

Hereditary Breast and Ovarian Cancer Syndrome (HBOC)

There are two genes that are commonly associated with hereditary breast and ovarian cancer, *BRCA1* and *BRCA2*. Women with *BRCA1* mutations have a 56-87% lifetime risk of developing breast cancer, and up to a 44% lifetime risk of developing ovarian cancer. This is much higher than the 12% lifetime risk of developing breast cancer and 1-2% lifetime risk of developing ovarian cancer for women in the general population. Men with *BRCA1* mutations do not appear to be at a significantly increased risk for breast cancer, but have an increased risk for prostate cancer. The prostate cancer risk is estimated to be 20%.

Women who have a *BRCA2* mutation have a 56-87% lifetime risk of developing breast cancer and up to a 27% risk for developing ovarian cancer. Men who carry *BRCA2* mutations have a 6% lifetime risk of developing breast cancer and a 20% lifetime risk of developing prostate cancer. Cancers of the pancreas as well as melanoma may also be associated with *BRCA2* mutations. An individual with a *BRCA* mutation may develop one of these cancers, more than one, or none at all, during their lifetime.

Women with *BRCA1* and *BRCA2* mutations who have had breast cancer have a 60% risk of developing a second breast cancer.