

## Faulty genes and cancer

Our bodies are made up of billions of cells.

These cells contain a copy of the genetic plan for our growth, development and health. This genetic plan comes in the form of genes which we inherit from our parents.

Some changes in genes stop the gene from working properly and the gene becomes faulty (mutation). Everyone has some faulty genes. Sometimes they have been inherited from our parents.

Faulty genes usually do not cause any problems however sometimes they cause, or make us more prone to, particular health problems such as cancer.

Even if a faulty gene causing an increased chance of cancer is being passed down through your family, it does not mean that you will definitely have inherited this faulty gene.

It is important to know that some people who inherit a faulty gene which causes an increased risk of cancer, may never go on to develop cancer.

However, if you do have a faulty gene that increases the risk of cancer there are many strategies for detecting cancer at an early stage as well as reducing the risk of developing cancer.

## What should I do if I am worried about my family history?

A family history of cancer means that one or more of your blood relatives has or had cancer.

Talk to your GP to find out if your family history of cancer is of concern. It is important to give your doctor as much information as possible. Look at the family history on both your father's and your mother's side of the family.

### Find out and record:

- Who in your family has developed cancer
- What type of cancer(s) they developed
- At what age they developed cancer
- Which family members are not affected by cancer

For more information on how to collect a family history visit [www.genetics.edu.au](http://www.genetics.edu.au)

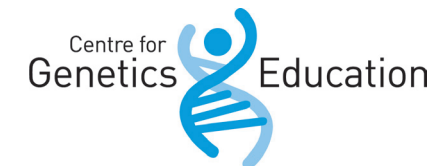
## Who can I contact?

For more information about cancer in the family contact your GP or The Cancer Council NSW Helpline on **13 11 20**.

For your local family cancer clinic or genetic service visit the Centre for Genetics Education website [www.genetics.edu.au](http://www.genetics.edu.au) and click on Genetic Services or call on (02) 9462 9599.

# What if I have a family history of cancer?

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Cancer is common - many people have someone in their family who has or had cancer. It is important to know that only a small percentage (up to 5%) of certain types of cancers is due to an inherited faulty gene.

Cancer can occur in more than one family member for different reasons, including:

- just by chance (mostly the case)
- shared environmental and lifestyle influences (eg, too much sun or smoking)
- having an inherited faulty gene in the family causing an increased risk of cancer (uncommon).

## Sometimes a family history of cancer is due to a faulty gene in the family

The clues that cancers in your family may be due to an inherited faulty gene include:

### a) **The number of blood relatives who have developed cancer.**

The greater the number of blood relatives who have developed certain types of cancer (in particular breast, ovarian or bowel cancer), the more likely it is inherited.

### b) **The ages at which cancers develop in blood relatives.**

The younger people are when they develop certain cancers (in particular breast, ovarian or bowel cancer), the more likely it may be due to an inherited faulty gene.

### c) **The pattern of cancer in the family.**

Relatives who develop the same type of cancer or particular combinations of cancers are important considerations. For example breast and ovarian cancer in a family sometimes indicates a faulty gene such as BRCA1 or BRCA2.

### d) **The number of different cancers.**

People who develop more than one cancer are more likely to have inherited a faulty gene, especially if the cancers occur at a young age.

### e) **The family background.**

Background may be important. For example faulty genes causing a higher risk of breast and ovarian cancer are more common in people of Ashkenazi Jewish background.

Look at the family history on both your father's and your mother's side but don't add them together. The more clues on one side of your family that are present, the more likely it is that there is an inherited faulty gene in your family.

## What happens when my family history suggests a faulty gene?

When the clues in your family suggest a strong family history of cancer your General Practitioner (GP) may refer you to your local family cancer clinic.

At the clinic a genetics health professional will talk to you about your risk of cancer, discuss your specific options and how to manage your risk. Genetic testing may be an option.

Managing your risk is important whether you decide to have genetic testing or not.

Genetic testing involves two steps:

- Firstly, a faulty gene must be identified (via a blood test) in a family member who has or had cancer. This is known as a mutation search.
- Secondly, if a faulty gene is found, cancer genetic testing (predictive testing) is available to other family members to see if they have also inherited the family faulty gene.

There are a number of pros and cons associated with genetic testing which you and your family members should discuss with a genetics health professional.