

# Breast Cancer

## Breast Cancer

In Australian women breast cancer is the most common cancer and the second most common cause of cancer-related death after lung cancer. One in 9 Australian women will be diagnosed with breast cancer and 1 in 38 will die from the disease by the age of 85 years. Over 12,000 women are diagnosed with breast cancer in Australia each year.

Because of Australia's ageing population, the incidence of breast cancer is still on the rise. However more women are surviving breast cancer than ever before. The 1 year survival rate is 97% and 88% of women diagnosed with breast cancer can expect to still be alive 5 years after diagnosis. Significant advances in the early detection and treatment of breast cancer mean that more women are surviving the disease than ever before.

Breast cancer is a disease in which abnormal cells in the breast tissue multiply and form a tumour. Breast tissue consists mainly of fat, glandular tissue, milk ducts and connective tissue. In the majority of invasive breast cancers, the tumour begins in the lining of the milk ducts. If undetected, these rogue cells may also spread to other parts of the breast, the lymph nodes under the arm and to other parts of the body.

Breast cancer is not one single disease. It takes many different forms and is characterised by differences in disease aggression and response to treatment.

## How is it diagnosed?

Most breast lumps are not cancers; however, any new lump that does not go away after 3-4 weeks should be examined by a GP. Depending on the circumstances, a follow-up referral to a breast surgeon or a breast clinic for further tests may be appropriate. An ultrasound of the breast is simple and painless. Mammograms are breast X-rays and involve the breast being squashed between two plates so that the radiographer can clearly see the tissue in question. A biopsy, if needed, is done under a local anesthetic with a small needle similar to the type used in blood tests.

If you are over 50, or have a family history of breast cancer, it is recommended that you have a mammogram every two years. These are provided as a free health service. If you are under 50 it is still important to conduct an examination of your own breasts every month, ideally just after a period. If you notice anything unusual, consult your GP.

## What are the risk factors?

- Sex - Being female is the biggest risk factor for breast cancer, although approximately 1% of new cases are in males
- Age -Over 75% of all breast cancer occurs in women aged 50 and over. The average age of diagnosis is 68 years, with less than 10% of all cases occurring in women under 40
- Family history - inherited cancers account for less than 10% of all breast cancer cases, however, they are often more aggressive and will occur at a much younger age. Two genes in particular have been implicated in familial breast cancer. Tests for these genes are available through a genetic counselling service
- Previous history of hormone-based breast disease; for example, benign cysts or fibroadenomas. This tends to only be a higher risk when aged over 50
- Early commencement of menstruation or late menopause
- Having your first child after the age of 30



**“One in 9 women in Australia will be diagnosed with breast cancer before the age of 85 years”**

**“Nine out of ten women who develop breast cancer do not have a family history of the disease”**

**“Survival rate five years after diagnosis is 88%”**



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## How is breast cancer treated?

Treatment for breast cancer depends on a number of factors including:

- Type of breast cancer
- Stage of breast cancer
- Whether the breast cancer will respond to certain treatments
- Where the breast cancer is and if it has spread
- A previous diagnosis of breast cancer

The four main treatments for breast cancer are radiotherapy, hormone therapy, chemotherapy and surgery (removal of the lump, removal of the breast, or removal of the breast plus surrounding lymph node tissue). These treatments can be used separately or in combination.

## What research is Garvan doing in this area?

The Garvan Institute is home to one of the largest cancer research groups in Australia. Apart from breast cancer, we also conduct research into ovarian, prostate, pancreatic, colorectal (bowel) and lung cancers.

The breast cancer research teams are researching the factors involved in the development, growth and progression of breast cancer. Specifically, Garvan aims to investigate the genetic and environmental causes of breast cancer; to develop genetic markers for early disease detection, disease progression and response to treatment; and to study the genetics and biochemistry of tumour growth.

The breast cancer team has developed large tissue banks and patient databases in collaboration with several local and international breast cancer research groups. This material is being used to identify new molecules that are markers of breast cancer subtype, disease progression and response to particular therapies. A major project, being conducted in collaboration with other research groups, aims to identify molecular markers of tamoxifen resistance, an anti-oestrogen drug that is one of the most successful treatments available for breast cancer. Development of resistance to tamoxifen is a major reason for treatment failure. Another project is looking for new targeted therapies for patients with basal breast cancer, a subtype of cancer where no specific treatment is currently available.

Current cancer therapies use drugs that target both tumour cells and rapidly growing normal cells – causing side effects and limiting effectiveness. One of our breast cancer teams is researching new treatments that target tumour cells specifically, leaving normal cells unharmed.

The results of all of these areas of research will be used to create better diagnosis, better treatments and ultimately a better prognosis.

## Further sources of information

The NSW Cancer Council	<a href="http://www.nswcc.org.au">www.nswcc.org.au</a>
The National Breast and Ovarian Cancer Centre	<a href="http://www.nbcc.org.au">www.nbcc.org.au</a>
Breast Cancer Network Australia	<a href="http://www.bcna.org.au">www.bcna.org.au</a>

## Garvan Institute of Medical Research – how you can get involved

The Garvan Institute of Medical Research was founded in 1963. Initially a research department of St Vincent's Hospital in Sydney, it is now one of Australia's largest medical research institutions with approximately 500 scientists, students and support staff. Garvan's main research programs are: Cancer, Diabetes & Obesity, Immunology, Osteoporosis and Bone Biology, and Neuroscience.

Your support makes it possible for the Garvan scientists to continue their great work. You can help by making a donation or a bequest, holding a community fundraiser or volunteering your time for Garvan. For details on how to get involved, please visit [www.giving.garvan.org.au](http://www.giving.garvan.org.au) or contact the Garvan Research Foundation on (02) 9295 8110.

Education is one of Garvan's top priorities. Our Public Engagement Coordinator (PEC) can visit your community group or school to give a talk on a number of science and health related topics. Garvan also offers regular tours of our facilities. For further details, visit our website or call our PEC on (02) 9295 8108.

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