

Assessing a family history of breast and/or ovarian cancer

Breast cancer is a common disease. In Australia, 1 in 9 women will develop breast cancer before the age of 85. Ovarian cancer is not as common and 1 in 78 women will develop ovarian cancer in their lifetime. For most of these women, cancer will not occur until after menopause and usually for reasons unrelated to an inherited predisposition to breast cancer. A small number of women will have an inherited predisposition to breast and ovarian cancer. This is uncommon and is due to a change in a gene that normally protects against breast/ovarian cancer and will have been inherited from a parent.

Why assess a family history?

Many **risk factors** can influence a woman's chance of breast cancer: the two most important risk factors are being a woman and growing older. **Family history** is also an important risk factor for breast cancer.

Your **Family Cancer Centre** may have asked you to collect a detailed family history. This is used to assess the level of inherited risk for cancer for your family and whether this could be caused by an inherited **gene change**.

It's like putting together the pieces of a jigsaw puzzle. The more pieces of the puzzle we have, the clearer the picture is.

What if there is a family history on both sides of my family?

If there is a history of breast or ovarian cancer on both sides of your family, each side of the family is assessed separately.

What will the Family Cancer Centre look for?

In a family which appears to have a family history of breast and/or ovarian cancer, there are three possible explanations:

1. *Chance (population risk)*

In these families, there may be one or two family members with breast cancer that has occurred at an older age (e.g. in their 60s and 70s). However, there is no recognised pattern suggesting their cancers are due to an inherited gene change. So other relatives are not usually at an increased risk of cancer above the general population risk.

About 80% of women with breast or ovarian cancer have a 'chance' family history.

The centre would assess the family as being at **average risk** (which means their risk is not higher than the general population). **Genetic testing** would not be offered to families in this group.

2. *Shared factors (Moderately increased risk)*

In these families, there is a 'cluster' of relatives with breast cancer or a single family member with ovarian or breast cancer occurring at a younger age. However, there is no clear pattern to suggest that the cancers are due to a known inherited gene change.

These clusters of breast or ovarian cancer may be due to several factors, including a combination of genes, shared environmental factors and shared lifestyle factors. Some of these family histories may be due to chance alone.

About 15% of women with breast or ovarian cancer have a **moderately increased risk** family history.

The centre would assess close relatives of a family member who has breast or ovarian cancer to have a moderately increased risk for developing breast or ovarian cancer. Genetic testing is not usually offered to families in this group.

3. Hereditary (potentially high risk)

In these families, the family history of cancer suggests a single gene change may be present. Features include:

- a number of relatives (three or more) on the same side of the family with breast cancer (often in two or more generations)
- cancers often diagnosed at a younger age (e.g. 30s, 40s and 50s)
- presence of ovarian cancer or a male with breast cancer
- a person who has developed two or more separate cancers (e.g. breast cancer in both breasts or breast and ovarian cancer).

About 5% of women who develop breast cancer have a **potentially high risk** family history.

The centre would assess such a family history as potentially high risk. These families may be offered genetic testing to look for the two known gene changes that predispose to breast and ovarian cancer (**BRCA1 and BRCA2**).

What that word means

average risk This means someone's chance of developing a disease is no higher or lower than average. Also known as population risk.

BRCA1 & BRCA2 Genes that appear to protect against the development of breast and ovarian cancer. If there is a change in one of these genes, breast or ovarian cancer is more likely to occur.

Family Cancer Centres A centre where people can get information about a family history of cancer. They provide genetic counselling, genetic testing, medical advice, psychological support and information about research to individuals and families.

family history A careful assessment by a Family Cancer Centre of cancer occurrences in a family.

gene change A change somewhere in a gene. A change may be inherited or may be caused by an error while a cell is reproducing itself, by factors such as some chemicals or viruses, or by events that science is yet to discover. A change in a gene may lead to the gene not functioning correctly which in turn may predispose to diseases such as cancer. Though people with a change in a gene that predisposes to cancer have a higher chance of developing cancer, they don't always develop cancer. A gene change is also known as a gene alteration or gene mutation.

genetic testing Testing for gene changes which may explain why a disease has occurred or whether a disease is more likely to occur.

moderately increased risk This means that someone's chance of developing a disease in the future is higher than average, but not as high as high risk.

potentially high risk This means that someone's chance of developing a disease in the future is higher than average, due to a family history of the disease and/or a change in a gene known to predispose to that disease. People assessed as at high risk are advised to consider strategies that could reduce their risk.

risk factor Something that causes someone to have a greater chance of developing a disease. Risk factors for cancer include exposure to harmful substances, such as cigarette smoke, and inheriting a change in a gene that predisposes to a cancer.

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