

DECEMBER 2013 • MEMBERS

Hereditary Breast and Ovarian Cancer

Hereditary cancer

Some people inherit a tendency to get cancer. This happens when a parent passes on an altered gene to his or her child. For example, a parent passes on an altered *BRCA1* or *BRCA2* gene to a child. Daughters will have an increased risk for getting cancer of the breast and ovary. Sons have an increased risk for getting prostate cancer. And both have an increased risk for cancer of the pancreas and melanoma. All these people with an altered *BRCA* gene have **hereditary breast and ovarian cancer (HBOC) syndrome**.

Changes in other genes can cause HBOC syndrome too. But changes in the *BRCA1* and *BRCA2* genes are more common than changes in the other genes.

Are you at risk for HBOC syndrome?

People at risk usually have close relatives with one or more of these cancers. But it's not quite that simple. There are many people who have close relatives with one of these cancers but don't have HBOC syndrome. So experts have developed a list of things that help identify those at risk. You might be at risk 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 Ashkenazi Jewish

What if I'm at risk for HBOC syndrome?

If you think you might be at risk, talk with your doctor or genetic counselor. Together you can figure out if you actually are at risk. If you are, you should think about getting tested to find out if you have HBOC syndrome. The test looks for changes (mutations) in the *BRCA1* and *BRCA2* genes. If changes are found in your genes, you might have HBOC syndrome.



HBOC syndrome and cancer risk¹⁻⁵

Cancer	Risk of Cancer		
	With <i>BRCA1</i> Mutation	With <i>BRCA2</i> Mutation	Without <i>BRCA</i> Mutation
Women			
Breast cancer ^a	55–65%	45–47%	9%
Ovarian cancer ^a	39%	11–17%	1%
2nd breast cancer ^b	83%	62%	15%
Men			
Breast cancer ^a	1%	7%	0.06%

^a Risk of developing cancer by age 70.

^b Lifetime risk of developing a second breast cancer.

What if I have HBOC syndrome?

If your test shows you have HBOC syndrome, you are at increased risk of getting cancer. But this doesn't mean you actually will get cancer. Not everyone with HBOC syndrome gets cancer. And there are things you can do to increase your chances of staying healthy. You can have:

- Increased cancer screening
- Surgery
- Medicines (chemoprevention)

Your doctor or genetic counselor will talk with you about these things if you have HBOC syndrome. Together, you can decide what is best for you. The important thing is that you know you are at risk and are doing what you can to stay healthy.

Should I tell my family?

If you have HBOC syndrome, share your test results with your blood relatives. They might have the syndrome too. They should learn more about it and decide if they want to be tested. If they test positive, they can take steps to guard their health.

What if I don't have HBOC syndrome? Can I still get cancer?

Yes, you can still get one of these cancers. Most cancers are not inherited. So it's important for you to continue getting screened for cancer.

Additional information

BRCAVantage.com/patient-resources/ has information about:

- Hereditary breast and ovarian cancer syndrome
- The test for *BRCA1* and *BRCA2* mutations
- A quiz that can tell you if you might be eligible for the test

References

1. Cancer Query System: Probability of Developing or Dying of Cancer: <http://surveillance.cancer.gov/devcan/canques.html>. Accessed September 24, 2013.
2. Antoniou A, Pharoah PDP, Narod S, et al. Average risks of breast and ovarian cancer associated with *BRCA1* or *BRCA2* mutations detected in case series unselected for family history: a combined analysis of 22 studies. *Am J Hum Genet.* 2003;72:1117-1130.
3. Chen S, Parmigiani G. Meta-analysis of *BRCA1* and *BRCA2* penetrance. *J Clin Oncol.* 2007;25:1329-1333.
4. Mavaddat N, Peock S, Frost D, et al. Cancer risks for *BRCA1* and *BRCA2* mutation carriers: results from prospective analysis of EMBRACE. *J Natl Cancer Inst.* 2013;105:812-822.
5. Tai YC, Domchek S, Parmigiani G, et al. Breast cancer risk among male *BRCA1* and *BRCA2* mutation carriers. *J Natl Cancer Inst.* 2007;99:1811-1814.