Information Leaflet

Liverpool Women's NHS Foundation Trust

BRCA2 Gene alteration

The *BRCA2* gene

BRCA2 is a gene that we all have. Having an alteration in the BRCA2 gene can increase the chance of breast, ovarian, prostate, and pancreatic cancer. The chance is affected by:

- Age
- Sex
- Family history
- Other factors e.g., lifestyle, hormonal history.

BRCA2 is also associated with a small increased chance of other cancers.

Chance of Cancer and Management Options

In the UK, breast cancer affects approximately 1 in 7* women and people assigned female at birth during their lifetime. Most of these people are aged over 60. It is very rare for men and people assigned male at birth to develop breast cancer.

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

If a genetic test shows that you have BRCA2 gene alteration, you will have an increased chance of developing certain types of cancer. The chances for each type of cancer are shown in the table below^.

NB: Test results are reported based on current knowledge. Very occasionally, new information in the future may mean that our understanding of the significance of a specific gene variant may change.

Anyone with a BRCA2 gene alteration can take part in research.

Risk category	Lifetime chance of cancer	Cancer screening	Risk reducing options
Breast	Approx. 69% (or 69 in 100) by age 80 for women and people assigned female at birth Approx. 4 % (or 4 in 100) in men and people assigned male at birth	Annual MRI and/or mammograms between the ages of **30-69 for women and people assigned female at birth National Breast Screening Programme age 70+ for women and people assigned female at birth No screening in men and people assigned male at birth	Can consider risk reducing mastectomy and chemoprevention
Ovarian	Approx. 17% (or 17 in 100) by age 80 for women and people assigned female at birth	No ovarian cancer screening is effective	Can consider a risk reducing operation to remove ovaries and fallopian tubes, once family is complete; no earlier than the ages of 40-45
Prostate	Approx. 27 to 41% (or 27 to 41 in 100) by age 85 for men and people assigned male at birth	Annual prostate specific antigen (PSA) blood test from the age of 40 via GP. GP will arrange an onward referral if levels of PSA>3.0ng/ml	N/a
Pancreatic	Approx. 4-5% (or 4-5 in 100) in men and people assigned male at birth. Approx. 2% (or 2 in 100) in women and people assigned female at birth.	May be possible through EUROPAC study if family history is confirmed	N/a

** In some cases breast screening may start at 25

^ Data from UK Cancer Genetics Group BRCA2 Germline Pathogenic Variant Carriers Management Guidelines for Healthcare Professionals v2 updated 31.03.2023

How is the *BRCA2* gene alteration inherited?

We all have two copies of every gene including *BRCA2*. One copy is inherited from each of our parents. If we have children, we only pass on one copy of each of our genes in each pregnancy.
If an individual with an *BRCA2* gene alteration has children, there is a 50% (1 in 2) chance their *BRCA2* gene alteration could be passed on. There is also a 50% (1 in 2) chance their children could inherit the typical copy of the parent's *BRCA2* gene.

What can I do to help improve my health?

We encourage people to not smoke, to be a healthy weight, to eat less red and processed meat, to not drink too much alcohol and to exercise regularly. Doing these things can all help to reduce the chance of developing many types of cancer.

You should also report any changes in your breasts to your GP. If you have a personal or family history of breast cancer you should discuss this with your GP before taking hormone replacement therapy.

Are there any research studies for *BRCA2*?

The Epidemiological Study of Familial Breast Cancer (EMBRACE) aims to identify risk factors contributing to the development of cancer in people with an inherited cancer gene alteration. If you are interested in discussing the possibility of participating in any research studies, please ask your Genetic Counsellor or Doctor.

This leaflet is for people who have appointments at
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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

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