

## **Genetic testing for men**

### **Information for men from families with a known alteration in the BRCA1 gene**

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#### **Breast Cancer**

In the UK, breast cancer affects 1 in 7\* women during their lifetime. Most of these women are aged over 60. It is very rare for men to develop breast cancer.

\*Cancer Research UK (2015) estimated lifetime risk of being diagnosed, people born after 1960.

#### **Ovarian Cancer**

Ovarian cancer is less common. In the UK, about 1 in 50\* women are affected during their lifetime. Most of these women have been through the menopause.

\*Cancer Research UK (2015) estimated lifetime risk of being diagnosed, people born after 1960.

#### **Prostate Cancer**

It has been estimated that the lifetime risk of prostate cancer is around 1 in 6\* for men in the UK. It is strongly related to age and very few men under the age of 50 will be diagnosed with prostate cancer. Around three quarters of cases occur in men over 65 years with the largest number diagnosed in those aged 75-79.

\*Cancer Research UK (2015) estimated lifetime risk of being diagnosed, people born after 1960.

#### **What is inherited cancer?**

In some families, women over several generations develop breast or ovarian cancer. Sometimes in these families men may also have had a prostate cancer. As this cancer is fairly common, especially in men over the age of 75, it may not be linked to breast or ovarian cancers. Occasionally men in these families have had breast cancer.

In a very small number of families some relatives may have inherited a gene alteration making them more likely to get cancer.

#### **What are genes?**

Our genes are the unique set of instructions inside our bodies which makes each of us individual. There are many thousands of different genes, each carrying a different instruction. As well as determining how we look, our genes control the way each cell or building block of the body works. Specific genes control specific cell types. Some genes are particularly important in controlling the way the cells in the breasts and ovaries grow. These genes may also be important in the growth of cells in the prostate.

We inherit two copies of each of our genes, one from our mother and one from our father.

## Why do some genes increase the risk of cancer?

The instructions in each gene are like a code. Sometimes the code differs from that of a normal gene. For example imagine the normal code for a gene is:

1-2-3-4-5-6-7-8-9-10-11-12-13-14

The gene passed down through the family may have a slightly different code:

1-2-3-4-5-6-7-8-**9**-9-10-11-12-13-14

This gene will give slightly different instructions to the cells it controls than a gene with a normal code. We call this an **altered gene**.

If the altered gene is one that controls breast, ovarian and possibly prostate cells, there is a higher chance that breast, ovarian or prostate cancer may develop.

## How can an altered gene be inherited?

If one parent (either the mother or the father) has an altered BRCA1 gene, this can be passed down to a child. Each child has a 50/50 chance of inheriting that parent's altered gene and a 50/50 chance of inheriting that parent's normal gene.

## Which gene increases the risk of these cancers?

The two genes which we know are important in breast, ovarian and possibly prostate cancer when they are altered in this way are called BRCA1 and BRCA2. There may be other important genes which have not yet been discovered.

## What if a man inherits an altered BRCA1 gene?

If a man inherits an altered BRCA1 gene his lifetime risk of developing prostate cancer is increased above the general population. He also has a slightly increased risk of developing breast cancer.

## What screening is available for men who carry the altered gene, or who are at 50/50 risk of having the altered gene?

Although no breast screening is available to men with a BRCA1 gene alteration, we do advise that men check their breast and armpit area for any lumps and reports any concerns to their GP.

No screening test for prostate cancer has been shown to detect all cases of cancer and sometimes results of tests can be abnormal, even in men who do not have cancer. This can cause a great deal of anxiety as well as unnecessary investigations. However, if a man is found to be at increased risk of prostate cancer he can discuss screening with his GP who will advise him about what is available locally.

Prostate screening involves examination of the prostate and a blood test. To examine the prostate, the doctor inserts a finger into the back passage to check that the prostate is not enlarged. The blood test measures the level of a substance called PSA (Prostate Specific Antigen) that is raised in prostate cancer.

**If you need more advice about any aspect of genetic testing for men, you are welcome to contact:**

Liverpool Centre for Genomic Medicine  
Liverpool Women's Hospital NHS Foundation Trust  
Crown Street  
Liverpool  
L8 7SS  
Telephone: 0151 802 5001 or 5008

Email: [lwft.clingen@nhs.net](mailto:lwft.clingen@nhs.net)

This leaflet can be made available in different formats on request. If you would like to make any suggestions or comments about the content of this leaflet, then please contact the Patient Experience Team on 0151 702 4353 or by email at [pals@lwh.nhs.uk](mailto:pals@lwh.nhs.uk)

Liverpool Women's NHS Foundation Trust  
Crown Street  
Liverpool  
L8 7SS  
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