Heredity can increase a patient’s risk of cancer

5–10% of breast cancer cases

~15% of ovarian cancer cases

are associated with a mutation in a cancer predisposition gene.1,2

In all ethnic populations, the most common forms of hereditary breast and ovarian cancer result from a mutation in the BRCA1 or BRCA2 gene.3

• The BRCA1 and BRCA2 mutations occur in both men and women, and are estimated to be carried in:
  • 1 in 300 to 1 in 500 individuals3
  • 1 in 40 individuals of Ashkenazi Jewish ancestry3

Breast Ovarian Male breast Prostate Pancreatic Second primary breast (within 5 years)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Lifetime Cancer Risks (%)

General population BRCA1 mutation BRCA2 mutation

1. Request the test
• Physicians are required to sign a requisition for the test
• Patients must read the Patient Information Form and sign the consent on the requisition

2. Give a sample
• Blood or saliva samples can be collected at a LifeLabs location or the patient’s home
• Both patient and physician will receive a written summary of the session

3. Talk to a genetic counsellor
• A 15 – 30 minute genetic counselling telephone session (via telephone or Skype®) will be scheduled once LifeLabs Genetics receives the sample

4. BRCA1 and BRCA2 analysis
• Samples are analyzed by our German laboratory partner, Centogene

5. Receive the test results
• Within 4 – 6 weeks, the results and a letter of explanation will be sent to you

6. Have patients discuss their test results with a genetic counsellor
• A post-test genetic counselling appointment with Lifelabs Genetics is encouraged

The field of genetics is always evolving and so are we! Please visit our website for a list of current tests at www.lifelabsgenetics.com

BRCA1 and BRCA2 mutations are inherited

• Children and siblings of individuals with a BRCA1 or BRCA2 mutation have a 50% chance of inheriting the mutation5
• Not all individuals with a cancer-predisposing mutation will develop cancer

*There is an increased risk of other cancers, such as melanoma, to a lesser extent.4,5

References:

Ask.Genetics@LifeLabs.com | www.lifelabsgenetics.com | 1-844-363-4357
BRCA1 and BRCA2 testing

- Next generation sequencing (NGS): sensitivity >98.5%, specificity >98.2%, 100% coverage >20x
- Deletion/duplication via MLPA: sensitivity 99.9% and specificity 99.8%
- Sanger sequencing and familial mutation testing also available

Our genetic counsellors can help patients understand their test results

Recent evidence indicates that 20–50% of individuals with BRCA1 or BRCA2 mutations have no reported family history of breast and/or ovarian cancer. Therefore, individuals who do not meet the criteria may still choose to pursue BRCA1 and BRCA2 genetic testing to find out more information about their risk of cancer, even though the chance of finding a BRCA1 or BRCA2 mutation might be low.

Publicly-funded genetic testing may be available for patients considered to be at high risk of carrying a BRCA1 or BRCA2 mutation. To obtain more information about publicly-funded options and/or to refer to a cancer genetics clinic, please visit: www.cagc-accg.ca.

Recommended screening questions for your patients

To determine whether your patient is at an increased risk for a BRCA1 or BRCA2 mutation, consider asking if your patient has a personal or family history of:

- Breast cancer diagnosed at age 50 or younger
- Two or more relatives with breast cancer, one under age 50
- Multiple primary breast cancers
- Three or more relatives with breast, ovarian, pancreatic, and/or aggressive prostate cancer
- Triple-negative breast cancer (ER-, PR-, Her2/neu-)
- Ashkenazi Jewish ancestry with history of breast, ovarian, or pancreatic cancer
- Ovarian cancer, fallopian tube, or primary peritoneal cancer at any age
- Pancreatic cancer with breast or ovarian cancer in the same individual or on the same side of the family
- Both breast and ovarian cancer
- A previously identified BRCA1 or BRCA2 pathogenic mutation in the family

Whenever possible, genetic testing should be performed on a family member diagnosed with either breast or ovarian cancer.

Recommendations for patients with a BRCA1 or BRCA2 mutation

There are a number of precautionary surveillance practices recommended for both men and women with BRCA1 or BRCA2 mutations.

For Women

- Enhanced screening
  - Breast awareness
  - Clinical breast examination every 6 months
  - Annual breast MRI and mammogram
  - Consider transvaginal ultrasound and C4-05 levels
  - Consider full body skin examination
- Prophylactic surgery
  - Bilateral mastectomy
  - Bilateral salpingo-oophorectomy
- Chemoprevention
  - Tamoxifen, oral contraceptives

For Men

- Enhanced screening
  - Breast awareness
  - Regular clinical breast examination
  - Consider mammogram
  - Routine prostate cancer screening
  - Consider full body skin examination

Cancer screening and prevention options should be based on personal and family medical histories for individuals when no mutation is identified.

Resources for healthcare providers and patients

- LifeLabs geneticiests and genetic counsellors: http://www.lifelabsgenetics.com
- Find a genetics clinic: http://www.cagc-accg.ca
- Hereditary Breast and Ovarian Cancer Society: http://hbcosociety.org
- Ovarian Cancer Canada: http://www.ovariancanada.org
- Canadian Cancer Society: http://www.cancer.ca
- Rethink Breast Cancer: https://rethinkbreastcancer.com/