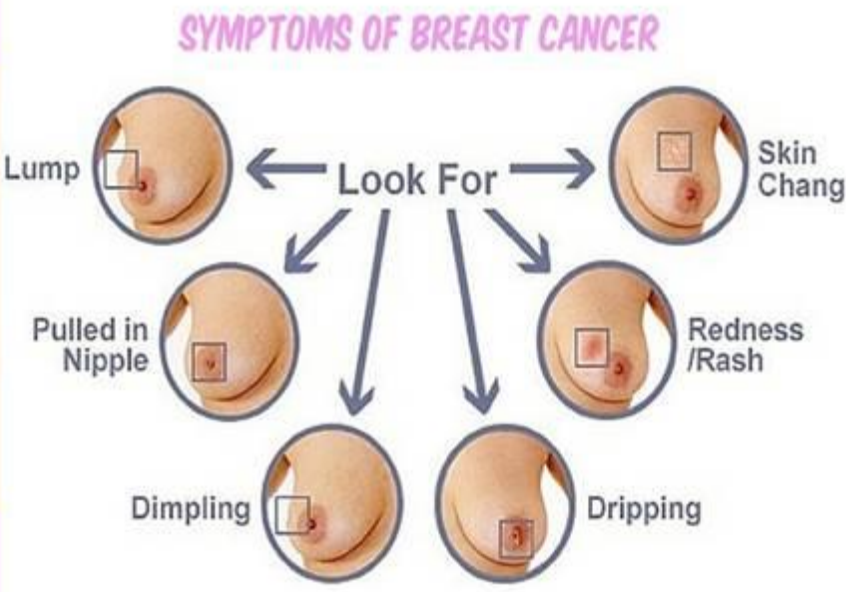
Breast Cancer

Breast cancer is the most common invasive cancer in women and the second leading cause of cancer death in women after lung cancer.

1. What are the major symptoms of breast cancer?

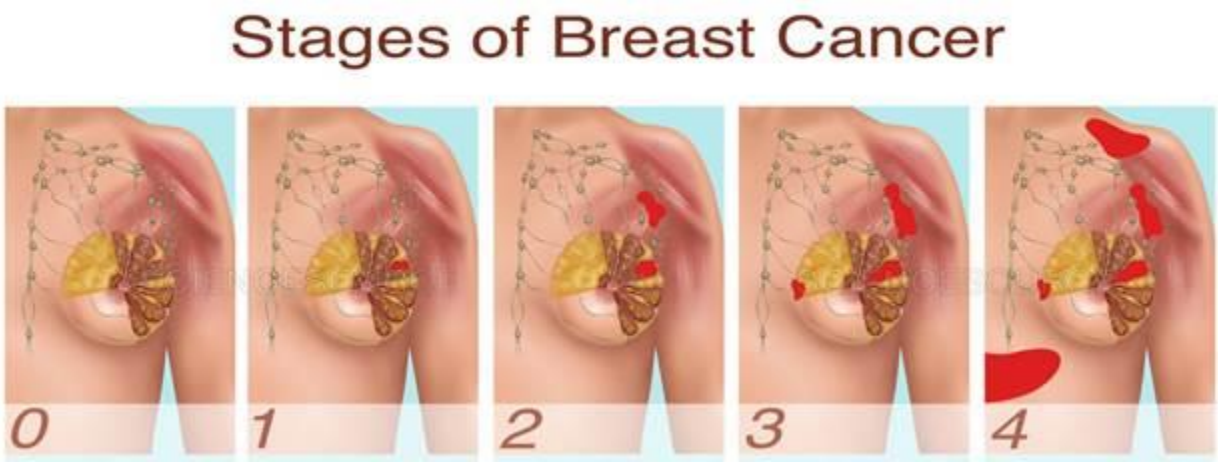
- The first symptoms of breast cancer usually appear as an area of thickened tissue in the breast or a lump in the breast or an armpit.
- Pain in the armpits or breast that does not change with the monthly cycle
- Redness of the skin of the breast, like the surface of an orange
- A rash around or on one of the nipples
- Discharge from a nipple, possibly containing blood
- Sunken or inverted nipple
- a change in the size or shape of the breast
- scaling of the skin on the breast or nipple



Remember, most breast lumps are not cancerous. However, women should visit a doctor for an examination if they notice a lump on the breast.

2. What are the Stages of breast cancer?

- **Stage 0:** Known as ductal carcinoma in situ (DCIS), the cells are limited to within the ducts and have not invaded surrounding tissues.
- **Stage 1:** At this stage, the tumor measures up to 2 centimeters (cm) across. It has not affected any lymph nodes, or there are small groups of cancer cells in the lymph nodes.
- **Stage 2:** The tumor is 2 cm across, and it has started to spread to nearby nodes, or is 2–5 cm across and has not spread to the lymph nodes.
- **Stage 3:** The tumor is up to 5 cm across, and it has spread to several lymph nodes or the tumor is larger than 5 cm and has spread to a few lymph nodes.
- **Stage 4:** The cancer has spread to distant organs, most often the bones, liver, brain, or lungs.



3. What are the Causes of breast cancer?

The exact cause of breast cancer remains unclear, but some risk factors make it more likely. It is possible to prevent some of these risk factors.

1. Age

The risk of breast cancer increases with age. At 20 years, the chance of developing breast cancer in the next decade is 0.06%. By the age of 70 years, this figure goes up to 3.84%.

2. Genetics

- Women who carry certain mutations in the *BRCA1* and *BRCA2* genes have a higher chance of developing breast cancer, ovarian cancer, or both. People inherit these genes from their parents.
- Mutations in the *TP53* gene also have links to increased breast cancer risk.
- If a close relative has or has had breast cancer, a person's chance of developing breast cancer increases.
- Current guidelines recommend that people in the following groups seek genetic testing:
- those with a family history of breast, ovarian, fallopian tube, or peritoneal cancer
- those in whose ancestry there is a history of breast cancer related to *BRCA1* or *BRCA2* gene mutations, for example, people with Ashkenazi Jewish ancestry.

3. A history of breast cancer or breast lumps

- Women who have previously had breast cancer are more likely to have it again than those who have no history of the disease.
- Having some types of noncancerous breast lump increases the chance of developing cancer later. Examples include atypical ductal hyperplasia or lobular carcinoma in situ.
- Individuals with a history of breast, ovarian, fallopian tube, or peritoneal cancer should ask their doctors about genetic testing.

4. Dense breast tissue

Women with more dense breasts are more likely to receive a diagnosis of breast cancer.

5. Estrogen exposure and breastfeeding

Breastfeeding for over 1 year appears to reduce the risk of breast cancer.
Extended exposure to estrogen appears to increase the risk of breast cancer.

6. Body weight

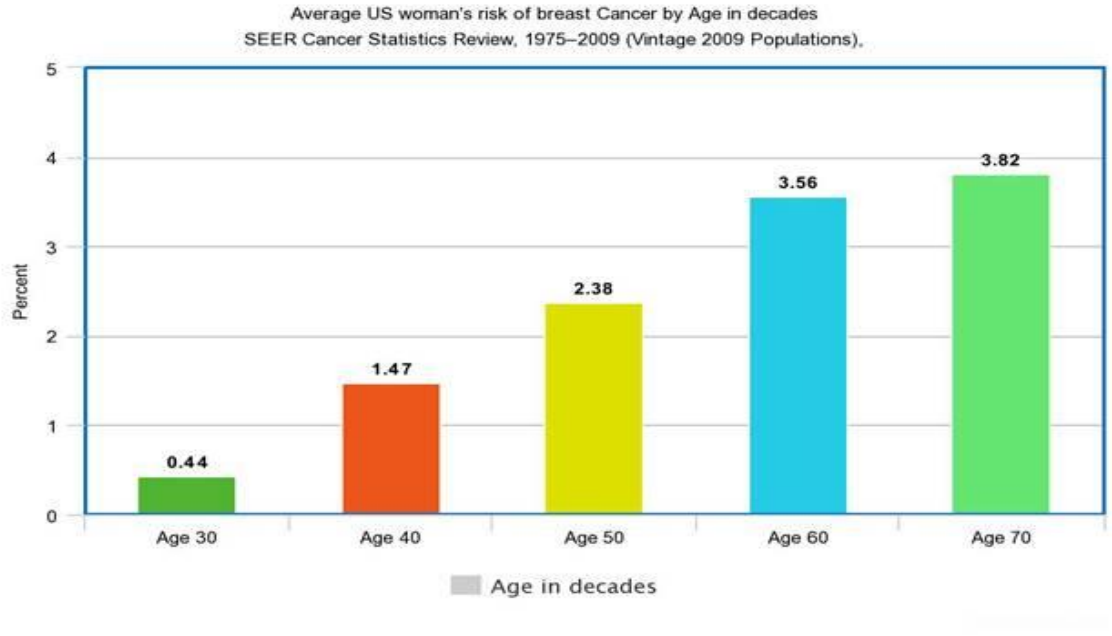
Women who become overweight or develop obesity after menopause may also have a higher chance of developing breast cancer, possibly due to increased estrogen levels. High sugar intake may also be a factor.

7. Alcohol consumption

8. Radiation exposure

9. Hormone treatments

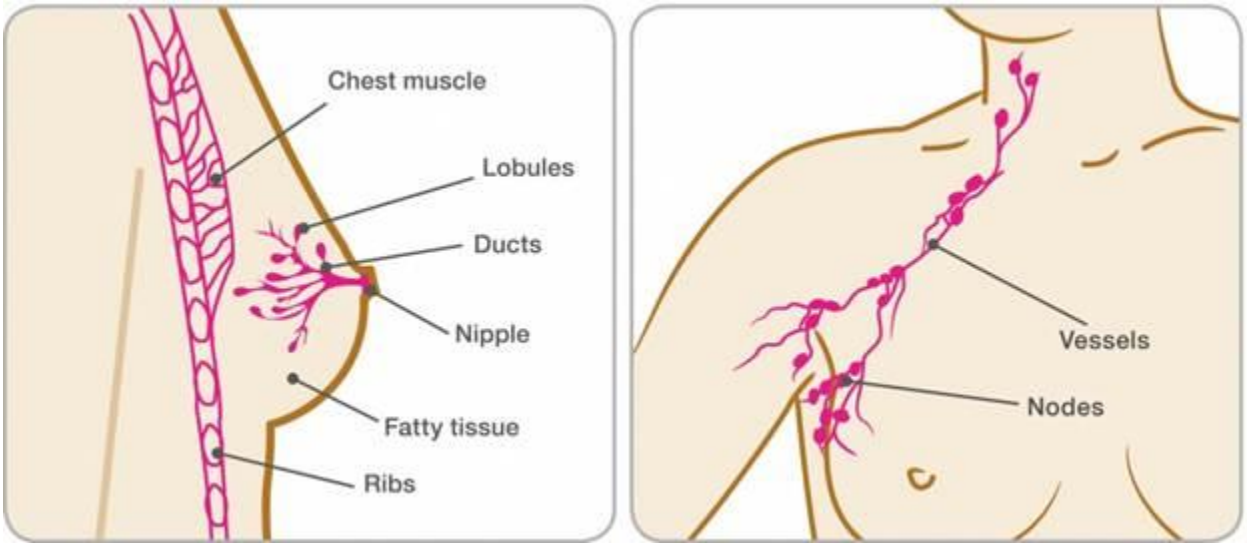
4. In which age the chances of Breast Cancer are maximum?



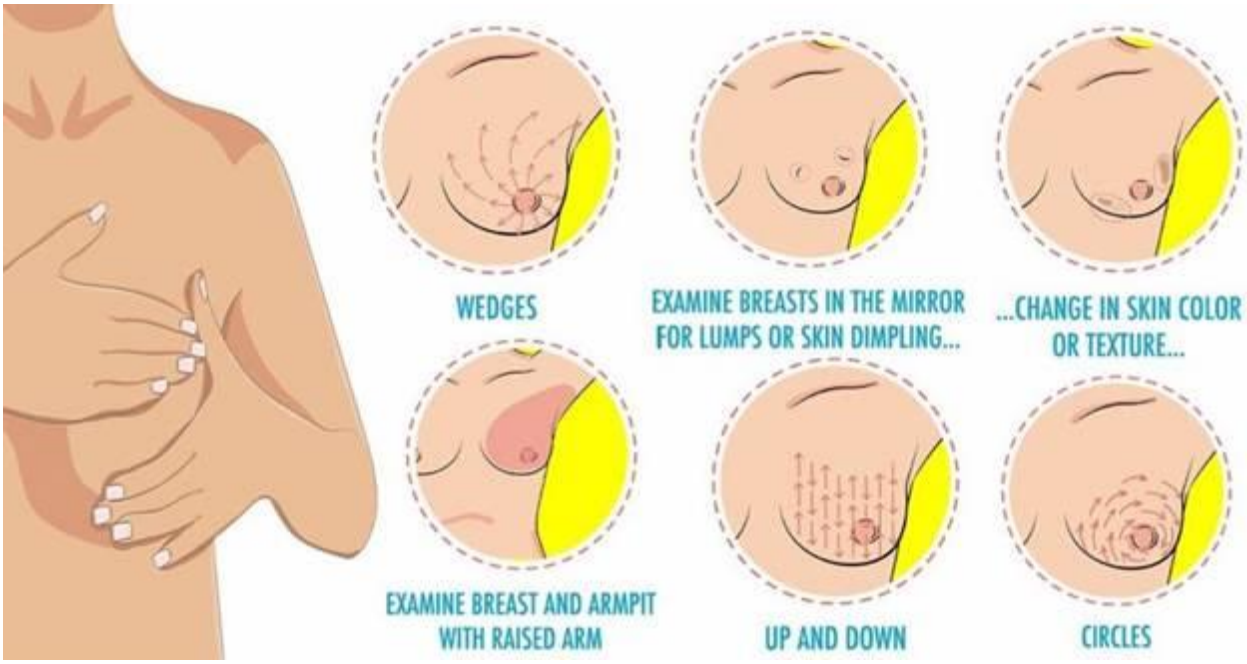
5. What are the most common types of Breast Cancer?

There are several different types of breast cancer, including:

- **Ductal carcinoma:** This begins in the milk duct and is the most common type.
- **Lobular carcinoma:** This starts in the lobules. Invasive breast cancer occurs when the cancer cells break out from inside the lobules or ducts and invade nearby tissue. This increases the chance of cancer spreading to other parts of the body.



6. How to do self-examination of the breast?



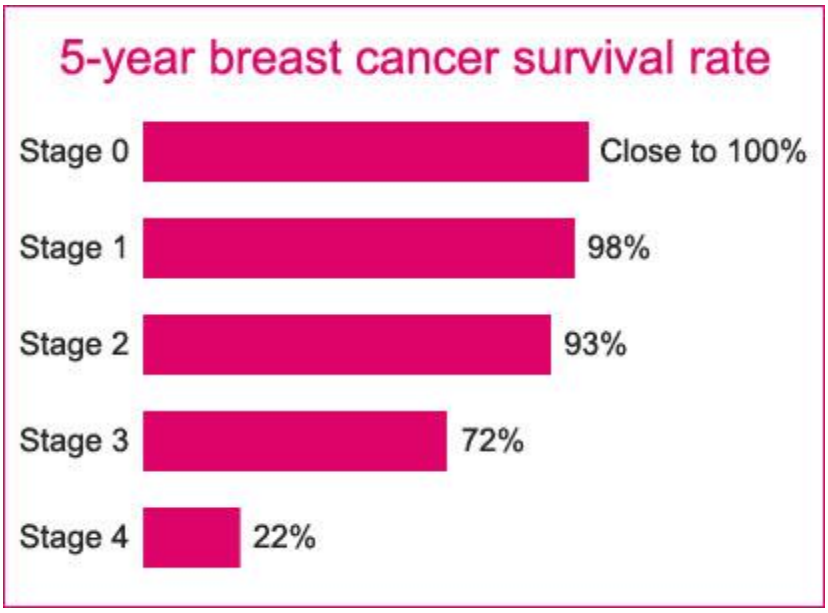
7. Which are the different Treatment options for Breast Cancer Patients?

- Radiation therapy
- Surgery
- Biological therapy, or targeted drug therapy
- Hormone therapy
- Chemotherapy

8. How a Breast cancer can be Prevented?

- Following a healthful diet containing plenty of fresh fruit and vegetables
- Getting enough exercise
- Maintaining a healthy body mass index (BMI)
- Women should consider their options for breastfeeding and the use of HRT following menopause, as these can also increase the risk.
- Avoiding excessive alcohol consumption
- Preventive surgery is also an option for women at high risk of breast cancer.

9. Survival of Breast cancer stage wise?



10. Diagnosis/ Prognosis of Breast Cancer?

- Breast examination by Gynecologist or General Surgeon.
- Imaging tests: Mammogram, Ultrasound, MRI
- Laboratory Test: FNAC, Biopsy, IHC Marker- ER/PgR/Her2neu, HER2/Neu FISH, Blueprint MammaPrint, Foundation One, CanAssist Breast.

- Genetic Test: BRCA1 & 2

11. Which doctor will diagnose & treat breast cancer?

- Initial Diagnosis: General Surgeon, Gynecologist, Breast Surgeon
- Treatment: Medical Oncologist, Radiation Oncologist, Surgical Oncologist,

12. Test Information?

S. No.	Test Name	Test Code	MRP	Test Detail (if any)	Technique	TAT / Reported on
1	Breast Cancer Comprehensive Diagnosis Panel	SP10098	7000	ER/PgR/Her 2Neu, Ki-67, EGFR, CK5/6	Immunohistochemistry	4th Working day of receipt of paraffin blocks, if received in section before 1300 Hrs. Add another day for sample received after cut off time and for formalin fixed specimens.
2	Breast Cancer Prognosis Panel (1A) (IHC Marker)	SP10042	4250	DNA Ploidy & S- Phase, Solid Tumours, Breast Prognosis Panel (Basic) / ER, PR	See Individual Assays	4th Working day of receipt of paraffin blocks, if received in section before 1300 Hrs. Add another day for sample received after

						cut off time and for formalin fixed specimens.
3	Breast Cancer Prognosis Panel (1B) (IHC Marker)	SP10043	3000	ER (Estrogen Receptor), PR (Progesterone Receptor), Her2/neu	Immunohistochemistry	4th Working day of receipt of paraffin blocks, if received in section before 1300 Hrs. Add another day for sample received after cut off time and for formalin fixed specimens.
4	Breast Cancer Prognosis Panel (2A) (IHC Marker)	SP10044	15150	HER2/neu gene amplification, DNA Ploidy & S- Phase, Breast Cancer Prognosis Panel (Basic) / ER, PR	See Individual Assays	6th day of Receipt of Paraffin Block if received before 1300 hrs.; Add a day for tissue specimen.
5	Breast Cancer Prognosis Panel (2B) (IHC Marker)	SP10045	5200	HER2/neu, DNA Ploidy & S- Phase, Solid Tumors, Breast Cancer Prognosis Panel (Basic) / ER, PR	See Individual Assays	5th working days of Receipt of Paraffin Block if received before 1300 hrs.; Add a day for tissue specimen.

6	Breast Cancer Prognosis Panel (3A) (IHC Marker)	SP10046	4000	p53, Cathepsin D, Breast Cancer Prognosis Panel (Basic) / ER, PR	Immunohistochemistry	4th Working day of receipt of paraffin blocks, if received in section before 1300 Hrs. Add another day for sample received after cut off time and for formalin fixed specimens.
7	Breast Cancer Prognosis Panel (4A) (IHC Marker)	SP10047	25400	Breast Cancer Prognosis Panel (Basic) / ER, PR, HER2/neu Gene by Quantitative PCR, EGFR mRNA Over expression Quantitative	See Individual Assays	4th Working day of receipt of paraffin blocks, if received in section before 1300 Hrs. Add another day for sample received after cut off time and for formalin fixed specimens.
8	Breast Cancer Prognosis Panel (Basic) / ER, PR (IHC Marker)	SP10041	2200	ER (Estrogen Receptor), PR (Progesterone Receptor)	Immunohistochemistry	4th Working day of receipt of paraffin blocks, if received in section before 1300 Hrs. Add another day for sample

						received after cut off time and for formalin fixed specimens.
9	Breast Lump - Histopathology medium	SHP10076	1200		Processing, Staining & Microscopy	4th working day if received before 1300hrs.
10	Breast Lump Excision for Tumor (less than Mastectomy) - Histopathology large	SHP10127	1800		Processing, Staining & Microscopy	5th working day if received before 1300hrs
11	CA 27.29 (Breast Cancer Marker)	RIM10161	10500		Chemiluminescence Immunoassay (CLIA)	20th working day by 7pm
12	CA15.3 (Breast Cancer)	RIM10159	1210		Chemiluminescence Microparticle Immunoassay (CMIA)	3rd Working Day by 7:00 p.m.
13	CanAssist-Breast	SMO10423	60000		IHC and algorithm	15th working days by 7:00 p.m.
14	PALB2 Gene for Breast Cancer	SMO10231	66500		Full Gene Sequencing	21st Working Day if received before 1300 hrs.
15	MammaPrint + BluePrint Combination	SMO10242	220000	Breast Cancer Recurrence + Molecular	Microarray-based gene expression profile	18th working day by 7:00 p.m.

16	MammaPrint Assay	SMO10364	165000	Subtyping Assay to identify patients who are at high risk of recurrence and to help guide biologically centered treatment planning.		18th working day by 7:00 p.m.
17	HER2 FISH For Equivocal Cases	SFI10061	10000		FISH	5th working day if received before 1200hrs
18	HER2/neu (IHC Marker)	SIH10003	1650		Immunohistochemistry	4th Working day of receipt of paraffin blocks, if received in section before 1300 Hrs. Add another day for sample received after cut off time and for formalin fixed specimens.