

## **Change In The Epidemiological Trends And Screening Protocols In Carcinoma Breast**

**Dr. M. Nupur**

*Pgt Iii Year, Department Of General Surgery, Amch*

**Prof. Dr. Jishan Ahmed, Dr. S. S. Konwar, Dr. David Pegu, Dr. Dilip Killing**

---

Date of submission: 21-05-2024

Date of acceptance: 31-05-2024

---

Breast cancer is a significant public health concern that impacts women and men all over the world. It is the most common type of cancer diagnosed worldwide and the second leading cause of cancer-related deaths in women.<sup>1</sup> Globally, the incidence of breast cancer varies, with higher incidence seen in Western countries than in Eastern ones. However, the prevalence of breast cancer is rapidly rising in low- and middle-income nations as a result of dietary changes, lifestyle changes, and a rise in longevity.<sup>1</sup>

Numerous studies have demonstrated the correlation between a number of factors and an increased risk of breast cancer. These factors include age, race, and socioeconomic status, family history, genetic factors such as BRCA mutations, hormonal factors such as parity, age at menarche, and age at first full-term pregnancy, nursing, and lifestyle factors such as physical activity, diet, alcohol consumption, and tobacco use.<sup>2</sup>

To gain a better understanding of the distribution, risk factors, incidence, mortality, and variations in the occurrence of breast cancer, its epidemiology can be used to collect and analyse data. The incidence rate was considerably greater in older women; from 2014 to 2018, the median age at which a breast cancer diagnosis was made was 63 years; it has been in an increasing trend in the following years till 2019, after which the median age has started declining.

In the Indian subcontinent, the average life expectancy is 67 years, which is shorter than that of other Asian nations, and the breast cancer incidence is also rising.<sup>3,4</sup> A recent SURVCAN-3 study (Cancer Survival in Countries in Transition) published in 2023 found that the 3-year median survival for breast cancer across countries was 84%, whereas, in India, it was 68%.<sup>5</sup> According to the CONCORD-3 study (2010–2014), India has a 5-year breast cancer survival rate of 66.1%.<sup>6</sup>

60–70% of breast cancer cases in the developed world are detected early whereas various parts of India report only 30% of breast cancer cases in the early stages. More than 70% of the women with breast cancer get diagnosed in an advanced stage.<sup>7</sup>

Under the National Cancer Registry Programme (NCRP) under ICMR, according to reports of data collected for 2021, Gynaecological cancers, including breast cancer, account for over half of all cancers in women. Over a quarter of the cases were breast cancer (25.4%) followed by cervical cancer (15.2%). In the younger age group (below 25 years), ovarian cancers were the commonest cancer types. From 25 years and up, breast cancer was the major cancer type in all age groups and the median age for diagnosis has reduced. Epithelial tumours (infiltrating duct carcinoma-89.7%) was the most common histology of breast cancer reported.

As per the report of profile of cancer and related health indicators of North-East region of India (under ICMR), the proportion of women (30- 49years) who have undergone screening for breast cancer is 0.2%. In Dibrugarh district, in female population, the probability of developing breast cancer is the most (1 in every 63 females) followed by gallbladder cancer (1 in every 105 females). In Dibrugarh district, the annual percent change (APC) in cancer incidence for all cancer sites is 1.9% (statistically significant) in females and – 0.1% in males, from 2005 to 2016. In females, breast, mouth, and stomach cancer showed an increasing trend, whereas cancer of the cervix-uteri and hypopharynx showed a decline.

The whole scenario of the advanced stage presentation moves around two major factors, almost non-availability of breast cancer screening programs, and reluctance of women to participate in any such program. This is due to lack of awareness, lack of access to appropriate healthcare facilities, and socio-cultural attitudes<sup>7</sup> such as inhibition to approach male surgeons.

To achieve the goal of reduction in incidence of breast cancer and a decline in cancer specific death rates, implementation of screening programmes is a must.

## **Screening**

Screening in susceptible population helps in early detection of carcinoma when the treatment is easier, less invasive and to a great extent, curative.

Breast self examination (BSE) can play a significant role in cancer awareness and early detection in areas where screening procedures such as mammography and MRI are not available. BSE is cost effective, easy to teach and is acceptable to the susceptible population.

Methodologies of screening in breast cancer: Mammography, MRI

**Mammography is the most common screening test for breast cancer.**<sup>8</sup>



It is to be done annually after the age of 40 years

There are different types of mammograms:

- Film mammography is an x-ray picture of the breast.
- Digital breast tomosynthesis (DBT) uses x-rays to take a series of pictures of the breast from different angles. A computer is used to make 3-D pictures of the breast from these x-rays.
- 2-dimensional mammography (S2D) uses x-rays to take pictures of the inside of the breast, usually from two different angles. A computer or x-ray film is used to make 2-D pictures of the breast.

Many factors affect whether mammography is able to detect breast cancer:

- The age of the patient (done in ages more than 40 once the dense breast tissue starts getting replaced by fibro-fatty tissue)
- The size and type of tumor (hormone dependent cancers detected; rapidly increasing tumors might give a false negative result)
- How dense the breast tissue is (cannot be done in a younger age group; dense breast tissue can be mistaken as small tumors or calcifications as they both appear white)
- The timing of the mammography within the woman's menstrual cycle (slightly painful, done on days when the breasts are least likely to be tender)
- The quality of the mammogram picture.

**MRI may be used to screen women with a high risk of breast cancer.**



MRI may be used as a screening test for women who have a high risk of breast cancer. Factors that put women at high risk include the following:

- Certain gene changes, such as changes in the *BRCA1* or *BRCA2* genes.
- A family history (first degree relative, such as a mother, daughter or sister) with breast cancer.
- Certain genetic syndromes, such as Li-Fraumeni or Cowden syndrome.

An MRI is more likely than mammography to find a breast mass that is not cancer. It doesn't involve any radiation exposure, and has more sensitivity compared to mammography.

Women with dense breasts who have supplemental screening (for example, an MRI) show higher rates of breast cancer detection, but there is limited evidence about whether this leads to better health outcomes.

Since radiation exposure is a risk factor for breast cancer, women who have had radiation treatment to the chest, especially at a young age, may start routine breast cancer screening at an earlier age.

If the screening modalities identify a change in the breast's normal architecture, investigations should be conducted to confirm the diagnosis of breast cancer. The best method for the diagnosis is **triple assessment of the breast** which includes:

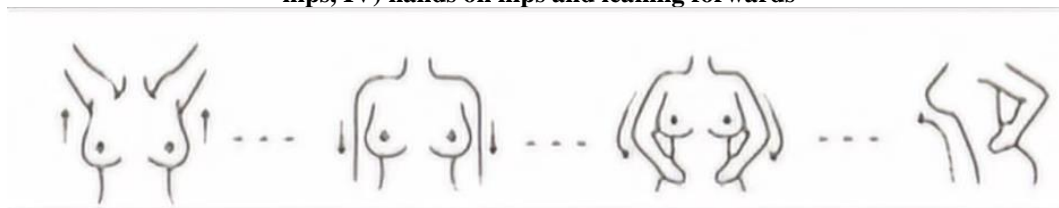
1. History and clinical examination of the breast and axilla (2-3 yearly between ages 20 to 30 and annually after the age of 40 years)
2. Radiological imaging- Mammography (after the age of 40 years), Ultrasonography of the breast and axilla (in age less than 40) and MRI breast (high risk screening)
3. Tissue examination- FNAC, core needle biopsy.

### Breast Self Examination

Done on the 7<sup>th</sup> day of menstrual cycle, monthly in women in reproductive age group.

Post-menopausal women should choose a date and repeat the examination on the same day monthly in a systematic manner.

#### STEP 1: Inspection of the Breasts in a Mirror With I) Hands raised, II) hands by the side, III) hands on hips, IV) hands on hips and leaning forwards



Begin by looking at the breasts in the mirror with shoulders straight and arms on the hips.

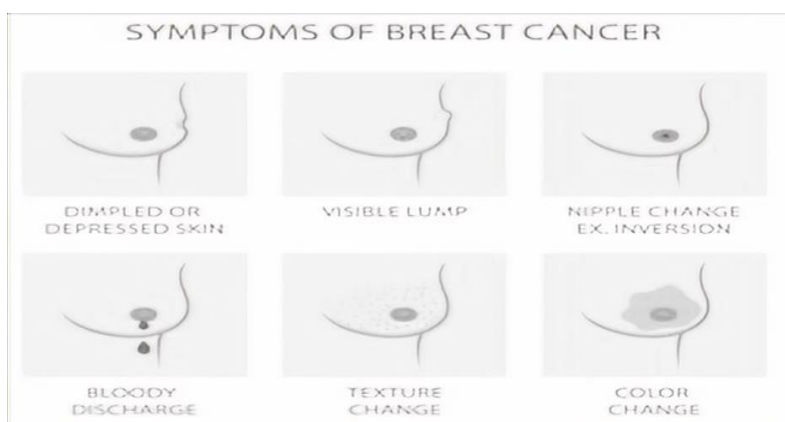
Look for: Size, shape, and color of the breasts

If they are evenly shaped without visible distortion or swelling

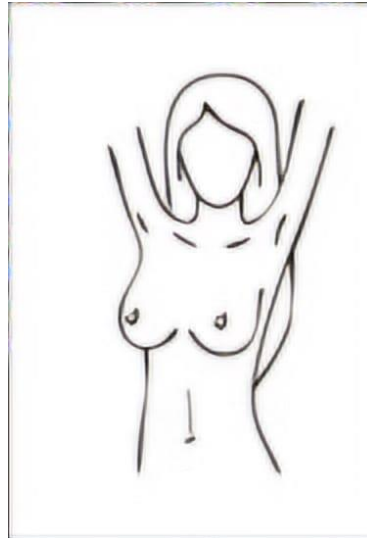
Dimpling, puckering, or tethering of the skin

Retracted or inverted nipple

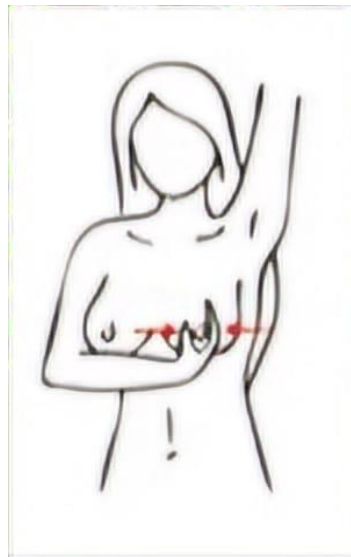
Redness, soreness, rash, or swelling



STEP 2: Arms are raised and same changes are looked for.



**STEP 3: Inspect and palpate the nipple for any discharge from one or both nipples, by holding and pressing it between the thumb and a finger (this could be watery, milky, or yellow fluid or blood).**



**STEP 4: Palpate for breast lumps while lying down next, using right hand to feel the left breast and then the left hand to feel the right breast.**

Use a firm, smooth touch with the middle three finger pads of hand, keeping the fingers flat and together.

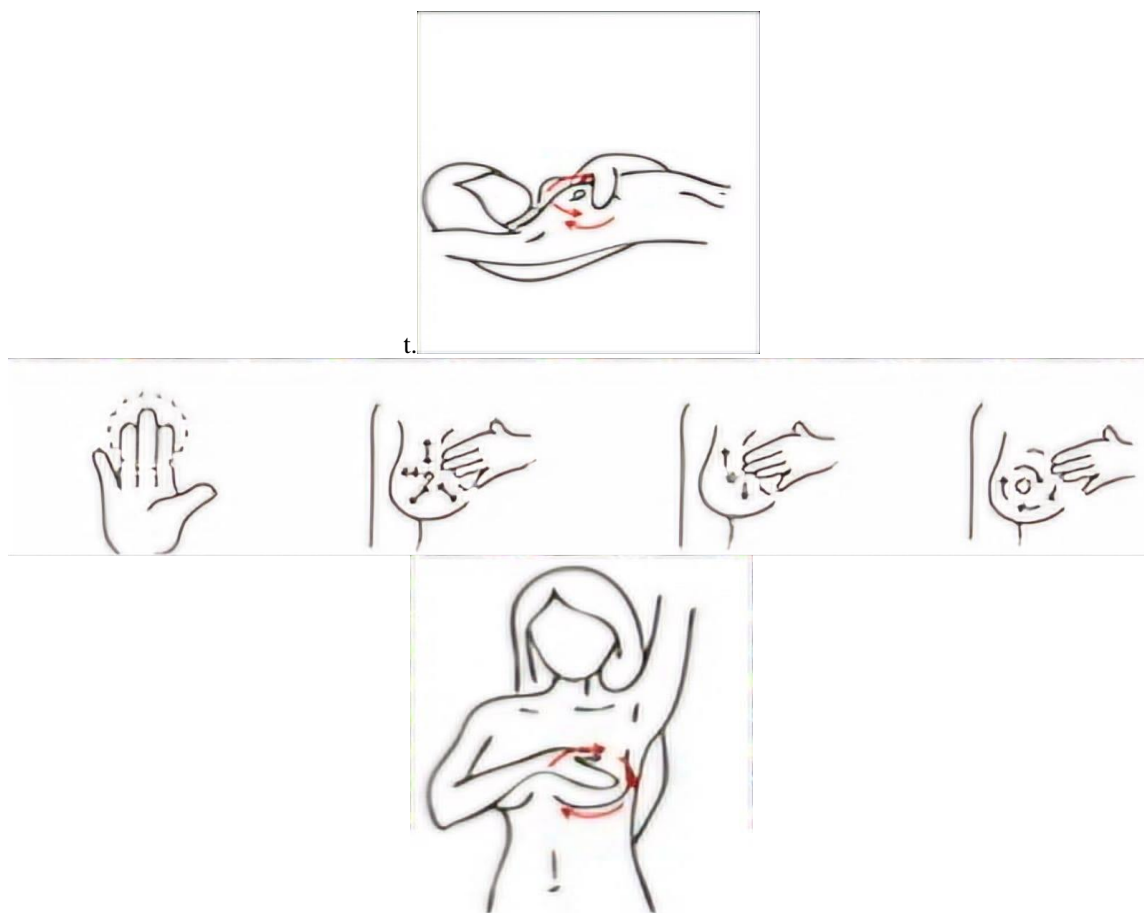
Press down with the fingers and move them in a circular motion that's about the size of a quarter (or an inch around).

Cover the entire breast from top to bottom, side to side — from clavicle to the infra-mammary fold, and from the axilla to sternum.

Follow a pattern to be sure that the whole breast is covered. Begin at the nipple, moving in larger and larger circles until the outer edge of the breast is reached.

Fingers can also be moved up and down vertically, in rows. This up-and-down approach seems to work best for most women.

For the skin and tissue just beneath, use light pressure; use medium pressure for tissue in the middle of the breasts; use firm pressure for the deep tissue in the back.



If any breast lump, axillary lump, nipple discharge or distortion in the anatomy of breast is noticed during the BSE, intervention should be sought at the earliest by visiting a general/oncological surgeon.

### References

- [1] Global Cancer Statistics 2018: Globocan Estimates Of Incidence And Mortality Worldwide For 36 Cancers In 185 Countries - Bray - 2018 - Ca: A Cancer Journal For Clinicians - Wiley Online Library [Internet]. [Cited 2024 Apr 16]. Available From: <https://acsjournals.onlinelibrary.wiley.com/doi/full/10.3322/caac.21492>
- [2] Lukaszewicz: Breast Cancer—Epidemiology, Risk... - Google Scholar [Internet]. [Cited 2024 Apr 16]. Available From: [https://scholar.google.com/scholar\\_lookup?author=S+Lukaszewicz&author=M+Czeczelski&author=A+Forma&author=J+Baj&author=R+Sitarz&author=A+Stanislawek&publication\\_year=2021&title=Breast%20cancer-Epidemiology%20risk%20factors%20classification%20prognostic%20markers%20and%20current%20treatment%20strategies-An%20updated%20review&journal=Cancers+\(Basel\)&volume=13&pages=4287](https://scholar.google.com/scholar_lookup?author=S+Lukaszewicz&author=M+Czeczelski&author=A+Forma&author=J+Baj&author=R+Sitarz&author=A+Stanislawek&publication_year=2021&title=Breast%20cancer-Epidemiology%20risk%20factors%20classification%20prognostic%20markers%20and%20current%20treatment%20strategies-An%20updated%20review&journal=Cancers+(Basel)&volume=13&pages=4287)
- [3] Desantis: Breast Cancer Statistics, 2019 - Google Scholar [Internet]. [Cited 2024 Apr 16]. Available From: [https://scholar.google.com/scholar\\_lookup?author=Ce+Desantis&author=J+Ma&author=Mm+Gaudet&author=La+Newman&author=Kd+Miller&author=A+Goding%20sauer&publication\\_year=2019&title=Breast%20cancer%20statistics%202019&journal=Ca:+Cancer+J+Clin&volume=69&pages=438-51](https://scholar.google.com/scholar_lookup?author=Ce+Desantis&author=J+Ma&author=Mm+Gaudet&author=La+Newman&author=Kd+Miller&author=A+Goding%20sauer&publication_year=2019&title=Breast%20cancer%20statistics%202019&journal=Ca:+Cancer+J+Clin&volume=69&pages=438-51)
- [4] Mariotto: Estimation Of The Number Of Women Living... - Google Scholar [Internet]. [Cited 2024 Apr 16]. Available From: [https://scholar.google.com/scholar\\_lookup?author=Ab+Mariotto&author=R+Etzioni&author=M+Hurlbert&author=L+Penberthy&author=M+Mayer&publication\\_year=2017&title=Estimation%20of%20the%20number%20of%20women%20living%20with%20metastatic%20breast%20cancer%20in%20the%20united%20states&journal=Cancer+Epidemiol+Biomarkers+Prev&volume=26&pages=809-15](https://scholar.google.com/scholar_lookup?author=Ab+Mariotto&author=R+Etzioni&author=M+Hurlbert&author=L+Penberthy&author=M+Mayer&publication_year=2017&title=Estimation%20of%20the%20number%20of%20women%20living%20with%20metastatic%20breast%20cancer%20in%20the%20united%20states&journal=Cancer+Epidemiol+Biomarkers+Prev&volume=26&pages=809-15)
- [5] Soerjomataram: Cancer Survival In Africa, Central... - Google Scholar [Internet]. [Cited 2024 Apr 17]. Available From: [https://scholar.google.com/scholar\\_lookup?hl=en&volume=24&publication\\_year=2023&pages=22-32&journal=Lancet+Oncol&issue=1&author=I+Soerjomataram&author=C+Cabasag&author=A+Bardot&title=Cancer+Survival+In+Africa%2c+Central+And+South+America%2c+And+Asia+%28survcan%E2%80%9090based+Benchmarking+Study+In+32+Countries](https://scholar.google.com/scholar_lookup?hl=en&volume=24&publication_year=2023&pages=22-32&journal=Lancet+Oncol&issue=1&author=I+Soerjomataram&author=C+Cabasag&author=A+Bardot&title=Cancer+Survival+In+Africa%2c+Central+And+South+America%2c+And+Asia+%28survcan%E2%80%9090based+Benchmarking+Study+In+32+Countries)
- [6] Singh S, Shrivastava Jp, Dwivedi A. Breast Cancer Screening Existence In India: A Nonexisting Reality. Indian J Med Paediatr Oncol. 2015;36(4):207–9.
- [7] Breast Cancer Screening - Nci [Internet]. 2023 [Cited 2024 Apr 17]. Available From: <https://www.cancer.gov/types/breast/patient/breast-screening-pdq>