

KNOW About Breast Cancer

Genetic Testing for Hereditary
Breast Cancer



Does cancer run in **your** family?

Breast cancer is fairly common in some families. Women in these families might want to know if they are at high risk for breast cancer. High risk can come from a change in DNA called a mutation. Sometimes a mutation is passed down from a parent.

Breast cancer caused by a mutation passed down from a parent is called *hereditary* breast cancer. This type of breast cancer is not very common. Only 5% to 10% of all breast cancers are caused by mutations passed down from parents. But people with this type of mutation are at higher risk for breast cancer than people without such a mutation.

Quest Vantage includes numerous tests for hereditary breast and other cancers. This Patient Support Guide will help you understand the tests, so you and your doctor can decide if one of them is for you.

If you decide to be tested, you will have a better idea of your risk. You and your doctor can then decide what the next steps should be. If you are at high risk, there are steps you can take to decrease your risk. Taking steps today can help keep you healthy tomorrow and in the years to come.

The Quest Vantage tests for hereditary breast cancer*

Test name	Genes tested for
BRCA vantage® Ashkenazi Jewish Screen	<i>Common founder mutations BRCA1 c.68_69delAG, BRCA1 c.5266dupC, BRCA2 c.5946delT</i>
BRCA vantage® Ashkenazi Jewish Screen with Reflex to BRCA vantage® Comprehensive	<i>Ashkenazi Jewish Screen, if negative reflex to BRCAvantage Comprehensive 92140</i>
BRCA vantage® Comprehensive Tests for genes associated with BRCA-related breast and ovarian cancer syndrome	<i>BRCA1, BRCA2</i>
MY vantage™ Hereditary Comprehensive Cancer Panel Tests for risk of hereditary breast, colorectal, uterine, melanoma, ovarian, pancreatic, prostate, stomach, and other cancers	<i>APC, ATM, BARD1, BMPR1A, BRCA1, BRCA2, BRIP1, CDH1, CDK4, CDKN2A (p14, p16), CHEK2, EPCAM, MEN1, MLH1, MSH2, MSH6, MUTYH (MYH), NBN (NBS1), NF1, PALB2 (FANCN), PMS2, POLD1, POLE, PTEN, RAD51C, RAD51D, RET, SDHB, SDHC, SDHD, SMAD4, STK11, TP53, VHL</i>
Single Site and Single Gene Testing	Select genes

*For the complete test offering or menu go to QuestVantage.com.

How do I know if I should be tested?

These tests are only for certain people. You might want to talk with your doctor or genetic counselor about getting tested 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 male blood relative who has had breast cancer
- Have a strong family history of breast and/or ovarian cancer
- Have a blood relative with a gene mutation
- Are Ashkenazi Jewish

There may be other reasons to consider these tests. You might want to talk with your doctor or genetic counselor if cancer of any type is common in your family.

Which Quest Vantage test is right for me?

The right test depends on your history of cancer. It also depends on your family's history of cancer. Talk to your doctor or genetic counselor. They can help you decide which test is right for you.

Will the test results tell me if I will get breast cancer?

No. The test cannot tell you if you will get cancer. The test will tell you if you have a mutation in one of the genes included in your test. If you do have a mutation, you are at higher risk of developing cancer.

If I have a mutation, will someone else in my family have one, too?

Possibly. Your mother, father, brother, sister, and child each has a 50% chance of having the same mutation. Other relatives might have the mutation, too.

Relative	Their Chance of Having the Same Mutation
Identical twin	100%
Fraternal twin	50%
Parent, sibling, child	50%
Grandparent, uncle, aunt, niece, nephew	25%
First cousin	12.5%

At what age should I get tested?

Adults can be tested at any age. Most of the time genetic testing is not recommended for people under the age of 18. But there are some exceptions. For example, if there is a mutation in your family that can cause childhood cancer, it may be a good idea to be tested at a younger age.

Where can I get a Quest Vantage test done?

You can get a Quest Vantage test through your doctor. The first step is to talk with your doctor or genetic counselor. They'll help you learn more about the tests. Then if you still want to be tested and your doctor agrees, he/she can order a test for you.



How is a Quest Vantage test done?

First, a sample of your blood is collected at your doctor's office or at a Quest Diagnostics Patient Service Center. The sample is then sent to Quest Diagnostics for testing. After the test, results are sent to your doctor.

How long will it take to get results?

Your doctor will receive the results 14 to 21 days on average from receipt of sample and complete documentation.

Does insurance cover the cost of a Quest Vantage test?

That depends on your insurance coverage. Many do cover it. To find out if your insurance company covers it, you can:

- Call them
- Ask someone at your doctor's office to help you
- Ask Quest Diagnostics to help you; call Quest Genomics Client Services at 866.GENE.INFO (866.436.3463). Ask to speak to a Concierge Team member

If needed, your doctor can send your insurance company a letter to help support your claim. This letter is called a letter of medical necessity.

Could I lose my health insurance if I test positive?

No. You are protected by federal laws. If you test positive, the insurance company cannot:

- Cancel your insurance
- Increase your premium
- Refuse to cover you based on the test result



Making sense of your test results

Your doctor or genetic counselor will tell you what your results are. He/she will also help you understand what they mean. Together, you can decide on the next steps.

There are 3 possible results:

- Negative

No mutations (changes) were found in the genes included in your test. This does not mean you won't get cancer. But your risk for developing cancer is lower than if you had a positive result. There are other genes that can cause an increased risk for cancer. Your healthcare provider can help you understand what your revised risk is.

+ Positive

A mutation was found. This means that you have a higher risk for breast cancer. It also means you have a higher risk for other types of cancer. The types of cancer depend on which gene has the mutation. But this doesn't mean that you actually have cancer or will get cancer.

VUS Inconclusive

A "variant of unknown significance" was found. This means you have a change in one of the genes included in your test. But physicians and scientists don't know if this means you have a higher risk or not. Over time, scientists may learn more about the change. So, check with your doctor or genetic counselor each year to see if they can update your risk.

To the right are some questions that people often ask about the test results.

Does a negative result mean I'm not at risk for hereditary breast cancer?

Not necessarily. No mutations were found in the genes included in your test. If cancer runs in your family, it's possible that a different gene may be responsible. Scientists continue to learn more about the causes of hereditary cancer. Be sure to update your provider with any changes in your personal or family history. You may wish to revisit genetic testing again in the future.

I have a positive result. Does this mean I will get cancer?

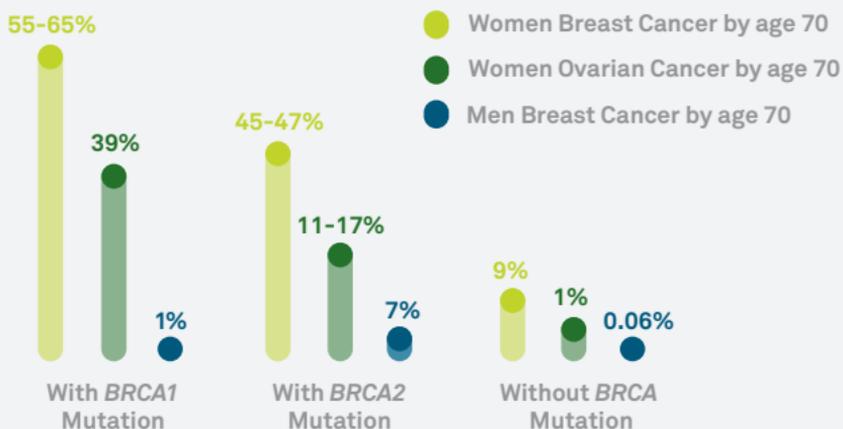
No. A positive result means you have a mutation that could lead to cancer. But people with a positive result do not always get cancer. There is no way to know if you will actually get cancer or not. But you do have a greater chance of developing cancer. So it's important that you talk with your doctor to find out what you can do to lower your chance of developing cancer.

I have a positive result. What are my chances of developing breast cancer?

The chances for breast cancer depend on the gene you tested positive for. For example, if you have a mutation in *BRCA1* or *BRCA2*, your risk for breast cancer is in the table below.

If you have a mutation in one of the other genes, your risk varies from 24% to 85%. It depends on which gene has the mutation.

Risk of cancer



I have a positive result. What other types of cancer am I at risk for?

That depends on which gene your mutation was found in. Each gene is linked to a group of conditions, called a syndrome. Each syndrome is associated with specific cancers.

I have a positive result. Should anyone else in my family be tested?

Possibly. Your parents, brothers, sisters, and children each have a 50% chance of having the mutation you have. Your other blood relatives have some risk, too. They should talk with their doctors to decide if they want to be tested. Testing could help them know where they stand and if they need to do something to lower their risk of developing cancer. Consider sharing your test results with your family.

Lowering your risk

Making your choices

If you have a **negative** test result, you can breathe a little easier. Your risk is lower than if you had a positive result. But since you could still be at risk, do what you can. Consider talking with your doctor to see what further steps he/she may recommend for you.

If your result is **positive**, you are at higher risk. It's very important for you to learn about the things that can help lower it. These things could include:

- Increased cancer screening
- Surgery
- Medicines (chemoprevention)
- Lifestyle changes

Talk with your doctor or genetic counselor to find out what is best for you.

If your result is **inconclusive**, it doesn't tell you if you're at higher risk or not. Testing family members might tell you more. Start by talking with your doctor or genetic counselor.



Below are some questions that people often ask about the next steps.

Will increased cancer screening keep me from developing cancer?

No. But it might detect cancer sooner. And early detection improves your chances of beating it.

Will surgery help keep me from developing cancer?

Studies have shown that surgery reduces the risk of breast cancer. But surgery is not for everyone. There are down sides to having surgery. So, talk with your doctor or genetic counselor to learn more.

How good are medicines at lowering cancer risk?

Some medicines lower cancer risk in some people. How well medicine works varies from patient to patient. It also depends on the type of medicine. Talk with your doctor or genetic counselor to get more information.

Is it time to know what you don't know?

Some women have a high risk of developing breast cancer. This can come from having a change (mutation) in one of the genes included in your test. The mutation can be passed down from parent to child. When this happens, breast cancer and other types of cancer may be more common among family members.

You don't have to wait and wonder if you are at high risk. A Quest Vantage test can help you find out if you have a mutation in a gene related to breast cancer. To learn more, go to [QuestVantage.com](https://www.questvantage.com). The knowledge you gain will give you the power to do something about your risk.

Genetic testing isn't for everyone. If you think you might be at risk for hereditary breast cancer, talk with your doctor. Find out if testing is right for you. If it is, you can soon begin to take control of your cancer risk.

At Quest Diagnostics, our vision is *Empowering Better Health with Diagnostic Insights*. This means that we want to give you information that helps you be healthier.

We've been listed in Fortune Magazine's list of the "World's Most Admired Companies" since 2008. Our products have been featured by the Edison Institute for Leadership in Diagnostic Innovation. But what's most important to us is that we:

- Support your health and well-being
- Partner with healthcare workers who dedicate themselves to their patients

For more information about our tests and services, visit [QuestDiagnostics.com](https://www.questdiagnostics.com).



Feel good about getting tested for breast cancer. The more you know, the more you can do to enjoy better health.



Life has enough mysteries. Don't let your risk for hereditary breast cancer be one of them.



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