## Definition of Risk Categories

### Very High Risk: Gene Carrier

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| Risk Figures | Category description |
| * Equates to a lifetime risk of developing breast cancer of 40% or more,
* Equates to a female in her thirties whose 10-year risk is greater than 8% as assessed at age 30,
* or in her forties and whose 10-year risk is greater than 20% as assessed at age 40.
 | * Heterozygous carrier of a pathogenic/likely pathogenic variant in *BRCA1, BRCA2, TP53, PALB2, STK11, PTEN and CDH1.*
* Heterozygous carrier of c.7271T>G *ATM*
* Homozygous pathogenic/likely pathogenic variants in *ATM, CHEK2*
 |

### High Risk

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| * Equates to a lifetime risk of developing breast cancer of 30% or more,
* Equates to a female in her thirties whose 10-year risk is greater than 8% but less than 12% as assessed at age 40.
 | * Families where there is an estimated 20% or greater risk of carrying a pathogenic/likely pathogenic variant in a high-risk gene
* Heterozygous carrier of a pathogenic/likely pathogenic variant  in *RAD51C, RAD51D, ATM* or *CHEK2* and a CanRisk estimate of over 30% lifetime risk

The individual being assessed should be a first-degree relative of an affected family member or a second-degree relative through an unaffected male.Affected individuals should be first-degree relatives of each other or related through unaffected males. |

### Moderate Risk

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| * Equates to a lifetime risk of breast cancer of greater than 17% but less than 30%,
* Equates to a female in her thirties whose 10-year risk is greater than 3% but less than 8% as assessed at age 40.
 | * One first-degree\* relative with breast cancer diagnosed under the age of 40, or one first-degree relative with male breast cancer diagnosed at any age,
* or two first- or one first- and one second-degree relative with breast cancer diagnosed with average age of less than 60**,** or ovarian cancer at any age, on the same side of the family
* or three first- or second-degree relatives with breast or ovarian cancer on the same side of the family where one is a first-degree relative of the individual under review or of their father
* Heterozygous carrier of a pathogenic/likely pathogenic variant in *RAD51C, RAD51D, ATM* or *CHEK2* and a CanRisk estimate of 17-30% lifetime risk
* Females with a diagnosis of Neurofibromatosis (NF1)

A case of bilateral breast cancer should be treated as the equivalent of 2 affected relatives. |

### Low Risk

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| Equates to 17% or less lifetime risk | Anyone not fulfilling moderate, high or very high risk criteria |

\*A first-degree relative is mother, father, daughter, son, sister or brother. A second-degree relative is grandmother, grandfather, granddaughter, grandson, aunt, uncle, niece, nephew, half-sister or half-brother.

## Breast Screening Protocols by Risk Category

### Very High Risk

* Heterozygous carrier of a pathogenic/likely pathogenic variant in *BRCA1, BRCA2, PALB2, STK11, PTEN and CDH1.*
* Heterozygous carrier of c.7271T>G *ATM*
* Homozygous pathogenic/likely pathogenic variants in *ATM, CHEK2*
* Female with a lifetime risk of developing breast cancer of 40% or more (see category definitions)

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| **Age (years)** | **Test** | **Frequency** |
| 25-29\* | MRI | Annual |
| 30-39 | MRI | Annual |
| 40-50 | MRI + mammography | Annual |
| 51+ | Mammography (+/-MRI) | Annual |

\*To qualify for screening under 30 years females must be a *BRCA1*, *BRCA2* or *PALB2* carrier AND have an 8% or greater 10 year risk at the age when entered.

Continue with MRI screening only if significant breast density persists.

### Very High Risk: *TP53* Carriers

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| **Age (years)** | **Test** | **Frequency** |
| 20+ | MRI | Annual |

### Very High Risk: A-T homozygotes

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| **Age (years)** | **Test** | **Frequency** |
| 25+ | MRI | Annual |

**Untested females with 50% or greater risk of a mutation in a high-risk gene**

* Very High Risk protocol up to age 50 when this should be reviewed.
* If the female remains untested after age 50 years, they move to the High Risk protocol.

### High risk

* Equates to a lifetime risk of developing breast cancer of 30% or more, or greater than 8% 10-year risk between 40 and 50 years of age

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| **Age (years)** | **Test** | **Frequency** |
| 35-39\* | Mammography | Biennial |
| 40-49 | Mammography | Annual |
| 50-59 | Mammography | Annual |
| 60-70 | Mammography | 18 monthly |

\*Screening starts at 35 years or 5 years earlier than the youngest age of onset in the family (but not before 30 years)

### Moderate risk

* Equates to a lifetime risk of breast cancer of greater than 17% but less than 30%,

or

* a 10-year risk between 40 and 50 years of age which is greater than 3% but less than 8%

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| --- | --- | --- |
| **Age (years)** | **Test** | **Frequency** |
| 35-39\* | Mammography | Biennial |
| 40-49 | Mammography | Annual |
| 50-70 | Mammography | 3 yearly (NBSP) |

\*Screening starts at 40 years or 5 years earlier than the youngest age of onset in the family (but not before 35 years)

### Low Risk (similar to population risk)

* Equates to 17% or less lifetime risk (NBSC every 3 years from 50 to 70 years)

***Screening age 71 or over***

Women age 71 or over no longer receive breast screening invitations from the National Breast Screening programme but can self-refer for breast screening every 3 years. Women assessed to be very high risk will continue to receive invites for annual screening..