

# FACT SHEET

## Hereditary Breast and Ovarian Cancer

### **Introduction**

One in eight (12%) of U.S. women aged 90 years or younger will develop breast cancer sometime during her lifetime. One in 70 (1.4%) will develop ovarian cancer. Female sex, increasing age, and family history of breast and/or ovarian cancer are the three greatest risk factors for both breast cancers and ovarian cancer. The majority of breast and ovarian cancers are not caused by an inherited genetic factor. However, 5-10% of all breast cancer is caused by a genetic change inherited from a parent. Patients with hereditary cancer face additional cancer risks themselves as do their family members. Identifying those at-risk and providing access for a cancer risk assessment are important in best caring for all members of these families.

### **What are BRCA-1 and BRCA-2?**

BRCA-1 and BRCA-2 are two genes that we know are related to breast and ovarian cancer risk. Some changes (mutations) in these genes increase the risk for breast and ovarian cancer. Inherited mutations in genes other than BRCA-1 and BRCA-2 have been shown or are suspected to increase susceptibility for developing breast and other forms of cancer. Testing might be available for some of these mutations as well. A cancer risk assessment is most important in making sure appropriate genetic testing is offered and performed.

### **Who is most likely to have a BRCA-1 or BRCA-2 mutation?**

Most women do not have a mutation in the BRCA-1 or BRCA-2 gene. The National Cancer Institute has stated that some factors increase the likelihood that a person carries an inherited BRCA mutation. They include:

1. A family history of several (three or more) close blood relatives (sisters, daughters, mother, grandmothers, aunts, cousins) affected with breast cancer, ovarian cancer, or both.
2. A family history of early onset (before 50 or before menopause) breast or ovarian cancer in one or more close blood relatives (sisters, daughters, mother, grandmothers, or aunts).
3. A family history of one or more close blood relatives (sisters, daughters, mother, grandmothers, aunts) with two or more primary tumors of the breast or bilateral breast cancer.
4. A family history of one or more close male blood relatives (father, sons, brothers, uncles, grandfathers) who have developed breast cancer.
5. Ashkenazi (Eastern European) Jewish ancestry and a family history of breast and/or ovarian cancer.

Remember, both maternal and paternal family history is relevant for determining a person's risk for breast/ovarian cancer. It is important to ask about mom AND dad's family history related to breast cancer.

Women or men who meet one or more of the above criteria can contact their primary health providers for referral for genetic counseling and cancer risk assessment to discuss their risks for breast and/or ovarian cancer and whether BRCA testing is clinically appropriate for their situation. A list of centers in Ohio that provide cancer risk assessment is included in with this fact sheet.

### **Clinical utility of BRCA-1 and BRCA-2 test results: the basics**

The risks associated with mutations in BRCA-1 and BRCA-2 include a 50-85% risk for developing breast cancer and a 10-45% risk for developing ovarian cancer. These risks are significantly increased over the risks for these cancers in the general population. Information is limited on how other non-genetic factors influence the risks associated with these mutations.

For people who have a BRCA mutation, clinical management choices may include increased or more intensive monitoring, chemoprevention, or prophylactic surgery to remove at-risk organs. **Screening must be started at a young age, usually between the ages of 20-25 years of age.** Although some of these options may reduce the risk for developing breast and/or ovarian cancer, no option totally eliminates this risk.

## **Cancer Risk Assessment in Ohio**

### **Akron**

- Hereditary Cancer Program at the Genetics Center at Akron Children's Hospital: 330-543-8792

### **Dayton**

- Regional Genetics Center at Children's Medical Center: 937-641-3800

### **Canton**

- Hereditary Cancer Program, Aultman Hospital: 330-363-4163

### **Cincinnati**

- Cincinnati Children's Hospital Medical Center, Hereditary Cancer Program: 513-636-4760

### **Cleveland**

- Center for Personalized Genetic Healthcare, Cleveland Clinic: 216-445-5686
- Hillcrest Hospital Cancer Program: 440-312-5634
- MetroHealth Medical Center, Hereditary Cancer Clinic: 216-778-4323
- University Hospital Center for Human Genetics, Cancer Genetics Clinic: 216-844-3936

### **Columbus**

- Mount Carmel Cancer Risk Program: 614-546-4330
- OhioHealth Cancer Genetics Program: 614-566-4321 or 1-800-752-9119
- Clinical Cancer Genetics Program, The Ohio State University James Cancer Hospital & Solove Research Institute: 614-293-6694

### **Dayton**

- Children's Medical Center, Regional Genetics Center: 937-641-3800

### **Gallipolis**

- Holzer Cancer Program: 740-446-5474

### **Toledo**

- MUO Cancer Institute, Hereditary Cancer Program: 419-383-3727

### **Youngstown**

- The Genetics Center, Forum Health: 330-884-3106

Additional Information Available at: NCI Genetics of Breast and Ovarian Cancer PDQ  
<http://www.cancer.gov/cancertopics/pdq/genetics/breast-and-ovarian/healthprofessional>