

October 2014 • Members

Breast Cancer

About 233,000 women will get breast cancer this year.¹ It is the second most common kind of cancer. More women will die from it than from any other cancer except lung cancer. Should you be concerned? Perhaps, if you have one or more of these risk factors:

- Family history of breast cancer
- Increasing age
- Ashkenazi Jewish ethnicity
- Overweight or obese
- Physical inactivity
- >1 alcoholic drink per day
- Long-term, heavy smoking
- Hormone replacement therapy
- 1st menstrual period at a young age
- Never having given birth to a child
- Older age at first live birth
- Older age at menopause
- Increased number of abnormal cells in the breast
- Abnormal cells in the milk glands of the breast
- Dense breast tissue as seen on mammography
- Radiation therapy in the chest before age 30 years

In this newsletter, we'll talk about the different kinds of breast cancer. This information might help you manage your risk better.



Could you be at risk of *BRCA1/BRCA2*-related breast cancer?

The answer might be yes if you:

- Have had breast cancer before the age of 50
- Have had 2 separate (primary) breast cancers at any age
- Have had a triple negative (ER, PR, and HER2 negative) breast cancer
- Have had ovarian cancer at any age
- Are a man who has had breast cancer
- Have a strong family history of breast and/or ovarian cancer
- Have a blood relative with a *BRCA1* or *BRCA2* mutation
- Are of Ashkenazi Jewish ethnicity

If any of the above sounds like you, click [here](#) to find out if you should talk with your doctor about *BRCA1/BRCA2* genetic testing.

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Three types of breast cancer

Breast cancer, like other cancers, is caused by changes (mutations) in DNA. These mutations can be passed down in families. They are inherited mutations. When this happens, the cancer is called *hereditary cancer*. When the mutations are not passed down, they are called sporadic mutations. They occur by chance in cells within the breast. The resulting cancer is called *sporadic cancer*. The third type of breast cancer, *familial cancer*, may result from both inherited and sporadic mutations as well as other things.

Hereditary breast cancer

Hereditary breast cancer accounts for ~5% to 10% of breast cancer in women.¹ The cancer usually occurs in women less than 50 years old. Other blood relatives may have had breast cancer too. In some families, certain other types of cancer might also occur.

Over 20 genes have been linked to hereditary breast cancer. The most common ones are *BRCA1* and *BRCA2*. Mutations in these 2 genes together account for 3% to 5% of all breast cancers.² They are the cause of hereditary breast and ovarian cancer (HBOC) syndrome. People with HBOC syndrome are at increased risk for cancer in the breast, ovary, pancreas, and/or prostate. They also have an increased risk for melanoma.

Mutations in other breast cancer genes are linked to other syndromes or conditions. People with a mutation in any of these genes have an increased risk of breast cancer. Here are a few of them:

- *TP53*, the cause of Li Fraumeni syndrome
- *PTEN*, the cause of Cowden syndrome
- *CDH1*, the cause of hereditary diffuse gastric cancer
- *STK11*, the cause of Peutz-Jeghers syndrome
- *PALB2*, the cause of *PALB2*-associated breast cancer

Sporadic breast cancer

Sporadic breast cancer accounts for the vast majority of breast cancer cases. It tends to occur later in life. Although another family member may have had it too, there is no sign that it was caused by an inherited mutation.

Familial breast cancer

In familial breast cancer, breast cancer happens more often in family members than in other people. But there are no clear signs of a mutation being passed down from the parent to the child. It may be caused by a combination of:

- Inherited mutations with a lower risk of breast cancer
- Sporadic mutations that occur by chance
- Shared lifestyle and habits

Additional information

- American Cancer Society: <http://www.cancer.org/healthy/morewaysacshelpsyoustaywell/breastcancer?gclid=CMWbv6uuy8ACFQiLaQod448A2w>
- WebMD® Breast Cancer Health Center: <http://www.webmd.com/breast-cancer/>
- National Cancer Institute: <http://www.cancer.gov/cancertopics/types/breast>
- MedlinePlus: <http://www.nlm.nih.gov/medlineplus/breastcancer.html>

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Type of breast cancer—why it matters

If a woman's blood relative has breast cancer, she might be at risk for either hereditary cancer or familial cancer. Genetic testing can help her find out. A positive result means she is at risk for hereditary cancer. A woman with a positive result might want to take action to prevent the cancer. She might choose surgery or drug therapy for this. More frequent and thorough screening is another option. Screening can help detect the cancer at an early stage. This is important, because treatment is more successful then. More frequent and thorough screening might also be an option for women at risk for familial breast cancer.

Women without a family history of breast cancer might be at risk for sporadic cancer. If they have an average risk for breast cancer, they can have basic screening³:

Age, years	Screening
≥25 but <40	<ul style="list-style-type: none"> Monthly breast self-exam Breast exam by a doctor every 1 to 3 years
≥40	<ul style="list-style-type: none"> Monthly breast self-exam Breast exam by a doctor every year Mammography every year

So the type of breast cancer women are at risk for can change what they do to manage their risk. The type of breast cancer also affects the type of treatment and monitoring doctors recommend if breast cancer is diagnosed. Doctors might recommend more aggressive treatment for a woman who has hereditary breast cancer. Doctors might also monitor such a woman more often.

How the laboratory can help

Quest Diagnostics offers genetic testing for women and men with a personal or family history of breast cancer. To go with the testing, Quest Diagnostics offers:

- A service that helps you find a genetic counselor
- A service that helps you find out if your insurance company will pay for the genetic test
- Financial assistance for genetic testing
- A patient [support guide](#) that helps you learn about *BRCA1/BRCA2* testing.

Quest Diagnostics also offers testing to give doctors more information about a person's breast cancer. Doctors use this information to choose the best treatment for each patient. Doctors can also order tests that tell how the cancer is responding to treatment.

References

1. American Cancer Society. Cancer facts and figures 2014. <http://www.cancer.org/acs/groups/content/@research/documents/webcontent/acspc-042151.pdf>. Accessed September 5, 2014.
2. ACOG Practice Bulletin No. 103: Hereditary breast and ovarian cancer syndrome. *Obstet Gynecol.* 2009;113:957-966.
3. National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology. Breast cancer screening and diagnosis. V1.2014. http://www.nccn.org/professionals/physician_gls/f_guidelines.asp?button=I+Agree#site. Accessed September 3, 2014.