WHO SHOULD BE SCREENED FOR HEREDITARY CANCER?

Check any of the following that apply to you, and remember to consider both your mother's and father's family histories—they each count equally.

- *Two or more closely related individuals with breast cancer, diagnosed at any age*
- *Cancer diagnosed at young ages (before 50)*
- *Multiple cancer diagnoses in one individual (e.g. breast and ovarian, bilateral breast cancer)*
- *Triple negative breast cancer diagnosis*
- *Individuals affected in multiple generations (e.g. grandfather, mother and aunt)*
- *Rare cancers such as ovarian cancer or male breast cancer*
- *Two or more family members with breast, ovarian, pancreatic, prostate, skin, uterine, colon or stomach cancers*
- *Ashkenazi Jewish ancestry*

If you checked one or more boxes above, you could be at increased risk for a hereditary cancer. Genetic counseling services can help you further assess your risk and decide whether or not to get screened. Not sure where to go? The Norton & Elaine Sarnoff Center for Jewish Genetics can help you get started.

Genetic testing technology changes rapidly. If you received screening in the past, a genetic counselor can help you determine if additional testing is appropriate for you or your family.

5 FACTS ABOUT HEREDITARY BREAST AND OVARIAN CANCER SYNDROME

01. You can inherit BRCA mutations from either your father's or your mother's side of the family. If there's a history of breast, ovarian or other cancers on either side of the family, you may have an increased risk.

02. Only 5–10% of all breast cancers are thought to be caused by an inherited genetic mutation; the majority are caused by other risk factors.

03. Men with BRCA mutations have an increased risk for male breast cancer and prostate cancer. Some BRCA families face increased risk for pancreatic cancer and stomach cancer.

04. Women with BRCA mutations have a lifetime risk of breast cancer between 45–87%, and a lifetime risk of ovarian cancer between 18–46%. However, BRCA mutation positive individuals can take action to significantly lower their risks.

05. Just because you test negative does not mean that you are not at risk for cancer. In fact, most women with breast cancer do not have a BRCA gene mutation. There are some limitations to BRCA testing and there are other inherited risk factors that can put you in a high-risk group.

Knowledge** is the key to **prevention.

NORTON & ELAINE SARNOFF CENTER FOR JEWISH GENETICS

The Norton & Elaine Sarnoff Center for Jewish Genetics is an educational resource for hereditary cancers and Jewish genetic disorders.

Working closely with clergy, healthcare professionals, support organizations and dedicated individuals, the Sarnoff Center strives to inform community members and raise awareness of available options, including its own subsidized genetic counseling and screening program for recessive disorders, so they can plan for a healthy future.

JewishGenetics.org
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Jewish United Fund TOGETHER *for* GOOD

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HEREDITARY CANCERS

What You Need to Know

NORTON & ELAINE SARNOFF CENTER FOR JEWISH GENETICS

Jewish United Fund TOGETHER *for* GOOD

HEREDITARY CANCERS: THE FACTS

EVERYONE IS AT RISK

» Everyone faces a risk of cancer; however, some individuals may be at higher risk based on their family history and/or ethnic background.

» One in 40 individuals of Ashkenazi Jewish descent is a carrier of a BRCA mutation, and at risk for Hereditary Breast and Ovarian Cancer (HBOC) Syndrome. Individuals in the Jewish population are ten times more likely to carry these mutations than the general population.

NOT JUST BREAST CANCER

» In addition to breast cancer, *BRCA1* and *BRCA2* mutations also increase the risk of ovarian cancer, prostate cancer and pancreatic cancer.

» Cancers in people with hereditary risk tend to develop at younger ages (<50 years) compared to cancers in the general population, although they may develop at any age.

» Genetic testing can help individuals be proactive about their risk and learn how to prevent and detect cancer at earlier stages.

CANCER RISKS ASSOCIATED WITH BRCA MUTATIONS

CANCER	POPULATION RISK	*BRCA1* & *BRCA2* CARRIER RISK*
Breast	**8–12%**	**45–87%**
Second Breast	**<10%**	**2–3% per year** (50–60% cumulative)
Ovarian	**<2%**	**18–46%**
Male Breast	**0.1%**	**1–8%**
Prostate	**16%**	**20–30%**
Pancreatic	**1.5%**	**2–5%**

**Risk varies dependent on BRCA mutation type and other factors. A genetic counselor can give you a more personalized risk assessment.*

NOT JUST WOMEN

» *BRCA1* and *BRCA2* genes are found in both men and women. Both mothers and fathers can pass mutations down to daughters and sons at equal rates.

» Men can also be affected with cancers associated with BRCA mutations.

» Individuals who carry a mutation in the *BRCA1* or *BRCA2* genes have a 50% chance with each pregnancy to have a child who will carry the same BRCA mutation.

> ***You can't always see a car coming, but you can know your genetic risks. Take advantage of knowing. Knowledge is power, so be powerful."***
>
> *—Young adult BRCA mutation carrier*

RESOURCES

The Norton & Elaine Sarnoff Center for Jewish Genetics has a variety of resources to help you find all the information you need—including local screening resources, support groups and research.

JewishGenetics.org

BEYOND BRCA

BRCA1 and *BRCA2* are not the only genes associated with breast cancer risk. New research has identified other genes related to breast cancer, including *ATM*, *CHEK2*, and *PALB2*. Individuals who had BRCA genetic testing more than five years ago can speak with a physician or genetic counselor about updated genetic testing options.

There are also several hereditary cancer syndromes related to other types of cancer. Some of these hereditary cancers may be more common in Jews, but are also seen in individuals of every ethnicity. Genetic counseling can help you determine what tests are most appropriate for you and your family, and which family members should be tested first.

Examples of Hereditary Cancer Syndromes:

Hereditary Non-Polyposis Colorectal Cancer (HNPCC)/Lynch Syndrome

Gene: *MLH1, MSH2, MSH6, PMS2, EPCAM*

Related Cancers: colon, uterine, ovarian, stomach, endometrial, pancreatic, small intestine and others

Familial Adenomatous Polyposis (FAP)

Gene: *APC*

Related Cancers: colorectal, intestinal, brain, stomach, bone, skin and others

Li-Fraumeni Syndrome

Gene: *TP53*

Related Cancers: breast, sarcoma, leukemia, brain, adrenal

Cowden Syndrome

Gene: *PTEN*

Related Cancers: breast, thyroid, endometrial

> ***The Center helped me understand the implications of my positive test result and connected me with the team of resources I needed in Chicago."***
>
> *—25-year-old BRCA mutation carrier*

ABOUT INHERITANCE

We have two copies of all of our genes, one from our mother and one from our father. These genes instruct our body on how to grow and function. Genetic disorders arise when one or both copies of a specific gene have undergone an alteration or mutation. Not all individuals with a gene mutation will develop the particular disease; however, having a single mutation is enough to increase their risk compared to someone without the mutation.

Individuals with a BRCA mutation are at an increased risk of developing certain cancers and are also at an increased risk of passing the mutation on to their children. In every pregnancy there is a 50% chance that the child will inherit the gene mutation and a 50% chance that they will not inherit the gene mutation.