



# BASSER RESEARCH CENTER for BRCA

Abramson Cancer Center  
 Penn Medicine

## *BRCA1* and *BRCA2* in the Ashkenazi Jewish Community

Individuals of Ashkenazi Jewish (Central or Eastern European) ancestry have a 1 in 40 chance of carrying a *BRCA1* or *BRCA2* gene mutation. This is at least a ten times greater probability than that of the non-Jewish population. Many Jewish women and men are not aware that they carry one of these gene mutations.

Women who carry mutations in *BRCA1* or *BRCA2* have up to an 80% risk of developing breast cancer and up to a 45% risk of developing ovarian cancer. BRCA mutations are also associated with increased risk of fallopian tube, primary peritoneal (abdominal lining), pancreatic, melanoma, male breast and prostate cancers. Men who carry BRCA mutations also have increased cancer risks and like women, can pass the mutation on to their children.

Those who test positive for a gene mutation have many options available to lower their cancer risks and to detect cancer at an earlier, more treatable stage. Genetic testing can provide lifesaving information.

Although the *BRCA1* and *BRCA2* genes are important predictors of cancer risk, they are not the only ones. A thorough risk assessment by a cancer genetics professional is important to comprehensively assess personal medical and family history information.

## Frequently asked questions about *BRCA1* and *BRCA2*

### Who should seek genetic counseling for a *BRCA1* or *BRCA2* mutation?

The National Comprehensive Cancer Network (NCCN) guidelines are used by health care providers to determine when *BRCA1* and *BRCA2* genetic testing is appropriate. Per the NCCN guidelines, those of Ashkenazi Jewish ancestry should consider genetic risk evaluation for BRCA testing if **you or a family member has had:**

- Breast cancer
- Ovarian cancer

Pancreatic cancer in individuals of Ashkenazi Jewish descent also warrants genetic risk evaluation. Testing is most informative when a family member who has had one of these types of cancer has genetic testing first. If that person is found to have a harmful gene mutation, then other family members can be tested.

If no family members with cancer are available for testing, testing can be considered in family members without a history of cancer. A genetics specialist can discuss the limitations of this approach to genetic testing and identify the most appropriate candidate for genetic testing within the family.

## How should an individual prepare for a cancer genetics evaluation?

- Obtain a referral to see a genetics provider if you have Ashkenazi Jewish ancestry and a personal or close family history of breast, ovarian, or pancreatic cancer.
- Collect and share the details of your family history of cancer and ancestry with your genetics provider.
- Remember that family history from both your mother's and father's sides matter, since *BRCA1* and *BRCA2* mutations can be passed down by men and women of Jewish or non-Jewish ancestry.
- Note that most people of Ashkenazi Jewish ancestry only need testing for the 3 most common "Jewish mutations" found in the *BRCA1* and *BRCA2* genes. More comprehensive testing may be necessary depending on one's ancestry and family history of cancer. Your genetics provider can address this in detail.

## Who is likely to carry a BRCA1 or BRCA2 mutation?

The chance that breast, ovarian, or pancreatic cancers are associated with BRCA mutations is highest in families with Ashkenazi Jewish ancestry, multiple cases of breast cancer, women with both breast and ovarian cancer, breast cancer under age 50, individuals with two or more cancers, male breast cancer, pancreatic cancer, or ovarian cancer at any age.

## What is the chance of passing on or inheriting a BRCA mutation?

If a mother or father carries a mutation, there is a 50% chance of passing it on to each child. This means that not all individuals from families with BRCA mutations inherit the same cancer risk.

## How much is BRCA testing and does insurance cover it?

The test for the 3 most common BRCA mutations found in Jewish people costs several hundred dollars. In most instances this cost is covered, either in part or in full, by insurance carriers.

## Will a BRCA test result interfere with getting health insurance?

Federal legislation known as the Genetic Information Nondiscrimination Act (GINA) was passed in 2008. This provides protection against discrimination in health insurance coverage and employment settings based on an individual's genetic information, such as BRCA test results or family history.

## Where do I get more information about BRCA1 and BRCA2?

For more information visit [PennMedicine.org/Basser/Ashkenazi](http://PennMedicine.org/Basser/Ashkenazi), call 215.662.2748, or email [basserinfo@uphs.upenn.edu](mailto:basserinfo@uphs.upenn.edu).

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From the **Basser Research Center for BRCA** in collaboration with:

