Wessex Clinical Genetics Service
Mainstreaming cancer genetic testing (MCGT)

Genetic testing of the BRCA1, BRCA2 and PALB2 cancer genes (blood test)

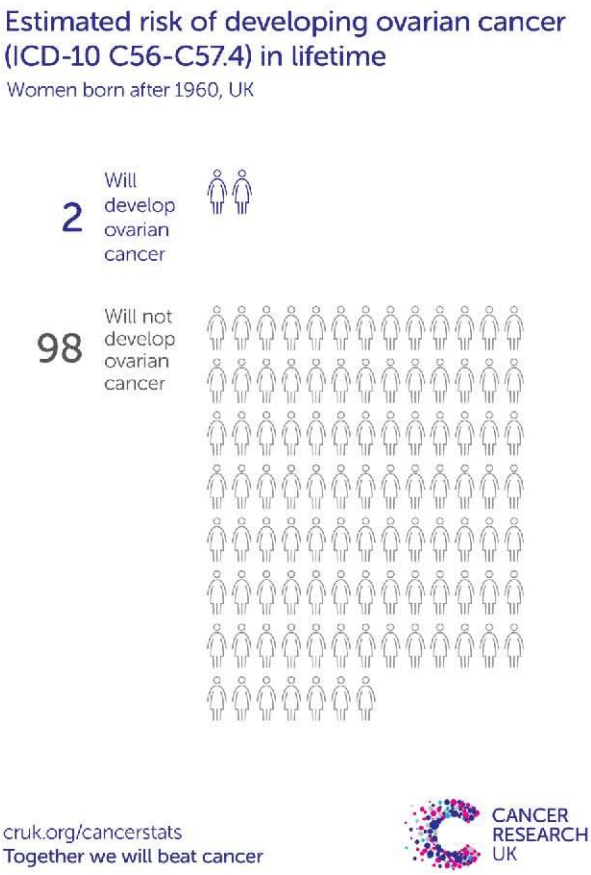
We have given you this factsheet because you have been diagnosed with ovarian, peritoneal or fallopian tube cancer and we would like to offer you a genetic test to check whether you carry a variant in the BRCA1, BRCA2 or PALB2 cancer genes.

We hope this factsheet will help to answer some of the questions you may have about getting tested for cancer gene variants. If you have any further questions or concerns, please speak to a member of our team.

What is cancer?

Cancer is a condition where cells in a specific part of the body grow and reproduce uncontrollably. This may cause a growth called a tumour. The cancerous cells can invade and destroy surrounding healthy tissue, including organs.

It is a common condition which will affect up to one in two people in the general population during their lifetime. In the UK, around two in 100 women will develop ovarian cancer.



Most cancers start due to gene changes that happen naturally in a certain part of the body as you get older. However, some cancers start due to inherited faulty genes passed down in families (this is called hereditary cancer).

What is hereditary cancer?

Some families may have a greater chance than normal of developing ovarian, peritoneal or fallopian tube cancer due to a genetic cause - a variant (also called a mutation) in one or more genes known to increase the risk of ovarian cancer, such as the BRCA1 and BRCA2 genes. Variants in these genes can occur in both women and men, so a gene variant can be inherited from either your mother or your father.

What are genes?

Genes are our cells' instruction manuals. We each have around 20,000 pairs of genes which are present in almost every cell of our bodies. Our genes tell our cells how to function normally.

What are the BRCA1, BRCA2 and PALB2 genes?

Everyone has two copies of the BRCA1, BRCA2 and PALB2 genes. You inherit one copy from your mother and the other copy from your father. These genes are normally protective against cancer because they help repair breaks in DNA that can lead to cancer. However, variants can occur in these genes, which can significantly increase your risk of developing breast and ovarian cancer.

How does genetic testing work?

Most of the time, cancer-causing genetic variants are found only in the cancer cells (the tumour itself). These are called 'somatic variants' and we may have offered you a tumour test to look for these variants. However, some women with ovarian, peritoneal or fallopian tube cancer may have inherited a genetic variant.

The genetic test we are offering you looks for variants in the BRCA1, BRCA2 and PALB2 genes in your blood.

Why am I being offered a genetic test?

Genetic testing of your blood can help us to decide the best treatment plan for your cancer. It can also provide information about certain cancer risks for both you and your relatives in the future.

If a genetic variant is found, your relatives can then decide if they would like to access a referral for a genetic test to see if they have also inherited this risk factor.

Do I have to have this test?

Before we proceed with the genetic test, we will go through our 'record of discussion' form with you. You will also have the opportunity to discuss the test and the implications of the result with us. It is important that you fully understand the implications for you, but also for other members of your family.

We will arrange for you to have the blood test if you wish to go ahead.

What are the possible outcomes of testing?

Your test result will be available in about six to eight weeks. There are three possible outcomes from the blood test:

A BRCA1, BRCA2 or PALB2 variant is found in your blood (DNA) sample

This means that you are a 'BRCA or PALB2 carrier'. We may use this information to help us decide on the best treatment plan for you. We will also refer you to your local clinical genetics service to discuss the result in more detail, for example what it means for you and your family.

BRCA carriers have an increased risk of breast, prostate and ovarian cancer. For this reason, we will also assess your future breast cancer risk and offer tailored information about managing this risk.

If a PALB2 variant is found, we will discuss the implications of this result for both you and other family members.

The chance that a first degree relative (a parent, sibling or child) of a carrier will also carry the variant is one in two (50%). We can support you in sharing this information with your relatives so they know how to access a referral for a genetic test if they wish.

A BRCA1, BRCA2 or PALB2 variant is not found in your blood (DNA) sample

This means that it is unlikely that your cancer was due to an inherited gene variant. However, we may still refer you to your local clinical genetics service for possible further tests, especially if you have a wider family history of cancer.

A variant of uncertain significance (VUS) is found in the BRCA1, BRCA2 or PALB2 gene

This means that we found a variant, but it is not clear if it affects how the gene works. These variants are often harmless (or benign) and we will usually manage your cancer as if we had found no variant. We may suggest you have additional tests to try to clarify this result. We may also refer you to your local clinical genetics service to discuss the result in more detail. As we learn more about genetic variation, we may be able to confirm whether this variant is harmless or significant.

How will finding a BRCA1 or BRCA2 variant affect my treatment?

We will use this information to help decide on the best treatment plan for your cancer. We may prescribe you a medication called a 'PARP inhibitor'. This medication has been shown in general to improve the response to cancer treatment in women with ovarian cancer who have a BRCA1 or BRCA2 variant. In certain circumstances, we may be able to offer this medication to women who do not have a BRCA1 or BRCA2 variant.

What will happen if I decide not to have the blood test?

If you decide not to have the blood test, we will have less information to help us decide on the best treatment plan for you. However, we will offer you the most appropriate treatment for your type of cancer.

Contact us

If you have any further questions or concerns, please contact us.

Hilary Maxwell
Gynae-Oncology Clinical Nurse Specialist
07340 528902

For a translation of this document, or a version in another format such as easy read, large print, Braille or audio, please contact your Gynae-Oncology Specialist Nurse.

Useful links

www.cancerresearchuk.org/about-cancer/causes-of-cancer/inherited-cancer-genes-and-increased-cancer-risk/genetic-testing-for-cancer-risk
www.targetovariancancer.org.uk/about-ovarian-cancer/hereditary-ovarian-cancer

https://eveappeal.org.uk/our-research/our-research-programmes/brca-protect/

https://eveappeal.org.uk/inherited-risks/ask-eve-genetic-testing-in-ovarian-cancer/

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