About Genes
Genes are in every cell in our bodies. Genes are made of DNA, which gives instructions to cells about how to grow and work together. We have two copies of each gene in each cell—one from our mother and one from our father. When genes work properly, they help keep cancerous cells from developing. If one copy of a gene has a mutation, it cannot function as it should. This increases the risk for certain cancers.

Having a mutation in the BRCA1 or BRCA2 genes increases the risk of breast and ovarian cancers in women and breast and prostate cancers in men.

BRCA1/BRCA2 Mutations and Cancer Risk

WOMEN
Women have a 10% average lifetime risk of developing breast cancer. This risk increases to 50-85% in those with a BRCA1 or BRCA2 gene mutation. Women with a BRCA1/BRCA2 mutation who already had breast cancer have an increased risk above the general population of developing a second, new breast cancer.

The lifetime ovarian cancer risk is 40-60% for women with a BRCA1 mutation and 20-30% for women with a BRCA2 mutation.

MEN
Male breast cancer is usually very rare—less than 1% of men will develop it during their lifetime. Men with a BRCA1 mutation have a slightly higher lifetime risk of breast cancer above the general population, and men with a BRCA2 mutation have a 6-8% lifetime breast cancer risk.

Prostate cancer is more common. Men, on average, have a 15% lifetime risk. Those with a BRCA1 mutation have a slightly higher lifetime risk, and men with a BRCA2 mutation have a 20% lifetime risk of prostate cancer.

WOMEN AND MEN
People with BRCA2 mutations also have higher risks for melanoma (a type of skin cancer) and pancreatic cancers. The lifetime risks are 2% for melanoma and 5-7% for pancreatic cancer.

At this time, screenings for melanoma and pancreatic cancers are the same for people with BRCA1/BRCA2 mutations as the general population, unless a person has a family history of these cancers.

Recommendations

WOMEN
- Starting at age 25: Clinical breast exam twice a year
- Between ages 25 and 30: Breast MRI every year
- Starting at age 30: Mammogram and breast MRI every year, alternating these exams every 6 months
- After age 35: Surgery to remove ovaries and fallopian tubes, if no plans to be pregnant

Women may consider taking medicine to reduce their risk of developing breast cancer, or surgery to remove both breasts (bilateral mastectomy) to reduce their risk as much as possible.

It is important to talk with your health care provider about the best recommendations based on your own medical and family history.

MEN
- Starting at age 35: Clinical breast exam every year
- Starting at age 40: Prostate cancer screening recommended for men with BRCA2 mutation, and considered for men with BRCA1 mutation

KIDS AND SIBLINGS
Siblings and children of people with a BRCA1 or BRCA2 mutation have a 50% chance of also having it. Genetic testing and counseling are recommended after age 18.

Family Members Who Test Negative
People who do not have the familial BRCA1 or BRCA2 mutation are typically considered to be at the same level of risk for breast, ovarian, prostate, melanoma, and pancreatic cancers as the general population if no other risk factors are present. They should follow general cancer screening guidelines.

Resources
If you have a personal or family history of breast or ovarian cancer, you may be eligible for genetic testing and counseling. Please call Huntsman Cancer Institute’s Family Cancer Assessment Clinic to learn more: 801-587-9555. If you already know you or a family member has a BRCA or other gene mutation, our team of physicians and genetic counselors can help you create a management plan.

For more information call 1-888-424-2100 or visit www.huntsmancancer.org

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