

Breast Cancer Information



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Hearing a diagnosis of breast cancer is never easy...

... in fact, it can be terrifying, even if you've been anticipating the news. Some women are more prepared than others, having lived through breast cancer experiences of family or friends. Some may be anticipating their diagnosis if it has come about gradually and they have been given incremental clues because abnormal studies have led to further tests and procedures.

Whether you expected the diagnosis or it took you by surprise, we appreciate that this will be a time of many new experiences and emotions for you. We want you to know that we understand your emotional concerns and value your physical well-being. We are confident in the expertise, skills, and compassion we've gained through many years of treating and caring for women just like you. We assure you that we will do the best possible job of helping you through the treatment process. We're here to help answer your questions and get information to you as quickly as possible.

Most breast cancers have been present in a person's body for 3 to 5 years before they can be detected. Some experts say it may be even longer. When we find signs of a cancer by feeling it or detecting it on an imaging study, we're seeing more than just an accumulation of deformed and overgrowing cancer cells. We're also seeing the scar tissue or tiny calcium deposits resulting from the body's response in fighting the cancer.

Even if the area of cancer was detected as a sudden change — an area on a mammogram not seen the year before or a lump that seemed to appear “out of nowhere” soon after an exam — this area probably didn't grow to that size within a year or a month. Instead, it's likely that the area was there, but the cancer cells were hidden from the body's defense mechanisms. Once the body recognizes the threat of the cancer cells, it begins to attack them, which can cause scar tissue to form or calcium deposits to build up within the area involved with cancer. Only when changes occur to a point where there we

can detect a difference in the tissue texture or see abnormal appearing calcium deposits on imaging studies can cancer cells be detected and treatment can begin. Some cancers stimulate a response in the body before they have spread far into the tissues and are small when they are found. Others can “sneak” around the body's defenses and take residence in a greater portion of tissue and when finally detected may seem large.

No matter when or how the cancer is detected, it is important to keep in mind that most patients do well with breast cancer treatments and go on to live long lives after their diagnosis. We want to stress that after a diagnosis of breast cancer is made we have the time to gather information to make good decisions that take into account your personal situation: your fears, your risk for future problems, your body, and your lifestyle — all issues that may impact what choices are best for you.

Sometimes, choices are clear and treatment starts within a few days or a week. Often, there are a number of factors to consider and making the best choices requires more testing or consultations with other doctors. In this case, it can sometimes take 6 to 8 weeks or longer before taking that first step in treating the cancer itself. While this may seem like a long time to some, studies have shown that the time taken for additional investigations before surgery has little impact on the size or spread of cancer at the time of surgery. Experience and practice have shown it safe to be thorough even if treatment is put off a short while. Please know that if it was thought to put a patient's health or life at risk, we would not delay treatment for additional tests or appointments with other doctors.

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Before and during treatment, we want to limit any surprises and give you as many options as possible. We will do our best to explain your options and ensure that you have as much information as possible when making your choices. It is important — to us and to you — that you look back on your treatment experience and feel as though you made the best possible decisions for yourself and your family.

Gathering Information About Your Cancer

The diagnosis of breast cancer begins when cancer cells are detected under a microscope. A biopsy is the removal of tissue and the microscopic examination of cells from that tissue sample by a pathologist. Although we might have suspected cancer from something we felt or from something we saw on a mammogram or ultrasound, until a biopsy confirms the presence of cancer, there isn't a role for doing anything any sooner. Once cancer is confirmed, we then begin collecting more information on your specific cancer, primarily through pathology and imaging studies. You shouldn't necessarily look at this information as either good news or bad — it's just the information to help us create the best treatment plan for you.

Pathology: The Expert Interpretation of Microscopic Findings

Ductal or Lobular

Your biopsy (or pathology) results describe the type of tissue from which your cancer originated. There are two main types of breast tissue — ductal and glandular — and most breast cancers begin in these two tissues:

80% in ductal tissue and slightly less than 20% in glandular. Ductal tissue forms the milk ducts, hollow tubes that transport the milk from within the breast to the nipple. Glandular tissue contains the milk glands which create milky secretions. Cancer from the milk ducts is called ductal carcinoma; cancer from the milk glands is called lobular carcinoma.

Other types of cancers can originate in the breast but are less common. Variations or subtypes of ductal and lobular cancers, or cancers with mixed features of both types are sometimes seen and may be described with the general term "mammary carcinoma." If we need to make more of a distinction because it relates to your treatment options, we can request that the pathologist perform additional tests on the tissue.

Why do we want to know if your cancer is ductal or lobular? Because this information helps us predict how those cells are going to behave and what treatments may be most effective. It

may explain why the cancer looks the way it does or how it "showed" itself. It may also make us look out for other features that are associated with that cancer type. For example, lobular cancers have a slightly higher chance of being in both breasts or of being larger than they initially look. Ductal cancers tend to be the same size as they appear on imaging and more focal, usually occurring within or close along the outside of the milk duct. Lobular cancers tend to be less localized and more "sneaky," sending out thin strands in many directions. It can have an ability to grow past the body's defense system and it may take more time before changes develop that allow us to realize it is there at all. Lobular types therefore have a tendency to be found a little bit later than other types and are not as obvious when they are found. One type is not necessarily better or worse than the other — the success rate of treatment is the same — but distinguishing between the two gives us valuable information for treatment.

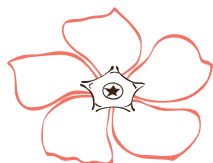
In Situ vs. Infiltrating

The next piece of information we need is whether the cancer cells appear to be trapped inside the breast ducts or glands, or whether they have gained the ability to break the bonds of healthy cells and grow into the surrounding tissue. Cells that are bound within the ducts or glands are termed in situ or "in place" and this means the cancer cells are trapped within the breast tissue and cannot spread to other parts of the body. Cancer cells that are seen outside the walls of the milk ducts or glands are called "infiltrating" or "invasive" and have the potential to spread outside the breast, to the lymph nodes or other parts of the body.

Grade

After the type of cancer is defined, the pathologist further describes it with a grade that indicates how aggressive or active it is, based on the appearance and number of cells viewed under the microscope. Are the cells sleepy and slow-growing, or are they very abnormal looking and busy making numerous copies of themselves? Grades are given in numbers from 1 to 3, or are sometimes described as low, medium or high. A slower-growing, more normal-looking tissue would be described as a low grade 1, a faster-growing, more abnormal tissue a high grade 3.

Aggressiveness in cancer is a very relative thing. Even a "fast growing" breast cancer has actually happened over months and months — not hours or days, and it has many options for treatment. If we compare a high grade/fast growing breast cancer to more dangerous and lethal cancers, like lung cancer or pancreatic cancer, we realize that the choices for surgery, the side effects of medicines used and overall chances of cure are much better when we deal in the realm of breast cancers.



We want to stress that we take all types of breast cancer seriously, but we don't want patients to be overly scared if their particular type of cancer has more aggressive features.

These characteristics of low and high grade cancer cell types have nothing to do with good or bad, but knowing what the features of the cancer allows us to better plan treatment. If cancers are more aggressive or "stronger" then we can be more aggressive in our treatments as well. If cancers are "weaker" then we can avoid unnecessary treatments when possible. In addition these features can sometimes help us anticipate what to expect as we investigate how advanced the disease has become.

For example, lower grade, slower growing cells tend to be less likely to grow back when they have been removed from the breast, but can be harder to detect and larger than they look on the studies that first appreciated an area of concern. Sometimes lower grade tumors will require more surgery than predicted when our plans are initiated. Faster growing, higher grade cancers are more likely to be the size they appear to be on imaging studies. But faster growing cancers have a greater likelihood of spreading outside the breast or growing back in place if surgically removed or treated.

Stage

The stage of your cancer is not the same as your grade. Stage is given as a numbered score from zero to four in Roman numerals. The criteria determining the five different stages are listed below.

| Stage | Tumor Size and Lymph Node Involvement |
|-------|---|
| 0 | Pre-invasive, in situ (trapped in place) and not in lymph nodes |
| I | Tumor less than 2 cm and not in lymph nodes |
| II | Tumor less than 2 cm and in lymph nodes <i>OR</i> tumor greater than 2 cm |
| III | Tumor greater than 5 cm <i>OR</i> there is significant lymph node involvement |
| IV | Evidence of involvement outside of lymph nodes |

Your breast cancer stage takes into account where you fit in the grand scheme of breast cancer patients — it indicates the size of the cancer and whether it is only in your breast tissue, whether it has spread as far as the lymph nodes in the underarm, or axilla, or whether it has gone beyond this region and is able to thrive in other, more distant parts of your body. There is usually not enough information at the time of initial diagnosis to give you a final stage designation, although sometimes we have a good idea of what that stage will likely be.

Receptors and Proteins

Once the cancer cells are found by the pathologist, a second set of studies is frequently ordered that looks at the specific characteristics of the cells themselves to see what treatment will be effective in treatment.

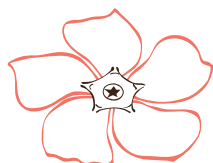
Research has shown that in some women, the hormones estrogen and progesterone may affect the growth of cancer cells. So, all breast cancer cells, regardless of type, are routinely tested to see if receptors (sites that grab and bind the hormones) for these hormones are present. The score is reported as a percentage. If no receptors are found, a score of 0% is given and the cancer is considered hormone receptor negative, so using a medicine that blocks the effects of hormones will have no influence on cancer cell growth. However, if a patient has a hormone receptor-positive cancer, we're usually going to recommend using a hormone-blocking medicine at some point. Medicines like Tamoxifen and Arimidex each work in different ways to starve cells from estrogen and are showing great success at treating receptor positive cancers, keeping the cancer from spreading outside the breast, from growing back at the original site after treatment, and even protecting currently healthy breast tissue from spawning new cancers in the future.



Additional tests performed for invasive cancers typically include a test to see whether or not the Her2Neu receptor, or tag, is present. This receptor is found on cells in 20-30% of breast cancer cases and if present, can be used as a target for treatment by a medicine called Herceptin. Herceptin is formulated to help the body attack cancer cells with this tag present. It has also shown to be incredibly effective in treating breast cancer. Since it is specifically targeted to the cancer cells themselves, there are very few side effects on the rest of the body. Other tests look at the rate of cancer cell replication. This usually matches findings suggested by the grade that give an idea of the rate of growth and aggressiveness.

Imaging Studies

Mammography uses x-rays to give us a general map of the tissue and allows us to compare breast to breast, look at changes in individual breasts, or show the difference between healthy and unhealthy tissue within a breast. It can be done very quickly and more than 90% of breast cancers can be seen on a mammogram. If the body has not responded to the cancer cells (e.g., scar tissue, calcium deposits) or if the breast contains a greater than normal amount of firm, connective tissue (rather than fatty tissue) the cancer may not show up on a mammogram.



Ultrasound uses sound waves to create a much more focused picture. It is not unlike looking through a room with a flashlight: You can see what is right in front of you very easily with a lot of detail, but it's very hard to get "the big picture." An ultrasound picture typically shows an area of cancer as darker with irregular edges. Ultrasound is a great way to get more information about an area on a mammogram that stands out. It also can give additional information on the characteristics of an area that is felt but does not have any findings on the mammogram. In this way, these two tests are very complimentary.



MRI is another way to look at breast gland tissue and easily gives us a very clear picture of contrasting fatty and solid components in the breast tissue. MRI has the added advantage of utilizing dye to show where there are areas of increased blood flow, such as where cancer occurs. This can give us more information about the size and shape of an area of

cancer. The disadvantage of MRI is that there are many healthy reasons to have areas of increased blood flow, and most of them are safe areas of breast tissue that have no cancerous changes at all. More often than not, this raises unnecessary questions about other areas in the breast and can cause further testing and biopsies.

What do we do with this information?

As we mentioned previously, when we are finally able to detect the breast cancer, we try to take a step back and accumulate the most information possible in order to make the best

possible treatment recommendations for you. Again, you should not necessarily think of it as good or bad information, but just as pieces that we'll use to put together the puzzle and see the larger picture and help us treat you and your specific cancer.

Studies that look at the area of disease and assess how much tissue is healthy and how much is not healthy come in several forms. These tests have strengths and weaknesses and we use them together to gain layers of information. One test is not better than another and not every patient needs or benefits from every test. We will work with you to tailor a plan of investigation and treatment options that respects your personal concerns as well as your specific cancer characteristics.

Treatment

Surgical removal and the addition of any other types of treatment are also tailored to the individual patient, their cancer and their personal concerns. Surgical removal of the site of the cancer will be recommended, but the type of the surgery and what order treatments will occur may be different in different people.

Most of the tools used to treat breast cancer work together to provide the optimal balance of cure and eradication of the cancer cells, while not exposing you to unnecessary side effects. There are very few treatments that serve the same purpose. By this we mean that we don't substitute one treatment for another. Instead we add or subtract treatments based on whether they will be effective or not. For instance, we do not choose mastectomy OR chemotherapy OR radiation, but go through treatment options like a checklist as to what is indicated and what is not.

It is important to us that you look back on your treatment experience and feel as though you made the best possible decisions for yourself and your family. We are confident in the expertise, skills, and compassion we've gained through many years of treating and caring for women just like you and we assure you that we will do our best to help you through the treatment process. Additional information regarding your specific issues is available and we'll work hard to answer any questions you may have.

Additional information available: Lumpectomy/Mastectomy/Choosing between Lumpectomy and Mastectomy/Radiation/Port Placement/Wire Localization/Genetic Counseling

