

Hereditary Breast *and* Ovarian Cancer Syndrome

A Patient's Guide

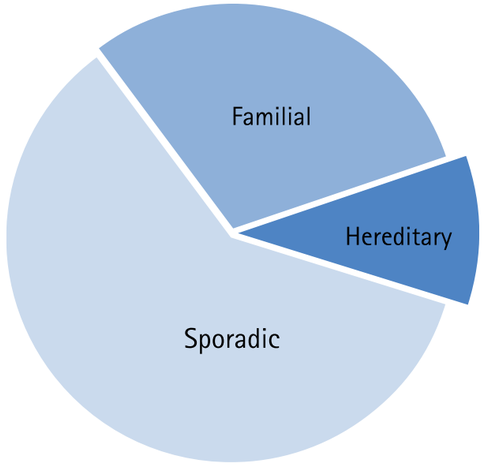
to risk assessment

Hereditary Cancer Testing: Is it Right for You?

This workbook is designed to help you decide if hereditary cancer testing is right for you and should be reviewed with a trained healthcare provider.

Introduction

Most cancer occurs by chance. This is often called "sporadic cancer." In some families we see more cancer than we would expect by chance alone. Determining which of these families have cancer related to an inherited gene mutation is important, as the cancer risks in hereditary cancer families are much higher than the general population.



Sporadic Cancer – Cancer which occurs by chance. People with sporadic cancer typically do not have relatives with the same type of cancer.

Familial Cancer – Cancer likely caused by a combination of genetic and environmental risk factors. People with familial cancer may have one or more relatives with the same type of cancer; however, there does not appear to be a specific pattern of inheritance (eg, the cancer risk is not clearly passed from parent to child).

Hereditary Cancer – Cancer occurs when an altered gene (gene change) is passed down in the family from parent to child. People with hereditary cancer are more likely to have relatives with the same type or a related type of cancer. They may develop more than one cancer and their cancer often occurs at an earlier than average age.

Personal or Family History of Breast and Ovarian Cancer*

Check all that apply:

- ☐ Breast cancer at age 50 or younger
- ☐ Ovarian cancer at any age
- ☐ Male breast cancer at any age
- ☐ Ashkenazi Jewish ancestry and a personal or family history of an HBOC-associated† cancer at any age
- ☐ Two breast cancers in the same person or on the same side of the family
- ☐ Triple negative breast cancer at any age
- ☐ Pancreatic cancer and an HBOC-associated† cancer in the same person or on the same side of the family
- ☐ A previously identified *BRCA1* or *BRCA2* mutation in your family

Hereditary Breast and Ovarian Cancer (HBOC) syndrome is an inherited condition that causes an increased risk for ovarian, breast, pancreatic and prostate cancer. The vast majority of hereditary breast and ovarian cancer is due to an alteration or gene mutation in either the *BRCA1* or *BRCA2* genes. These gene mutations can be inherited from either your mother or father.

Cancer Risks for People Who Have a BRCA Gene Mutation

	BRCA Gene Mutation	General Population
Breast Cancer	up to 87%	8%‡
Ovarian Cancer	up to 44%	less than 1%
Male Breast Cancer	up to 8%	0.05%‡
Second Primary Breast Cancer	up to 64%	up to 11%
Pancreatic Cancer	up to 7%	less than 1%‡
Prostate Cancer	up to 20%	13%‡

*Assessment criteria based on medical society guidelines. For these individual medical society guidelines go to www.myriadtests.com/patient_guidelines
† HBOC-associated cancer include breast, ovarian, and pancreatic cancer
‡ According to SEER data by age 70 for female, by age 80 for male.

Managing Hereditary Breast and Ovarian Cancer Risk*

INCREASED SURVEILLANCE

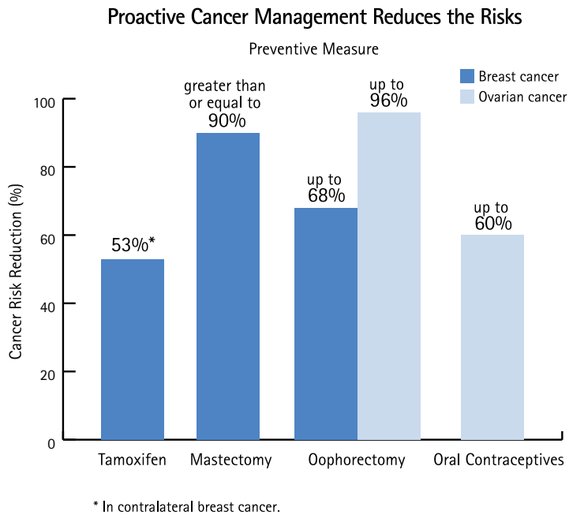
- Monthly breast self exams starting at the age of 18 and clinical breast exams two times a year beginning at age 25
- Yearly screening with both mammography and MRI beginning at the age of 25
- Pelvic exam twice a year beginning at age 35 in patients not electing surgery to reduce ovarian cancer risk
- Transvaginal ultrasound (an imaging technique used to create a picture of the genital tract in women by using a hand-held device inserted directly into the vagina) and testing for CA-125 levels in the blood two times a year if surgery to reduce ovarian cancer risk is not done

CHEMOPREVENTION

- Drugs such as tamoxifen have been shown to reduce the risk of breast cancer in high risk women
- Birth control pills may reduce the risk of ovarian cancer in women with *BRCA1* or *BRCA2* gene mutations

PREVENTIVE SURGERY

- Preventive mastectomy (removal of the breasts) significantly reduces the risk of breast cancer in women with *BRCA1* or *BRCA2* gene mutations
- Preventive removal of the ovaries and fallopian tubes (Bilateral Salpingo Oophorectomy) significantly reduces the risk of ovarian cancer, and also breast cancer, in women with *BRCA1* or *BRCA2* gene mutations



* In contralateral breast cancer.

*For reference and supporting data on risk factors and medical management visit www.myriadtests.com/references

Testing Options

There are four types of tests to look for *BRCA1* and *BRCA2* mutations:

- ❑ **Comprehensive BRAC*Analysis*® Testing:**
  Full examination of the most common changes of *BRCA1* and *BRCA2* genes. This test is for people who do not have any known gene mutations in the family.
- ❑ **Single Site BRAC*Analysis*:**
  This test is for individuals who already know a *BRCA1* or *BRCA2* gene mutation is in the family. Before taking this test, you should find out the name of the gene mutation from family members who have tested positive.
- ❑ **Multisite 3 BRAC*Analysis*:**
  This test examines the three most common *BRCA1* and *BRCA2* gene mutations in individuals of Ashkenazi Jewish ancestry.
- ❑ **BRAC*Analysis* Large Rearrangement Test (BART):**
  Most *BRCA1* and *BRCA2* gene mutations can be found with the Comprehensive BRAC-*Analysis* test. However, there are some much less common gene mutations that can only be found using a test called the BRAC*Analysis* Large Rearrangement Test (BART).

Your doctor will decide based on your personal and family history which test is right for you.

Possible Test Results

Positive Result → **Increased Cancer Risk**
Medical management based on recommendations for people who have the *BRCA1* or *BRCA2* gene mutations

Negative Result

- A gene mutation has been previously identified in the family (Single Site Analysis) → **No Increased Cancer Risk**
  Medical management based on general population cancer screening recommendations
- No gene mutation has been previously identified in the family (Comprehensive Analysis) → **Chance of HBOC Significantly Reduced**
  Medical management based on personal and family history of cancer

Uncertain Variant → **Cancer Risk Not Fully Defined**
Medical management based on personal and family history of cancer

It's a Family Affair

- *BRCA1* and *BRCA2* gene mutations may be passed on in a family
  - If you have a gene mutation, your parents, your children, and your brothers and sisters have a 50% chance that they have the same gene mutation
  - Other relatives such as aunts, uncles and cousins may also be at risk to carry the same gene mutation
  - Testing is the only way to identify gene mutation carriers
- It is important to share test results with family members
- Family members have different viewpoints and reactions to genetic testing

Benefits and Limitations of Testing

BENEFITS

- Personalized hereditary cancer risk assessment
- Information to help make medical management decisions to help reduce cancer risk
- Important information for family members to help determine their risk
- Reduced anxiety and stress

LIMITATIONS

- Testing does not detect all causes of hereditary cancer
- A negative result is most helpful when there is a known mutation in the family

Notes:

Health Care Coverage

Insurance coverage for genetic testing is excellent, with the majority of patients covered for testing. Although each case is unique, the average patient pays coinsurance of less than $100.*

For information regarding Myriad's Patient Financial Assistance Program visit **www.myriadtests.com** or contact Customer Service at 800-469-7423.

Privacy

Federal laws (HIPAA and GINA) and laws in most states prohibit discrimination regarding employment eligibility, health benefits, or insurance premiums based solely on genetic information. Additionally, it is Myriad's policy that test results are disclosed only to the ordering healthcare professional or designee, unless the patient consents otherwise.

Next Steps:

☐ Pursue testing

☐ Schedule follow-up appointment to discuss results

Date:_____ Time:_____

☐ Decline testing—Medical management based on personal and family history of cancer

☐ Undecided

☐ Talk to family

Who to contact with questions:_____

*Test prices may be confirmed by calling Myriad Customer Service at 800-469-7423. Unmet deductibles are always the responsibility of the patient.

Additional Resources

Myriad Genetic Laboratories, Inc.
www.BRACnow.com
800-4-MYRIAD (800-469-7423)
Email Medical Services with questions about testing: helpmed@myriad.com

National Society of Genetic Counselors (NSGC)
www.NSGC.org
nsgc@nsgc.org
312-673-6972

Bright Pink
A national non-profit organization providing education and support to young women who are at high risk for breast and ovarian cancer.
Brightpink@bebrightpink.org
BeBrightPink.com

Young Survival Coalition
An international organization dedicated to the critical issues unique to young women and breast cancer.
www.youngsurvival.org
212-206-6610

Cancer Support Community
An international organization dedicated to providing support, education and hope to people affected by cancer.
www.cancersupportcommunity.org
202-659-9709

JUST ASK!™

BRAC*Analysis*®

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