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

BRCA1 and 2 Analysis

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 BRCA1sure 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.

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

The following testing criteria is based on clinical practice guidelines.

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 (oestrogen receptor negative, progesterone receptor negative, and HER2/neu [human epidermal growth factor receptor 2] negative) breast cancer
- Familial 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
- Hereditary breast cancer
- 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
- Once a specific mutation is identified in an affected individual a single site test may be used for family members
- Results of unknown significance are considered uninformative and should not indicate testing or treatment of family members
- Genetic counseling is highly recommended when BRCA testing is offered and offer results are provided

Notes:

“Breast cancer” includes both invasive and ductal carcinoma in situ (DCIS). “Ovarian cancer” includes epithelial ovarian cancer, fallopian tube and primary peritoneal cancer.

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

Because Knowledge is a Powerful Tool.

Integrated Genetics and Integrated Oncology are committed to providing comprehensive care to you and your patients.
Mutations in BRCA1 and BRCA2 account for the vast majority of families with Hereditary Breast and Ovarian Cancer Syndrome (HBOC). The estimated lifetime risk of breast cancer in women with BRCA1 mutations is 50-80%; for BRCA2, the risk is 40-70%. The risk of ovarian cancer is 24-40% for a woman with BRCA1 and 11-18% with BRCA2. 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.

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

### Estimated lifetime cancer risk for individuals with BRCA1 and BRCA2 mutations

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>(General Population Risk %)</th>
<th>Range of Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Breast Cancer</td>
<td>12%</td>
<td>0% - 20%</td>
</tr>
<tr>
<td>Male Breast Cancer</td>
<td>0.1%</td>
<td>0% - 1%</td>
</tr>
<tr>
<td>Ovarian Cancer</td>
<td>1-2%</td>
<td>0% - 20%</td>
</tr>
<tr>
<td>Prostate Cancer</td>
<td>15% (N. European Origin) 18% (African American)</td>
<td>0% - 20%</td>
</tr>
<tr>
<td>Pancreatic Cancer</td>
<td>0.5%</td>
<td>0% - 5%</td>
</tr>
</tbody>
</table>

BRCA1: 34% 50% 66% 80% 90% 100%
BRCA2: 32% 50% 67% 80% 90% 100%

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%.

### HEREDITARY BREAST AND OVARIAN CANCER SYNDROME

Cancers diagnosed in individuals with BRCA1 mutations often have specific characteristics.

- 85% to 90% of breast cancers in women with a BRCA1 mutation are triple negative.
- 85% of the breast cancers in women with a BRCA2 mutation are estrogen receptor positive, progesterone receptor positive, and HER2 negative.

### Comprehensive Services

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

<table>
<thead>
<tr>
<th>Test Code</th>
<th>Description</th>
<th>Specimen Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>252911</td>
<td>BRCAAssure Comprehensive BRCA1/2 Analysis</td>
<td>Whole blood in one full lavender tube, minimum of 4 ml tube to be used</td>
</tr>
<tr>
<td>252970</td>
<td>BRCAAssure Ashkenazi Jewish Panel</td>
<td></td>
</tr>
<tr>
<td>252235</td>
<td>BRCAAssure BRCA1 Targeted Analysis</td>
<td></td>
</tr>
<tr>
<td>252250</td>
<td>BRCAAssure BRCA2 Targeted Analysis</td>
<td></td>
</tr>
<tr>
<td>252886</td>
<td>BRCAAssure BRCA1/2 Deletion/Duplication Analysis</td>
<td></td>
</tr>
</tbody>
</table>

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%.

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

<table>
<thead>
<tr>
<th>Test Code</th>
<th>Description</th>
<th>Specimen Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>252911</td>
<td>BRCAAssure Comprehensive BRCA1/2 Analysis</td>
<td>Whole blood in one full lavender tube, minimum of 4 ml tube to be used</td>
</tr>
<tr>
<td>252970</td>
<td>BRCAAssure Ashkenazi Jewish Panel</td>
<td></td>
</tr>
<tr>
<td>252235</td>
<td>BRCAAssure BRCA1 Targeted Analysis</td>
<td></td>
</tr>
<tr>
<td>252250</td>
<td>BRCAAssure BRCA2 Targeted Analysis</td>
<td></td>
</tr>
<tr>
<td>252886</td>
<td>BRCAAssure BRCA1/2 Deletion/Duplication Analysis</td>
<td></td>
</tr>
</tbody>
</table>

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%.

### REFERENCES:

### Surveillance Strategies

- 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

- Prophylactic mastectomy, oophorectomy
- Chemoprevention

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

- 85% to 90% of breast cancers in women with a BRCA1 mutation are triple negative.
- 85% of the breast cancers in women with a BRCA2 mutation are estrogen receptor positive, progesterone receptor positive, and HER2 negative.
Mutations in BRCA1 and BRCA2 account for the vast majority of families with Hereditary Breast and Ovarian Cancer Syndrome (HBOC).  

The estimated lifetime risk of breast cancer in women with BRCA1 mutations is 50-80%; for BRCA2, the risk is 40-70%. 

The risk of ovarian cancer is 24-40% for a woman with BRCA1 and 11-18% with BRCA2. 

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. 

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

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%. 

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

 Patients with BRCA1 mutations are at increased risk for breast, ovarian, and other cancers. 

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

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

Surveillance strategies include, but are not limited to:

- 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 pelvic cancer screening 

Risk reduction strategies include, but are not limited to:

- Prophylactic mastectomy, oophorectomy 
- Chemoprevention 

Because Knowledge is a Powerful Tool 

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

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

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.
Mutations in BRCA1 and BRCA2 account for the vast majority of families with Hereditary Breast and Ovarian Cancer Syndrome (HBOC). The estimated lifetime risk of breast cancer in women with BRCA1 mutations is 50-80%; for BRCA2, the risk is 40-70%. The risk of ovarian cancer is 24-40% for a woman with BRCA1 and 11-18% with BRCA2. 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.

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

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>(General Population Risk %)</th>
<th>Range of Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Breast Cancer</td>
<td>(12%)</td>
<td>2nd Primary Breast Cancer</td>
</tr>
<tr>
<td>Male Breast Cancer</td>
<td>(1%)</td>
<td>Male Breast Cancer</td>
</tr>
<tr>
<td>Ovarian Cancer</td>
<td>(1-2%)</td>
<td>Male Breast Cancer</td>
</tr>
<tr>
<td>Prostate Cancer</td>
<td>(15% N. European Origin 18% African American)</td>
<td>Male Breast Cancer</td>
</tr>
<tr>
<td>Pancreatic Cancer</td>
<td>(0.5%)</td>
<td>Male Breast Cancer</td>
</tr>
</tbody>
</table>

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%.

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

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

The following testing criteria is based on clinical practice guidelines.

**Personal History**
- Breast cancer diagnosed at age 50 or younger
- Ovarian cancer
- Multiple primary breast cancers within 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
- Inherited breast cancer
- 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.
- Once a specific mutation is identified in an affected individual, a single site test may be used for family members.
- Results of unknown significance are considered uninformative and should not indicate testing or treatment of family members.
- Genetic counseling is highly recommended when BRCA testing is offered and after results are provided.

Notes:
- “Breast cancer” includes both invasive and ductal carcinoma in situ (DCIS). “Ovarian cancer” includes epithelial ovarian cancer, fallopian tube, and primary peritoneal cancer.

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

BRCA1 and 2 Analysis

Because Knowledge is a Powerful Tool.
NCCN and ACOG Recognize the Importance of Testing for BRCA1 and BRCA2 Mutations

The following testing criteria is based on clinical practice guidelines.1,4

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/new [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
- Inherited breast cancer
- Two or more relatives with breast cancer one under age 50
- Three or more relatives with breast cancer of 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.1,4
- Genetic counseling is highly recommended when BRCA testing is offered and offer results are provided.1

Notes:

- "Breast cancer" includes both invasive and ductal carcinoma in situ (DCIS). "Ovarian cancer" includes epithelial ovarian cancer, fallopian tube cancer, and primary peritoneal cancer.1

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

BRCAssureSM
BRCA1 and 2 Analysis

Knowledge is a Powerful Tool

- Patients with BRCA1 or 2 mutations are at an increased risk for Hereditary Breast and Ovarian Cancer Syndromes.
- Arm yourself with 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 BRCAssure 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.

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