

## Manchester Scoring System Information Sheet

The Manchester Scoring System (MSS) calculates the probability of mutations in the *BRCA1* and *BRCA2* genes in families suspected of having hereditary breast and ovarian cancer<sup>1</sup>.

This information sheet provides a guide for non-genetic specialists to facilitate the calculation of a Manchester Score for patients with a new diagnosis of breast cancer.

**Patients with a Manchester Score >14 are eligible for germline mutation testing.**

### How to calculate the Manchester Score?

#### **PART ONE – reviewing the patient’s family history**

- For each relative with cancer (including DCIS), assign a score based on the relative’s age at diagnosis (**see table 1**):
  - If the exact age is unknown, use a best estimate. If there is no information on age assume the affected relative to be 60 years.
- If a relative has had more than one primary cancer, assign a score for each cancer episode
  - These cancers must not be recurrences or secondary cancers.
- Assess the maternal and paternal lineages as two separate entities - **Do not add the scores from both sides of the family together:**
  - Add up the scores for each affected relative with cancer on the maternal side
  - Add up the scores for each affected relative with cancer on the paternal side
  - If cancers occurred on both sides of the family, use the lineage with the highest score.
- Which relatives to include?
  - You can allow one intervening female relative unaffected by cancer in the calculation (i.e. include the score of a second degree relative with BRCA-associated cancer, when the associated female first degree relative is unaffected)
  - You can allow more than one intervening female relative, unaffected by cancer, if one of them has had risk reducing surgery at an age less than 50 (i.e. if a first degree relative had risk reducing surgery <50yo, an associated second degree relative was unaffected, and the third degree relative had BRCA-associated cancer, then the third degree relative should be included in the scoring)
  - Cancers through unaffected male relatives are counted (i.e. if the father is unaffected, but paternal grandmother had BRCA-associated cancer, then the grandmother should be included in the scoring).

**PART TWO: Adjusting the score according to your current patient's tumour biology**

- Once the total score (sum of all eligible relatives on the most affected side of the family) is calculated, adjust the score according to your **current patient's** tumour biology (see table 2):

**Table 1: Scoring system for each member of your current patient's family**

Gender of relative	Cancer	Age at diagnosis	Score	Calculation
Female	Breast Cancer	<30	11	
	Breast Cancer	30-39	8	
	Breast Cancer	40-49	6	
	Breast Cancer	50-59	4	
	Breast Cancer	>59	2	
Male	Breast Cancer	<60	13	
	Breast Cancer	>59	10	
Female	Ovarian Cancer	<60	13	
	Ovarian Cancer	>59	10	
Any gender	Pancreatic Cancer	Any age	1	
Male	Prostate Cancer	<60	2	
	Prostate Cancer	>59	1	
<b>Total</b>				

**Table 2: Adjustments according to your current patient's tumour biology**

Patient's tumour biology	Adjustment to Manchester Score	Calculation
Triple negative tumour	+ 4	
ER positive and HER2 negative	-1	
ER positive and HER2 positive	-7	
ER negative and HER2 positive	-5	
Grade 3	+2	
Grade 1	-2	
DCIS only (no invasive disease)	-2	
Invasive lobular cancer	-2	
<b>Total</b>		

References: 1. Evans et al, 2017. Pathology update to the Manchester Scoring system based on testing in over 4000 families. *J Med Genet* 54 (10): 674-681.