

Sultan Qaboos Comprehensive Cancer Care & Research Centre

Breast Cancer Program

Breast Cancer Genetics

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Where do I get further information?

Genes are the blueprints of life which are passed down from generation to generation. They determine characteristics such as whether you are tall or short, dark or fair haired.

A very small number of cancers (510%-) may be caused by changed genes which are inherited at birth. But, even if one is in your family, it does not mean you will automatically have it.

This leaflet gives pointers on whether a cancer is likely to be caused by an inherited changed gene, It outlines screening programs for those at an increased risk of this developing and tells you about genetic testing for changes (mutations) in cancer genes.

Is a family history of cancer important?

Where several cases of cancer occur in the same family, it is natural to wonder whether there is an inherited factor. The pointers to a cancer which may be running in a family are:

- The number of people in the family who have developed breast, ovarian and bowel cancers.
- The more people in the family who developed one of these cancers, the more likely it is to be due to the inheritance of a changed gene.
- The age at which the cancer developed. The younger the person when diagnosed, the more likely it is to be due to hereditary factors.
- The pattern of different types of cancer seen in the family.
- We sometimes see breast and ovarian cancer or ovarian and bowel cancer running together in the same family.

Adding these pointers together we can work out if you are likely to have an increased risk of developing cancer due to an inherited changed gene.

- Your first-degree relatives are your mother, father, sister, brother, daughter and son.
- Your second-degree relatives are your grandmother, grandfather, aunt, uncle, niece and nephew.

Breast Cancer

Your risk of developing breast cancer is moderately increased if you have one of the following:

- A first degree relative with breast cancer diagnosed under age 40.
- Two first or one first and one second degree relative on the same side of the family with breast cancer diagnosed under age 60 or with ovarian cancer.
- A first degree relative with breast cancer in both breasts, or with breast and ovarian cancer.
- A first-degree male relative with breast cancer.

If you fit one of these groups you may be able to enter a screening program. This will involve regular mammograms, which are x-rays of the breast, to try to detect early cancer. Mammography screening is not usually offered under age 35.

Magnetic Resonance Imaging (MRI) screening is currently being reviewed for young women when there is a high-risk family history.

Genetic Testing

If you have a strong family history of breast cancer, ovarian cancer or bowel cancer, it may be possible to offer your family a genetic test. It is important to remember that there is no pressure to have this test. If you are interested in it, all the important implications will be discussed beforehand. If you decide not to have the test but are at a greater risk of an inherited form of cancer than the general population, you may still be eligible for extra screening.

What happens if I have the test and discover I have the changed gene?

Your risk of developing an inherited form of cancer is significantly increased above population risk of cancer. So, you may wish to take up the option of screening because early detection and treatment of cancer usually improves your outcome. In some cases, you may be able to join research studies aimed at preventing the development of the disease. You may also consider surgery to reduce the risk.

What happens if I have the test and do not have the changed gene?

Your risk of developing cancer is the same as anyone else of your age. You are encouraged to join the standard population screening programs, where appropriate.