially important to contact your health care team if there is any open skin or painful area, as this could indicate an infection. Infections can be treated with an oral antibiotic or topical antibiotic cream.

Targeted Therapy and Hormone Therapy

Targeted therapy and hormone therapy don't have the same effect on the body as do chemotherapy drugs, but they can still cause side effects.

Side effects of certain targeted therapies can include diarrhea, liver problems (such as hepatitis and elevated liver enzymes), problems with blood clotting and wound healing, high blood pressure, mouth sores, high blood sugar, and reduced white blood cell count. Nerve damage, as outlined in the Chemotherapy Side Effects section, may also occur.

The side effects of hormone therapy are dependent on the specific type of therapy and include hot flashes (seen more with tamoxifen) and joint pain (seen more with aromatase inhibitors).

Immunotherapy

Immunotherapy travels through the bloodstream, helping to prompt what is called an "immune response." Because immunotherapy can attack healthy cells as well as cancer cells, certain side effects may be experienced. Common side effects include digestive tract symptoms, fatigue, shortness of breath, joint pain and thyroid dysfunction.

Communicating With Your Health Care Team

As you manage your breast cancer, it's important to remember that you are a consumer of health care. The best way to make decisions about health care is to educate yourself about your diagnosis and get to know the members of your health care team, including doctors, nurses, nurse practitioners, physician assistants, dietitians, social workers and patient navigators.

Here are some tips for improving communication with your health care team:

Start a health care journal. Having a health care journal or notebook (either on paper or in a digital format) will allow you to keep all of your health information in one place. You may want to write down the names and contact information of the members of your health care team, as well as any questions for your doctor.

Prepare a list of questions. Before your next medical appointment, write down your questions and concerns. Because your doctor may have limited time, ask your most important questions first and be as specific as possible.

Record your visit if your doctor allows it. Recording the conversation with your doctor gives you a chance to hear specific information again or share it with family members or friends.

Bring someone with you to your appointments or have them be present during telehealth sessions. Even if you have a journal and a prepared list of questions or concerns, it's always helpful to have support when you go to your appointments. The person you bring may also think of questions to ask your doctor or remember details about your symptoms or treatment that you may have forgotten.

Write down your doctor's answers. Taking notes will help you remember your doctor's responses, advice and instructions. You can also ask the person who accompanies you to take notes for you, either in your journal or on a tablet or smartphone.

Incorporate other health care professionals into your team. Your medical oncologist is an essential member of your health care team, but there are other health care professionals who can help you manage your diagnosis and treatment:

- Your primary care physician should be kept updated about your cancer treatment and any test results.
- Your local pharmacist is a great source of knowledge about the medications you are taking. Have all of your prescriptions filled at the same pharmacy to avoid the possibility of harmful drug interactions.
- Make sure your oncologist knows of any other medical conditions you have or any pain you are experiencing so that they can consult with your primary care physician or specialists as needed.

Remember, there is no such thing as over-communication.

Cancer*Care*'s Free Support Services and Programs

It can be very difficult to receive a diagnosis of breast cancer, and adjusting to the necessary changes in your life can be challenging.

Cancer*Care* can help. We are a national nonprofit organization providing free, professional services to anyone affected by cancer. Our licensed oncology social workers can provide support and education, help in navigating the complicated health care system and offer information on support groups and other resources.

To learn more about how Cancer*Care* helps, call us at 800-813-HOPE (4673) or visit www.cancercare.org.

You will likely also build your own personal support network composed of family and friends. In doing so, it's best to take some time to think about the people in your life and how they are best suited to help. Match the task to their strengths—ask a family member who loves to shop to pick up something for you at the store, or ask a friend who's a good listener to come over for a chat.

Frequently Asked Questions

Q: What do "tumor grade" and "pathological stage" mean?

A: Tumor grade is a way of classifying tumors based on how closely the cancer cells resemble normal cells. This can be determined based on an examination of tumor tissue removed during a biopsy or at the time of surgery. Using a microscope, a pathologist rates the grade as 1, 2 or 3, which is an indication of whether the breast cancer is slow-growing, growing at a moderate pace or fast-growing.

Pathological stage describes the extent of the cancer within the body and is based on a pathologist's study of the tumor tissue and any lymph nodes removed during surgery. The most widely used staging system, TNM, assesses the size of the tumor in the breast (T), the number and location of lymph nodes with cancer (N) and whether the cancer has spread beyond the breast and neighboring lymph nodes (M). Starting in 2018, the TNM system added the additional measures of tumor grade, estrogen receptor status, progesterone receptor status and HER2 status.

Q: My doctor suggested I see a genetic counselor. Why?

A: Genetic counseling can help people make informed decisions about genetic testing. In a genetic counseling session for breast cancer, the counselor will typically collect a detailed family and medical history and discuss genetic mutations, such as those in BRCA1 and BRCA2 genes, which can increase the chance of developing breast cancer.

Q: My breast cancer is being treated with chemotherapy. What can I do to preserve my fertility?

A: Chemotherapy may induce a temporary or permanent menopause among younger patients. For many of these individuals, preserving their fertility (the ability to have a child) plays a large part in their treatment decisions.

There are steps that can be taken if you are concerned about your ability to have children after treatment:

- Discuss treatment plans with members of your health care team. The discussion should include the coverage provided by your health insurance plan.
- Consider consulting with a specialist in reproductive medicine, who can help weigh the benefits and risks of a specific treatment.
- Ask about newer options for preserving fertility, such as oocyte cryopreservation, also known as egg freezing. In this process, the patient's eggs are removed, frozen and stored for later use. Another option includes freezing fertilized eggs. You can discuss which option is best for you with your fertility specialist.

Fertility-preserving alternatives are most often used before the beginning of chemotherapy.

Q: Am I at higher risk of osteoporosis while being treated for breast cancer?

A: Some hormone therapies and chemotherapy can cause bone loss, which increases the risk of osteoporosis (a condition in which bones become weak and brittle). Talk with your health care team about how exercise and changes in your diet may help keep your bones healthy, and about the medications available for bone health:

- Bisphosphonates such as zoledronic acid (Zometa and others) slow the process that causes bone to wear away and break down. These medications belong to a class of drugs called osteoclast inhibitors.
- The RANK ligand inhibitor denosumab (Xgeva, Prolia) blocks a factor in bone development known as RANK ligand, which stimulates cells that break bone down. By blocking RANK ligand, these drugs increase bone density and strength. Like bisphosphonates, RANK ligand inhibitors are a type of osteoclast inhibitor.

Resources

Cancer*Care*®
800-813-HOPE (800-813-4673)
www.cancercare.org

American Cancer Society
800-227-2345
www.cancer.org

National Cancer Institute
800-422-6237
www.cancer.gov

Cancer Nation (formerly National Coalition for Cancer Survivorship)
877-NCCS-YES (877-622-7937)
www.canceradvocacy.org

Cancer Support Community
888-793-9355
www.cancersupportcommunity.org

Breastcancer.org
610-642-6550
www.breastcancer.org

Living Beyond Breast Cancer
855-807-6386
www.lbbc.org

Susan G. Komen
877-465-6636
www.komen.org

Triple Nagative Breast Cancer Foundation
877-880-8622
www.tnbcfoundation.org

Medicine Assistance Tool
www.medicineassistancetool.org

CLINICAL TRIAL WEBSITES

Clinicaltrials.gov
www.clinicaltrials.gov

Carebox (formerly EmergingMed)
www.careboxhealth.com

National Cancer Institute
www.cancer.gov

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800-813-HOPE (4673)