

---

## Genetic testing for inherited cancer

---

### Summary

- A predisposition to certain cancers can be inherited via altered genes.
  - Genes are only shared by blood relatives, so you can't be at risk of familial cancer from your adoptive parents or in-laws.
  - If you believe you are at risk of familial cancer, see your doctor for further information and advice.
- 

A predisposition to certain cancers can be inherited via altered genes. Genetic testing aims to detect a genetic alteration that might increase the chances of a person developing a particular cancer. This testing is available to some families with a high risk of a genetic predisposition to certain cancers.

### Inherited cancer explained

Genes control the growth, division and life span of every cell in the body. Your genes come in pairs – one inherited from your mother and the other from your father.

Some people inherit altered genes that may predispose them to developing particular cancers. For example, a woman who has inherited a single altered copy of one of the specific breast cancer genes (known as **BRCA1** and **BRCA2**) has a higher risk of breast and ovarian cancer than a woman who inherited two normal copies of both genes. However, only around five out of every hundred cases of breast cancer may be due to an inherited genetic predisposition.

### Risks of inherited cancers

A small number of families have a greater risk of certain cancers such as breast, ovarian and bowel cancers because they carry a changed gene. A **family cancer centre** can advise you about your risk of developing cancer, provide genetic counselling and medical advice and, in some situations, genetic testing.

### Breast and ovarian cancer

Families who may be at potentially high risk of breast or ovarian cancer include those with three or more relatives with breast or ovarian cancer.

Families with two or more relatives who have breast or ovarian cancer are also considered to be at potentially high risk, if the affected relatives fall into any of the following categories:

- cancer in both breasts
- onset of breast cancer before the age of 40
- ovarian cancer at any age
- breast and ovarian cancer in the same relative
- breast cancer in a male relative
- Jewish ancestry
- breast cancer has pathological features that suggest the presence of an inherited predisposition

### Bowel cancer

Families who may be at potentially high risk of bowel cancer include those with three or more relatives on the same side of the family with bowel cancer.

Families with two or more relatives with bowel cancer are also considered to have an increased risk if there is:

- more than one bowel cancer in the same relative
-

- onset of bowel cancer before the age of 50
- a relative with endometrial or ovarian cancer
- a relative with bowel cancer and with a large number of bowel polyps.

### **Other types of cancers**

For other types of cancers, people are considered to be at increased risk if they have:

- several relatives who have the same type of cancer
- a relative who has been found to carry a particular altered gene.

### **Genetic testing**

Genetic testing is available to a small number of families at the highest risk of having an inherited predisposition to cancer. Generally, it is necessary to test a person who has had cancer first to identify the genetic change causing cancer in the family. If a genetic change is found, it confirms that the cancers in that family are due to an inherited predisposition to cancer.

Blood relatives who have no signs of cancer can then choose to have testing to find out if they have inherited the altered gene that has been identified and could increase their risk of developing specific types of cancer. If they have inherited a predisposition to cancer, the family cancer centre will develop a personal program designed to manage their risk.

If a genetic change cannot be found in a person affected by cancer, it remains possible that there is still a genetic predisposition to cancer in the family. Unfortunately not all genetic changes can be detected. The family cancer centre would advise family members about the chance of developing cancer and what they can do to reduce the risk.

Genetic testing is arranged by the family cancer centre and is offered only with counselling both before and after the test to discuss its limitations as well as potential benefits.

### **See your doctor first**

If you believe you are at risk of familial cancer, see your doctor. If your doctor believes there may be some concern, an appointment can be made with a family cancer centre. These centres have professional staff including geneticists, genetic counsellors, gastroenterologists, surgeons and oncologists (cancer specialists). The clinic staff can answer any questions, discuss medical options and discuss if genetic testing is possible.

### **Where to get help**

- Your family doctor (GP)
- **Monash Health Familial Cancer Centre**
- **Royal Melbourne Hospital Familial Cancer Centre** Tel. **(03) 9342 7151**
- **Peter MacCallum Cancer Institute Familial Cancer Centre** Tel. **(03) 8559 5322**
- **Austin Health clinical Genetics Service** Tel. **(03) 9496 3027**
- **Cancer Council Victoria** Information and Support Service Tel. **13 11 20**
- **Cancer Australia - Breast cancer risk calculator.**

**This page has been produced in consultation with and approved by:**

Victorian Clinical Genetics Services (VCGS)

Content on this website is provided for information purposes only. Information about a therapy, service, product or treatment does not in any way endorse or support such therapy, service, product or treatment and is not intended to replace advice from your doctor or other registered health professional. The information and materials contained on this website are not intended to constitute a comprehensive guide concerning all aspects of the therapy, product or treatment described on the website. All users are urged to always seek advice from a registered health care professional for diagnosis and answers to their medical questions and to ascertain whether the particular therapy, service, product or treatment described on the website is suitable in their circumstances. The State of Victoria and the Department of Health & Human Services shall not bear any liability for reliance by any user on the materials contained on this website.

For the latest updates and more information, visit [www.betterhealth.vic.gov.au](http://www.betterhealth.vic.gov.au)

**Copyright © 1999/2020** State of Victoria. Reproduced from the Better Health Channel ([www.betterhealth.vic.gov.au](http://www.betterhealth.vic.gov.au)) at no cost with permission of the Victorian Minister for Health. Unauthorised reproduction and other uses comprised in the copyright are prohibited without permission.