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## Cancer and heredity

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### Summary

- Latest research suggests that most cancers are caused by environmental rather than genetic factors.
  - The cancers with the highest genetic contribution include breast, bowel, stomach and prostate cancers.
  - Referral to a specialist cancer genetics service may be appropriate for people with a strong family history of cancer.
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Genes play a role in the development of some cancers. The link is strongest for breast, bowel and stomach cancers. Current research suggests that environmental factors such as tobacco, diet, infection, alcohol, drugs, radiation and chemicals are more important than genetic (hereditary) factors in determining development of most cancers.

All cancer is triggered by altered genes. However, only five to 10 per cent of cancers are actually hereditary.

Heredity may sometimes appear to be the reason for a cancer, especially when the same types of cancers run in families.

### Cancers with a genetic component

These cancers do appear to have some genetic link:

- Breast cancer
- Bowel cancer
- Stomach cancer
- Prostate cancer.

### Genetics and breast cancer

Breast cancer is the most common cancer in Australia women. There are almost 2,900 cases in Australia each year. This means that one in 11 women is affected by breast cancer during her life. Many risk factors can influence a woman's chance of developing breast cancer. The most common risk factors are being a woman and getting older. Family history of breast or ovarian cancer is also an important risk factor in developing breast cancer. Hereditary factors are only responsible for about one in 20 cases of breast cancer (5%).

### Genetics and bowel cancer

Bowel cancer is the second most common cancer in Australia after prostate cancer. There are almost 3,500 cases diagnosed in Australia each year. The biggest single risk factor is age. More than eight out of 10 bowel cancers are diagnosed in the over-60s. The risk of getting this disease increases as you get older. It is estimated that about two out of three bowel cancers could be prevented with changes in diet and lifestyle.

### Assessing a family history of cancer

When a person has a 'strong family history' of cancer, it usually means that they have several relatives diagnosed with the same cancer, over different generations on the same side of the family. It can also mean that one or more relatives were diagnosed at an unusually young age, or a relative with two or more separate cancers.

People who have a strong family history of cancer may be offered a referral to a specialist genetics service. Understanding an individual's family history usually includes checking the cancer diagnoses of the person's relatives by obtaining pathology reports. An estimate of the risk of cancer to the individual may be provided.

If indicated, certain additional tests can be helpful in the risk assessment. In some situations, genetic testing may

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be appropriate and might be offered after careful discussion about its implications.

People assessed to have a higher than average risk of cancer will be referred to a specialist. They can talk to the person about having screening so as to detect signs of cancer as early as possible. This can ensure prompt treatment and optimal outcome.

### **Genetics may make you more vulnerable**

Genetics may mean that some people are more vulnerable to cancer than others; however, environmental factors often determine which of these people will develop the disease. Current research suggests that most cancers are caused by environmental factors, such as diet and smoking.

### **Where to get help**

- Your doctor
- The Cancer Council of Victoria, Information and Support Line Tel. 13 11 20
- Multilingual Cancer Information Line, Victoria Tel. (03) 9209 0169
- **Cancer Council Victoria - Bowel Cancer risk calculator.**
- **Cancer Australia - Breast cancer risk calculator.**

### **Things to remember**

- Latest research suggests that most cancers are caused by environmental rather than genetic factors.
- The cancers with the highest genetic contribution include breast, bowel, stomach and prostate cancers.
- Referral to a specialist cancer genetics service may be appropriate for people with a strong family history of cancer.

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

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