

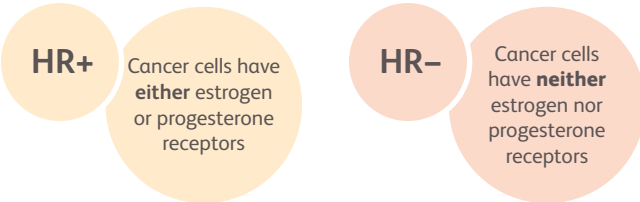
# Breast Cancer

Breast cancer is the **most common cancer in the world** both among women and overall, with more than **2.2 million** new cases diagnosed each year.

## Understanding Breast Cancer

### Hormone Receptors (HRs)

Breast cancer cells are tested to see if they have positive or negative HR status. Treatment options differ depending on the cancer cell's HR status.



### Human Epidermal Growth Factor Receptor 2 (HER2)

HER2 is a growth-promoting protein on the outside of all breast cells. Testing for HER2 status can influence treatment options.



## Types of Breast Cancer



Breast cancer is classified by HR and HER2 status. Subtypes include:

<b>Luminal A breast cancer (HR+/HER2-)</b>	Represents 60-70% of breast cancer diagnoses.
<b>Luminal B breast cancer (HR+/HER2+)</b>	Represents 10-15% of breast cancer diagnoses.
<b>HER2-enriched breast cancer (HR-/HER2+)</b>	Represents about 5% of breast cancer diagnoses.
<b>Triple-negative breast cancer (HR-/HER2-)</b>	Represents 10-15% of breast cancer diagnoses.

better prognosis/  
less aggressive



poor prognosis/  
more aggressive

Source: SEER 2014-2018

## Signs & Symptoms

Lump or mass in breast

Swelling of all or part of a breast (even if no distinct lump is felt)

Skin irritation or dimpling

Breast or nipple pain



Nipple retraction

Redness, scaliness, or thickening of the nipple or breast skin

Nipple discharge (other than breast milk)

## Risk Factors

There are several risk factors for all cancers, including alcohol consumption and obesity, but for breast cancer the greatest risks are:

### Genetic Mutations

**BRCA1** and **BRCA2** genes are the most well-known genes linked to breast cancer risk. They produce suppressor proteins that help repair damaged DNA. When mutated or altered, the risk for developing cancer increases.

Female and male carriers of the BRCA1 and BRCA2 mutations can pass them down to their children.

**BRCA1**

**72%**

of women with the BRCA1 mutation will develop breast cancer by age 80

**BRCA2**

**69%**

of women with the BRCA2 mutation will develop breast cancer by age 80

Source: JAMA 2017

## Treatment Options



Surgery



Radiation Therapy



Chemotherapy



Targeted Therapy



Hormone Therapy



Immunotherapy

### Women over the age of 55

are more likely to be diagnosed

Although rare, men can also be diagnosed with breast cancer.



Source: American Cancer Society 2019