BRCA*ssure*℠

BRCA1 and *2* Analysis

Because Knowledge is a Powerful Tool.

Integrated Genetics and Integrated Oncology are committed to providing comprehensive care to you and your patients.

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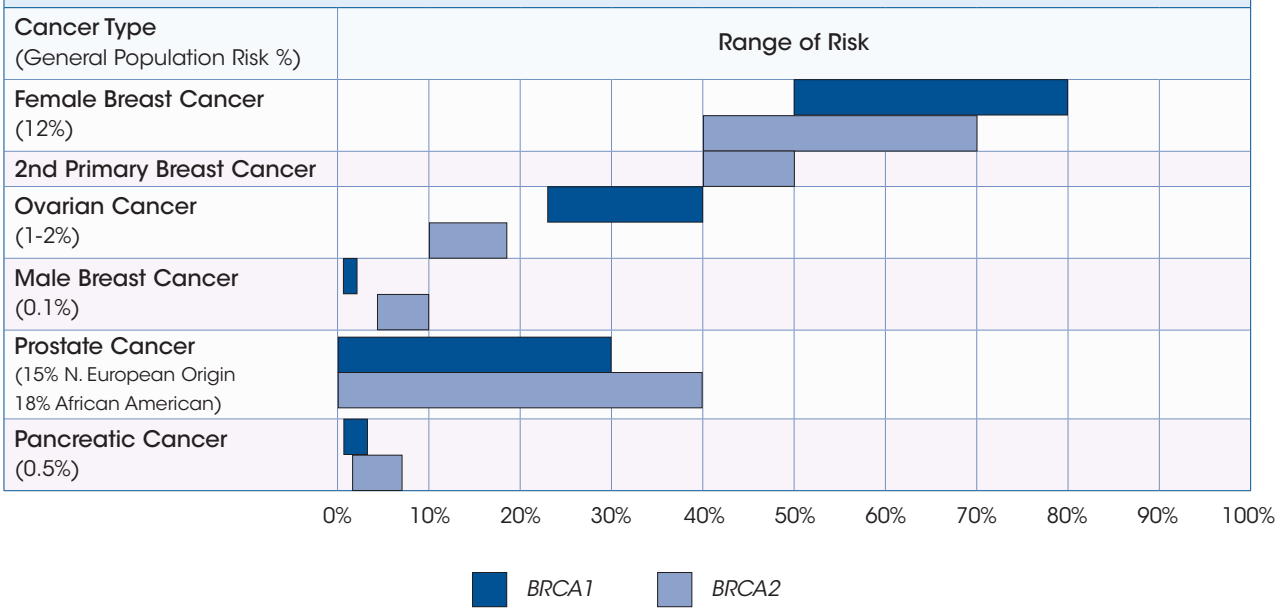
Hereditary Breast and Ovarian Cancer

Patients with *BRCA* mutations are at increased risk for breast, ovarian, and other cancers.

- Mutations in *BRCA1* and *BRCA2* account for the vast majority of families with Hereditary Breast and Ovarian Cancer Syndrome (HBOC).[1]
- The estimated lifetime risk of breast cancer in women with *BRCA1* mutations is 50-80%; for *BRCA2*, the risk is 40-70%.[2]
- The risk of ovarian cancer is 24-40% for a woman with *BRCA1* and 11-18% with *BRCA2*.[2]
- Both men and women with mutations in *BRCA1/2* may also be at increased risk of other cancers, including pancreatic, prostate, melanoma, stomach, esophageal, and bile duct cancers.[2]

The overall prevalence of *BRCA1* and *BRCA2* mutations in the general population is estimated at 1 in 400[3] and varies with ethnicity. Approximately 1 in 40 Ashkenazi Jewish individuals carries one of three founder mutations.[3]

Estimated lifetime cancer risk for individuals with *BRCA1* and *BRCA2* mutations[2]



Comprehensive Services

Suite of BRCA*ssure*℠ tests to meet your patients' needs

Integrated Genetics and Integrated Oncology utilize gold standard sequencing methods for identification of *BRCA1/2* mutations.

Test Code	Description	Specimen Requirement
252911	**BRCA***ssure*: Comprehensive *BRCA1/2* Analysis	Whole blood in one full lavender tube, minimum of 4 ml tube to be used
252970	**BRCA***ssure*: Ashkenazi Jewish Panel	
252235	**BRCA***ssure*: *BRCA1* Targeted Analysis	
252250	**BRCA***ssure*: *BRCA2* Targeted Analysis	
252888	**BRCA***ssure*: *BRCA1/2* Deletion/Duplication Analysis	

- Sequencing detects 99% of the reported mutations in the *BRCA1/2* genes.
- Based on published data and internal analysis, estimated variant of unknown significance rate is 4.6%.

The largest commercial genetic counseling team is available to help patients make informed healthcare decisions.

Call us at 855-GC-CALLS or 855-422-2257.

Because Knowledge is a Powerful Tool

Knowing your patient's *BRCA* mutation status may assist in development of tailored prevention and treatment strategies.

Surveillance strategies include, but are not limited to:[4]

- Clinical examination every 6-12 months, starting at age 25
- Annual mammography and breast magnetic resonance imaging (MRI), starting at age 25 or individualized by family history
- Transvaginal ultrasonography
- CA-125 biomarker screening
- Annual prostate cancer screening

Risk reduction strategies include, but are not limited to:[4]

- Prophylactic mastectomy, oophorectomy
- Chemoprevention

Cancers diagnosed in individuals with *BRCA* mutations often have specific characteristics.

- 80% to 90% of breast cancers in women with a *BRCA1* mutation are triple negative.[5]
- 80% of the breast cancers in women with a *BRCA2* mutation are estrogen receptor positive, progesterone receptor positive, and HER2 negative.[5]

REFERENCES:

1. Hereditary Breast and Ovarian Cancer Syndrome. ACOG Practice Bulletin, Number 103, April 2009; reaffirmed 2013.
2. Petrucelli, N, et al. *BRCA1* and *BRCA2* Hereditary Breast and Ovarian Cancer. Gene Reviews. Available at: http://www.ncbi.nlm.nih.gov/books/NBK1247. Accessed October 22, 2013.
3. Genetics of Breast and Ovarian Cancer. National Cancer Institute. Available at: http://www.cancer.gov/cancertopics/pdq/genetics/breast-and-ovarian/HealthProfessional/page2#Section_113. Accessed November 1, 2013.
4. Hereditary Breast and/or Ovarian Cancer Syndrome. NCCN Guidelines Version 4.2013 Available at: http://www.nccn.org/professionals/physician_gls/pdf/genetics_screening.pdf. Accessed October 30, 2013.
5. Hereditary Breast and Ovarian Cancer. Cancer.net. Available at: http://www.cancer.net/cancer-types/hereditary-breast-and-ovarian-cancer. Accessed October 31, 2013.

NCCN and ACOG Recognize the Importance of Testing for *BRCA1* and *BRCA2* Mutations

The following testing criteria is based on clinical practice guidelines[1,2,4]

Personal History
■ Breast cancer diagnosed at age 50 or younger
■ Ovarian cancer
■ Multiple primary breast cancers either in the same breast or opposite breast
■ Both breast and ovarian cancer
■ Male breast cancer
■ Triple-negative (estrogen receptor negative, progesterone receptor negative, and HER2/neu [human epidermal growth factor receptor 2] negative) breast cancer
■ Pancreatic or aggressive prostate cancer with breast or ovarian cancer in the same individual or on the same side of the family
Family History
■ A previously identified *BRCA1* or *BRCA2* mutation in the family
■ Ashkenazi Jewish ancestry
■ Two or more relatives with breast cancer, one under age 50
■ Three or more relatives with breast cancer at any age
Other Considerations
■ Comprehensive genetic testing includes full sequencing of *BRCA1/BRCA2* and testing for large genomic rearrangements[4]
■ Once a specific mutation is identified in an affected individual, a single site test may be used for family members[1]
■ Results of unknown significance are considered uninformative and should not indicate testing or treatment of family members[4]
■ Genetic counseling is highly recommended when *BRCA* testing is offered and after results are provided[1,4]
Notes: *"Breast cancer" includes both invasive and ductal carcinoma in situ (DCIS). "Ovarian cancer" includes epithelial ovarian cancer, fallopian tube and primary peritoneal cancer.*[4]

Complete Guidelines may be found at www.nccn.org; www.ACOG.org

Knowledge is a Powerful Tool

- Patients with *BRCA1* or *2* mutations are at an increased risk for Hereditary Breast and Ovarian Cancer Syndrome.
- Avail yourself of the information needed to make informed surveillance and treatment strategies for your patients.

Experience You Can Trust

- Integrated Genetics: A leader in genetic testing and counseling services for more than 25 years
- Integrated Oncology: A leader in diagnostic, prognostic, and predictive testing services for breast cancer
- Together, we offer:
  - The largest commercial genetic counseling team with unparalleled services
  - Extensive managed care contracts, providing patients with low out-of-pocket costs
  - Pre-authorization services to support you and your patients
  - A network of more than 1,700 patient service centers

To learn more about our **BRCA***ssure* test offerings, please visit **www.integratedgenetics.com** or **www.integratedoncology.com** or call **800-345-GENE (4363)**.

If you are interested in genetic counseling services, please call **855-GC-CALLS** or **855-422-2557**.

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