

Cancer Association of South Africa (CANSA)



Research • Educate • Support

Fact Sheet on Breast Cancer in Men

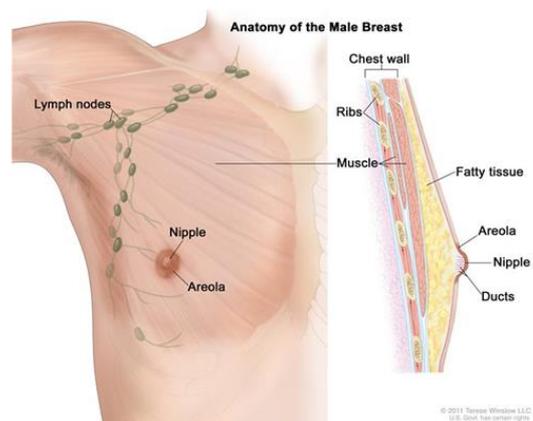
Introduction

The exterior of both male and female chests are basically the same, however, the size, shape, and function of breasts vary significantly between the sexes.

[Picture Credit: Male Breast]

The male breast also has a nipple and an areola (the darker pigmented circle around the nipple), but men lack the mammary glands and ducts necessary to produce milk.

Unlike women, a typical male does not have extensive fat deposits on his chest - in a woman, these protect the mammary glands. Instead, the shape of a man's chest is determined by the muscles underneath the skin. Although atypical, men can develop large mammary glands that result in breast enlargement. This condition is known as gynaecomastia. It is more common in adolescent boys but typically disappears after puberty.



Incidence of Breast Cancer in Men in South Africa

According to the National Cancer Registry (2014) the following cases of Breast Cancer in Men was histologically diagnosed in 2014. Histologically diagnosed means that a sample of tissue (biopsy) was forwarded to an approved laboratory where a specially trained pathologist confirmed a diagnosis of cancer:

Group 2014	Actual Number of Cases	Estimated Lifetime Risk	Percentage of All Cancers
All males	184	1 : 763	0,50%
Asian males	6	1 : 1 079	0,65%
Black males	95	1 : 1 106	0,86%
Coloured males	17	1 : 520	0,41%
White males	65	1 : 461	0,32%

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[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

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Frequency of Histologically Diagnosed Cases of Breast Cancer in Men

According to the National Cancer Registry (2014), the frequency of histologically diagnosed cases of Breast Cancer in Men in South Africa is as follows:

Group 2014	0 to 19 Years	20 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 to 69 Years	70 to 79 Years	80 + Years
All males	0	0	8	13	48	56	38	16
Asian males	0	0	1	1	2	2	0	0
Black males	0	0	7	9	28	26	17	5
Coloured males	0	0	0	0	3	5	6	2
White males	0	0	0	3	15	22	15	9

Risk Factors for Breast Cancer in Men

Men diagnosed with male breast cancer at an early stage have a good chance for a cure. However, many men delay seeing a doctor when they notice unusual signs or symptoms, such as a breast lump. For this reason, many male breast cancers are diagnosed when the disease is more advanced.

Factors that increase the risk of male breast cancer include:

- Older age. Breast cancer is most common in men ages 40 to 80. About 1 in 5 men with breast cancer (20%) have a close relative who has also had breast cancer.
- The genes store the biological information inherited from parents. The genes most commonly linked to an increased risk of breast cancer in families are BRCA1 and BRCA2. Men in families with the BRCA2 gene are more likely to develop breast cancer than men in BRCA1 families. It is thought that the BRCA2 gene may cause up to 1 in 10 of breast cancers in men (10%).
- Exposure to oestrogen. If one takes oestrogen-related drugs, such as those used as part of sex reassignment surgery, the risk of breast cancer is increased. Oestrogen drugs may also be used in hormone therapy for prostate cancer. Although all men have oestrogen in their bodies, obesity, cirrhosis (liver disease) and Klinefelter's syndrome (a genetic disorder) increase oestrogen levels.
- Family history of breast cancer. If one has a close family member with breast cancer, there is a greater chance of developing the disease. If a first-degree relative—their mother, father, brother, sister, children—has breast cancer, men are also at slightly higher risk to develop the disease themselves. Men who have a BRCA mutation (a mutation or change in a gene that predisposes them to breast cancer) are at a greater risk. Although their chance of developing breast cancer is still low (only about 5% to 6%), men with a mutation in BRCA2 have a 100-fold greater risk of developing breast cancer than men in the general population.

There may be a breast cancer gene in a family if:

- a man in the family has breast cancer
- there are three close relatives on the same side of the family who developed breast cancer at any age
- there are two close relatives on the same side of the family who developed breast cancer under the age of 50
- there is one close relative who developed breast cancer under the age of 40
- there is a close relative with breast cancer in both breasts

- there is a close relative with breast cancer and another relative on the same side of the family with ovarian cancer

Close relatives, sometimes called one's first degree relatives, are parents, children, sisters and brothers.

- Klinefelter's syndrome. This genetic syndrome occurs when a boy is born with more than one copy of the X chromosome. Klinefelter's syndrome causes abnormal development of the testicles. As a result, men with this syndrome produce lower levels of certain male hormones (androgens) and more female hormones (oestrogens).
- being a heavy user of alcohol, which can limit the liver's ability to regulate blood oestrogen levels.
- Liver disease. If one has liver disease, such as cirrhosis of the liver, the male hormones may be reduced and female hormones may be increased. This can increase the risk of breast cancer.
- Obesity. Obesity may be a risk factor for breast cancer in men because it increases the number of fat cells in the body. Fat cells convert androgens into oestrogen, which may increase the amount of oestrogen in the body and, therefore, the increased risk of breast cancer.
- Radiation exposure. If one has received radiation treatments to the chest, such as those used to treat cancers in the chest, one is more likely to develop breast cancer later in life.

Symptoms and Signs of Breast Cancer in Men

Symptoms of breast cancer in men are similar to those seen in women. Most male breast cancers are diagnosed when a man discovers a lump in his breast. But unlike women, men tend to delay going to the doctor until they have more severe symptoms, like bleeding from the nipple. At that point the cancer may have already spread.

The most common sign of breast cancer in men is a firm, non-painful mass located just below the nipple. There may not be other associated symptoms.

The cancer may cause skin changes in the area of the nipple. These changes can include:

- ulceration of the skin
- puckering or dimpling
- redness or scaling of the nipple
- retraction (turning inward) of the nipple
- bloody or opaque discharge from the nipple may also occur

Less than 1% of cases are bilateral (occurring on both sides).

Breast cancer that has spread (metastasised) to the bones may also produce bone pain at the sites of metastases. Advanced breast cancer can also produce symptoms typical of many cancers, including malaise, weakness, and weight loss. Breast cancer in men can spread to many other organs and cause other symptoms as well.



SIGNS OF MALE BREAST CANCER

- A lump or thickening in breast tissue
- The lump increasing in size and turning painful
- Skin covering the breast turning orange
- Occurrence of dimpling, puckering, redness or scaling on the breast
- Nipples turning inwards or discharge from them

DANGERS

Breast cancer in men is often diagnosed later than breast cancer in women, making it tough to treat. This may be because men are less likely to be suspicious of something strange in that area. Also, their small amount of breast tissue is harder to feel, making it harder to catch these cancers early.

DIAGNOSIS & TREATMENT

The same techniques that are used to diagnose breast cancer in women are used in men: physical exams, mammography, and biopsies (examining small samples of tissue under a microscope).

The same treatments that are used in treating breast cancer in women - surgery, radiation, chemotherapy, biological therapy, and hormone therapy - are also used to treat breast cancer in men.

[Picture Credit: Male Breast Cancer]

Diagnosis of Breast Cancer in Men

The same techniques that are used to diagnose breast cancer in women are used in men:

- Physical examination
- Mammography
- biopsies (examining small samples of tissue under a microscope)



[Picture Credit: Male Mammography]

Massarweh, S.A. & Choi, G.L. 2016.

“Breast cancer in men is relatively uncommon but its incidence has been rising. Traditionally, the management of breast cancer in men is based on extrapolation from clinical trials of breast cancer in women, due to the much more extensive data available in women with this disease. There are, however, unique characteristics that distinguish breast cancer in men and these should be taken into consideration when managing this patient population. Breast cancer in men is more frequently estrogen receptor (ER) and progesterone receptor (PgR) positive, and less frequently HER2 amplified. Lobular carcinoma, which accounts for 10-15% of breast cancers in women, is exceptionally rare in men. Genetic risk factors, particularly BRCA2 mutations, are increasingly

recognized as a key risk factor for breast cancer in men and genetic testing is now routinely recommended for all men diagnosed with breast cancer. Tamoxifen remains the gold standard endocrine therapy for breast cancer in men, but other endocrine agents such as the aromatase inhibitors (AI) and fulvestrant are increasingly being used. While superior to tamoxifen in postmenopausal women, the use of AIs for adjuvant therapy in men with breast cancer may not be optimal since the physiology of hormonal regulation in men resembles that of premenopausal rather than postmenopausal women. Emerging areas of investigation include the role of genomic risk stratification to gain further insight into the biology of breast cancer in men, the study of the androgen receptor (AR) as a therapeutic target, and the role of gonadal suppression in the management of the disease. There is clearly a more concerted effort to study breast cancer in men as a unique disease in order to have a better understanding of its biology and we are likely to witness further advances that will help us better manage this unique disease situation.”

Elbachiri, M., Fatima, S., Bouchbika, Z., Benchekroun, N., Jouhadi, H., Tawfig, N., Sahraoui, S. & Benider, A. 2017.

“Breast cancer in men is rare, accounting for approximately 1% of all breast cancers and less than 1% of all neoplasias in men. This study aimed to highlight the clinical histological, prognostic and therapeutic features of this rare tumor in order to contribute to improve the management of these patients. We conducted retrospective study of 40 patients whose data were collected at the Mohammed VI Center for Cancers Treatment in Casablanca from January 2000 to December 2012. The average age was 62 years, the mean consultation time was 12 months, self-exam of a peri-areolar nodul was the main reason for consultation in 90% of cases. Infiltrating ductal carcinoma was the predominant histological type in 90% of cases. Multimodal treatment was based on mastectomy followed by adjuvant therapy including chemotherapy, radiation therapy and/or hormonal therapy, depending on tumor stage and its histological features. The mean follow-up time was 38 months, patient's evolution was characterized by complete remission in 16 patients (40%), local recurrence in 3 patients (7.5%) and metastatic recurrence in 5 patients (12.5%). Metastases mainly occurred in the bones (62%), followed by the lungs and the liver. 10 patients (25%) died. Breast cancer in men is similar to breast cancer in women. However, it has its own peculiarities, hence the importance of conducting broader prospective randomised studies in order to improve the treatment and the prognosis of this disease with a high psychosocial impact.”

Genetic Counselling Is a Must for Men

All men with breast cancer should be referred for genetic counselling.

This is different from women who are not automatically referred to a genetic counsellor for genetic testing, such as for mutations in BRCA-1 or 2. These “tumour suppressor genes” allow breast and other types of cancer to develop when they fail to function normally. Only women with a significant family history or certain other characteristics, such as being young or having triple-negative breast cancer (which lacks oestrogen, progesterone, and HER2 receptors), are recommended to have genetic testing.

Men should tell their health care provider if any man in their family has had breast cancer. Even if one’s grandfather is deceased, if he had breast cancer, that is important. Because male breast cancer is so rare, seeing even one man in a family lineage raises concerns about hereditary breast cancer.

Types of Breast Cancer in Men

The most common type of male breast cancer is infiltrating ductal carcinoma, which is also a common type of breast cancer in women. Ductal carcinoma refers to cancers with origins in the ducts (tubular structures) of the breast, and the term infiltrating means that the cancer cells have spread beyond the ducts into the surrounding tissue. On the other hand, lobular cancers (cancers of the milk glands), common in women, are extremely rare in men since male breast tissue does not normally contain lobules.

Other uncommon types of cancers of the breast that have been reported in men include ductal carcinoma *in situ* (cancer in the ducts that has not spread beyond the ducts themselves), cystosarcoma phyllodes (a type of cancer of the connective tissue surrounding the ducts), and Paget's Disease of the breast (a cancer involving the skin of the nipple). Some other types of breast cancer that occur in men are named for their growth patterns and microscopic appearance of the cancer cells, including papillary carcinoma, inflammatory carcinoma, and medullary carcinoma.

About 85% of breast cancers in men have oestrogen receptors on their cell membranes. Oestrogen receptors on the cell membranes allow oestrogen molecules to bind to the cancer cells. Oestrogen binding to the cancer cells can stimulate cell growth and multiplication.

Gucalp, A., Traina, T.A., Eisner, J.R., Parker, J.S., Selitsky, S.R., Park, B.H., Elias, A.D., Baskin-Bey, E.S. & Cardoso, F. 2018. Male breast cancer: a disease distinct from female breast cancer. *Breast Cancer Res Treat.* 2018 Sep 28. doi: 10.1007/s10549-018-4921-9. [Epub ahead of print]

PURPOSE: Male breast cancer (BC) is rare, representing approximately 1% of cancers that occur in men and approximately 1% of all BCs worldwide. Because male BC is rare, not much is known about the disease, and treatment recommendations are typically extrapolated from data available from clinical trials enrolling female BC patients.

METHODS: We review the epidemiology, risk factors, prognosis, and the varied molecular and clinicopathologic features that characterize male BC. In addition, we summarize the available data for the use of systemic therapy in the treatment of male BC and explore the ongoing development of targeted therapeutic agents for the treatment of this subgroup of BCs.

RESULTS: There are important biological differences between male and female BC. Male BC is almost exclusively hormone receptor positive (+), including the androgen receptor (AR), and is associated with an increased prevalence of BRCA2 germline mutations, especially in men with increased risk for developing high-risk BC. Additional research is warranted to better characterize male BC. To accomplish this, a multi-national consortium approach, such as the International Male Breast Cancer Program, is needed in response to the scarcity of patients. This approach allows the pooling of information from a large number of men with BC and the creation of registries for future therapeutic-focused clinical trials.

CONCLUSIONS: Given the unique biology of BC in men, promising new therapeutic targets are currently under investigation, including the use of poly-ADP-ribose polymerase inhibitors or AR-targeted agents either as monotherapy or in combination with other agents.

Special Tests

The following tests and investigations may be ordered:

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Breast ultrasound - ultrasound, also known as *sonography*, uses high-frequency sound waves to outline a part of the body.

Magnetic resonance imaging (MRI) of the breast - MRI scans use radio waves and strong magnets instead of X-rays. The energy from the radio waves is absorbed and then released in a pattern formed by the type of body tissue and by certain diseases. A computer translates the pattern into a very detailed image of parts of the body.

Nipple discharge examination - fluid leaking from the nipple is called *nipple discharge*. If a patient has a nipple discharge, he should have it checked by his doctor. If there is blood in this fluid, the patient might need more tests. One test collects some of the fluid to look at under a microscope to see if cancer cells are present.

Biopsy - a biopsy removes a body tissue sample to be looked at under a microscope. A biopsy is the only way to tell if a breast abnormality is cancerous. Unless the doctor is sure the lump is not cancer, this should always be done. There are several types of biopsies. One's doctor will choose the type of biopsy based on the situation.

- Fine needle aspiration biopsy: Fine needle aspiration (FNA) biopsy is the easiest and quickest biopsy technique. The doctor uses a very thin, hollow needle attached to a syringe to withdraw (aspirate) a small amount of tissue from a suspicious area.
- Core needle biopsy: For a core biopsy, the doctor removes a small cylinder of tissue from a breast abnormality to be looked at under a microscope. The needle used in this technique is larger than that used for FNA. The biopsy is done with local anaesthesia and can be done in a clinic or doctor's office.

Treatment Options for Breast Cancer in Men

The same treatments that are used in treating breast cancer in women are also used to treat breast cancer in men, and may include:

[Picture Credit: Mastectomy]



Surgery - Surgery is usually the first treatment if the breast abnormality is found to be a cancer. Surgery helps get complete information about the cancer and it is a critical step in treatment. The most common surgery in men is called a modified radical mastectomy. This means that the nipple, areola (dark, round area around the nipple), and all of the breast tissue are removed. The muscles on the chest are left alone. Lymph nodes are also removed.

Radiation therapy - Radiation therapy is a highly targeted, highly effective way to destroy cancer cells that may linger after surgery. This reduces the risk of recurrence (the cancer coming back).

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Chemotherapy - Chemotherapy refers to special medicines that work to kill cancer cells. The doctor may recommend chemotherapy if a patient is at risk of having the cancer spreading beyond the breast or if it already has spread. Chemotherapy is not used for cancers with a low risk of spreading to other parts of the body.

Targeted therapy - Medications that specifically target an abnormality within the cancer cells may be able to offer extra benefits and few side effects.

Hormone therapy - Medicines that target hormone receptors in breast cancer cells are called hormonal therapies. This form of treatment can be very effective against hormone-receptor-positive breast cancer - having either oestrogen or progesterone receptors present in the cancer. Most breast cancers in men are hormone-receptor-positive.

Eggemann, H., Bernreiter, A.L., Reinisch, M., Loibl, S., Taran, F.A., Costa, S.D. & Ignatov, A. 2019.

PURPOSE: Thromboembolism is a common adverse event in women treated with tamoxifen (TAM) for breast cancer. The risk in male breast cancer patients is poorly investigated. We aimed to examine the risk of thrombotic events after TAM in male breast cancer patients.

PATIENTS AND METHODS: In this prospective cohort study, 448 patients treated between May 2009 and July 2017 for male breast cancer (BC) were assessed for eligibility. Patients with follow-up shorter than 6 months were excluded. The cumulative risk of thromboembolism was evaluated.

RESULTS: The median follow-up was 47 months (range 6-101 months) with a median age of 69.4 years (range 27-89 years). Oestrogen receptor and progesterone receptor expression levels were observed in 98.3 and 94.9% of cases, respectively. During the follow-up period, thrombotic events were documented in 21 (11.9%) of 177 patients receiving TAM and in 1 (2.5%) of 41 patients who did not receive tamoxifen. The estimated incidence was 51.9 per 1000 person-years and 21.5 per 1000 person-years, respectively. Notably, the highest risk was identified in the first 18 months, where 81% of the observed thrombotic events occurred. Patients aged older than 71 years had a significantly increased risk of thrombotic event under TAM treatment than their younger counterparts ($p = 0.033$). History of thrombotic event, cardiovascular and liver disease, as well as additional adjuvant treatment were not associated with increased thrombotic risk.

CONCLUSION: The risk of thrombotic event in men treated with TAM for breast cancer is markedly increased in the first 18 months of treatment, and should be considered during treatment decisions.

Follow-up Care and Treatment for Breast Cancer in Men

After treatment for breast cancer ends, the patient should talk to his treating physician about developing a follow-up care plan. This plan may include regular physical examinations and/or medical tests to monitor recovery for the coming months and years. This could also include regular physical examinations to help keep track of the breast cancer treatment received and develop a survivorship care plan once treatment is completed. In some instances, patients may be seen at survivorship clinics that specialise in the post-treatment needs of people with cancer.

About Clinical Trials

Clinical trials are research studies that involve people. They are conducted under controlled conditions. Only about 10% of all drugs started in human clinical trials become an approved drug.

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Clinical trials include:

- Trials to test effectiveness of new treatments
- Trials to test new ways of using current treatments
- Tests new interventions that may lower the risk of developing certain types of cancers
- Tests to find new ways of screening for cancer

The South African National Clinical Trials Register provides the public with updated information on clinical trials on human participants being conducted in South Africa. The Register provides information on the purpose of the clinical trial; who can participate, where the trial is located, and contact details.

For additional information, please visit: www.sanctr.gov.za/

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Male Breast

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