Genetic Testing: Your Questions Answered

You have been diagnosed with a type of cancer that makes you eligible to have **genetic testing**. This handout will help you understand what's involved and what this test could mean for you and your family.

What is a gene?

Genes are pieces of your DNA that tell your body how to work. Your DNA is found inside every cell in your body. Some genes affect basic features like your eye colour and your height. Other genes affect your risk for certain diseases, like cancer.

Genes are passed down from both parents to their children, or **inherited**. For every gene that a person has, there are two copies. They inherit one copy from each parent.

What is hereditary (inherited) cancer?

Sometimes, changes happen in genes that stop them from working properly. These changes are known as **pathogenic variants** (also called **mutations**) and they can be passed from parents to their children. Some pathogenic variants can increase your risk of certain cancers.

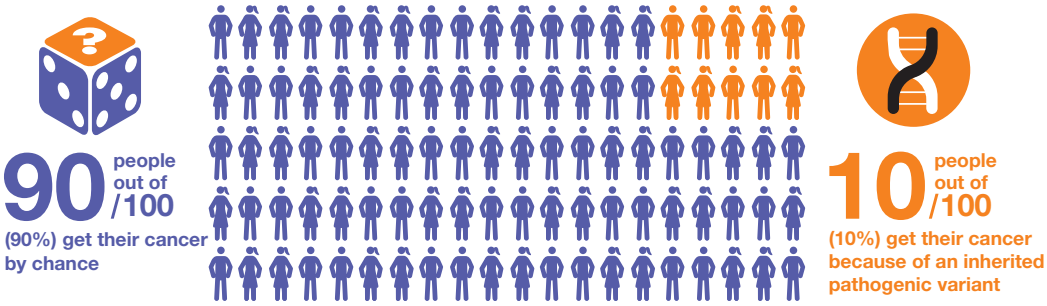
Cancer caused by inherited pathogenic variants is called **hereditary cancer**.

What is genetic testing and genetic counselling?

- Genetic testing is a blood or saliva (spit) test that looks for pathogenic variants in your genes.
- By looking at your genes, your doctor can learn more about how best to treat your cancer, determine your risk of possibly developing other types of cancer, and better understand your family members' risks of getting cancer.
- Your doctor or genetic counsellor will discuss if genetic testing is right for you. A **genetic counsellor** is a healthcare professional who can explain your genetic test results and what they mean for you and your family.

Why am I being offered genetic testing?

- You are being offered genetic testing because you have been diagnosed with a type of cancer that may be hereditary.
- The genetic test will look for pathogenic variants that are linked to an increased risk of cancer.



In some cancers, more than 10% of people get their cancer because of an inherited pathogenic variant

What can I learn from genetic testing?

The results of your genetic test may help your healthcare team plan the best treatment options for you. Your test may also let you know if you have a higher risk of developing other cancers.

How can genetic testing help my family?

If you have a pathogenic variant, it was likely passed down to you from one of your parents. You could have passed the same pathogenic variant on to your children. There is a 1 in 2 (50%) chance to pass on a pathogenic variant from parent to child. Because pathogenic variants can run in families, your brothers, sisters and other relatives may also be at risk of carrying the same pathogenic variant.

Genetic testing helps figure out whether or not your family members have a higher risk for cancer. If your family members have an inherited pathogenic variant, their healthcare team may suggest additional cancer screening and/or ways to reduce their cancer risks.

Will genetic testing affect my insurance?

Genetic information is protected by the Genetic Non-Discrimination Act (GNDA July 2020). This means that an insurer or employer cannot ask for your genetic test results or ask you to have genetic testing.

What are the possible results of your genetic testing?

There are 3 possible results of your genetic test:

POSITIVE RESULT

This means that a pathogenic variant in a cancer risk gene was found. If this is the case, you may see the words **pathogenic variant, likely pathogenic variant**, or **mutation** on your report.

This means that:

- Your cancer is likely a **hereditary cancer**.
- You may have a higher risk to develop other types of cancer.
- There may be changes to your cancer treatment, cancer screening and/or risk reduction plans.
- You can meet with a genetic counsellor who will explain your test results and what they mean.
- Your family members can also meet with a genetic counsellor and decide if they want to have genetic testing.

NEGATIVE RESULT

This means the test **did not** find any pathogenic variants in the genes that were tested.

This means that:

- There is a lower chance that your cancer is hereditary.
- Your medical follow-up will continue to be based on your personal and family history of cancer.
- Your family members will probably not be offered genetic testing.

UNCERTAIN RESULT

This means that a change was found in one or more of the genes tested, but the genetic experts cannot confirm whether this is linked to cancer risk or not. You may see the words **variant of uncertain significance (VUS)** or **inconclusive** on your report.

This means that:

- You may be given the option to meet with a genetic counsellor to discuss your test results and what they mean.
- Your medical follow-up will continue to be based on your personal and family history of cancer.
- For some families, other relatives may be offered genetic testing to better understand this variant.

What are the next steps?

Genetic testing is a choice. Not everyone wants to know about hereditary cancer risk.

Talk to your doctor if you have any more questions about genetic testing. Your doctor can also refer you to a genetic counsellor to help you and your family make informed medical and personal decisions.

Scan to learn more about hereditary cancer and genetic testing

Visit the Canadian Association of Genetic Counsellors Website
for more information and resources, including a list of genetics clinics in Canada.
www.cagc-accg.ca

Developed by the Canadian Association of Genetic Counsellors

This information is not intended to replace personalized advice from your healthcare professionals. Please speak with your healthcare team to discuss how this information applies to your individual genetic test result and medical care.

The content of this template handout pertains to constitutional (i.e. germline) genetic test results, and does not apply to somatic (i.e. tumour tissue) genetic test results.

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Canadian Association of Genetic Counsellors
Association Canadienne des Conseillers en Génétique