

BREAST CANCER 101

The body is made up of hundreds of millions of living cells of many different types. Normal cells grow, divide and die in a very orderly process. This helps replace normal cells and helps to keep us all healthy. Sometimes cells begin to divide even when new cells are not needed, and these extra cells can form a mass of tissue called a tumor. Not all tumors are cancerous. **Benign (be-nine)** tumors can grow large and press on other organs but have no ability to invade other tissues or spread to other parts of the body. Benign breast tumors are never a threat to your life.

Malignant tumors are cancer and their cells are not normal. Instead of dying, cancer cells keep on growing and forming new cancer cells. Cancer cells can invade, or grow into, other nearby tissues. They can also break away from their original site and enter the bloodstream or lymphatic channel. This is how a metastasis (muh-**tas**-tuh-sis) begins. These breakaway cells can then form new tumors in other vital organs, and it is this process that can make cancer life threatening.

Breast cancer is a malignant tumor that starts from the cells lining the milk making part of the breast. If the cancer has spread outside the breast, it is commonly seen in the lymph nodes under the armpit (axillary nodes). Cancer cells may also spread to other parts of the body, like the lungs, liver, bones or brain. If a cancer spreads to other parts of the body, the new spots are still named after the primary tumor. For example, if a breast cancer spreads to the bones, a biopsy of this area would show breast cancer cells. We would call this metastatic breast cancer not bone cancer.

Breast cancer treatment can include surgery, chemotherapy, radiation therapy and hormone therapy. Not all patients get all treatments. The order of the treatments is personalized to each patient's circumstances.

CAUSES OF BREAST CANCER

DNA is the chemical in each of our cells that help make up our genes, and genes are the blueprint for how our cells are supposed to work. Sometimes a change occurs in the DNA that can make a normal breast cell become cancer. Most of these occur spontaneously, and the causes of these changes are not known. There are DNA changes which will run through families called mutations, some of which will increase the risk for developing breast cancer.

The most well-known are called BRCA 1 and 2, which are tumor suppressor genes. In their normal state, they keep cancers from developing. When a mutation occurs, cells no longer die at the right time and a cancer is much more likely to develop. Women with this mutation have a 60-80% lifetime risk for developing breast cancer, as well as an increased risk for ovarian cancer.

All women are at risk for breast cancer. Men can also get breast cancer, but this is rare (1:100). With the exception of skin cancer, breast cancer is the most common cancer diagnosed in women in the United States in all racial and ethnic groups. The two most important risk factors for developing breast cancer are being a female and getting older. Here is a chart which shows the chances of developing breast cancer by age:

By age 25: one in 19,608
By age 35: one in 622
By age 45: one in 93
By age 55: one in 33
By age 65: one in 17
By age 75: one in 11
By age 85: one in 9
By age 95: one in 8

RISK FACTORS

RISK FACTORS YOU CANNOT CHANGE

GENDER:

Breast cancer is 100 times more common in women than men.

AGE:

About two out of three women with invasive breast cancer are 55 years old or older.

FAMILY HISTORY:

Breast cancer risk is higher in women who have close blood relatives on either their mother's or father's side of the family. This risk increases with the number of individuals affected.

GENETIC RISK FACTORS:

Approximately 5 to 10% of breast cancers are thought to be linked to these inherited mutations, most commonly BRCA 1 or 2.

PERSONAL HISTORY OF BREAST CANCER:

If you have breast cancer in one breast, your chances of getting cancer in the other breast is 0.5 – 1.0% per year. You should talk to your doctor about what this means for you and potential risk reducing options.

RACE:

White women are more likely to develop breast cancer than African-American women, but African-American women are more likely to die of their cancers. Asian, Hispanic and Native American women have a lower risk of developing or dying from breast cancer.

EARLY BREAST RADIATION:

Women who have had radiation treatments to the chest area during puberty or young adulthood have a greatly increased risk of developing breast cancer.

ATYPICAL BREAST LESIONS:

Women who have had previous biopsies showing atypical proliferative lesions have an increased risk for developing breast cancer. There is a long list of these lesions including LCIS, atypical ductal hyperplasia, and papillomatosis.

MENSTRUAL HISTORY:

Women who begin to have their periods at a younger age, or who have menopause at an older age are at a slightly increased risk for developing breast cancer.

RISK FACTORS RELATED TO LIFESTYLE DECISIONS

PREGNANCY HISTORY:

Women who have not had children or who have their children after the age of 30 have an increased risk of breast cancer.

HORMONE REPLACEMENT THERAPY:

Postmenopausal combination hormone replacement with both estrogen and progesterone increases the risk of developing breast cancer. Estrogen alone does not appear to increase the risk.

ALCOHOL:

Women who have one drink a day have a small increased risk of developing breast cancer. Heavy alcohol users have much more risk.

OBESITY:

Women who are overweight or obese, especially after menopause, have a higher risk of breast cancer.

SEDENTARY LIFESTYLE:

Recent studies clearly show that exercise decreases the risk of breast cancer.