

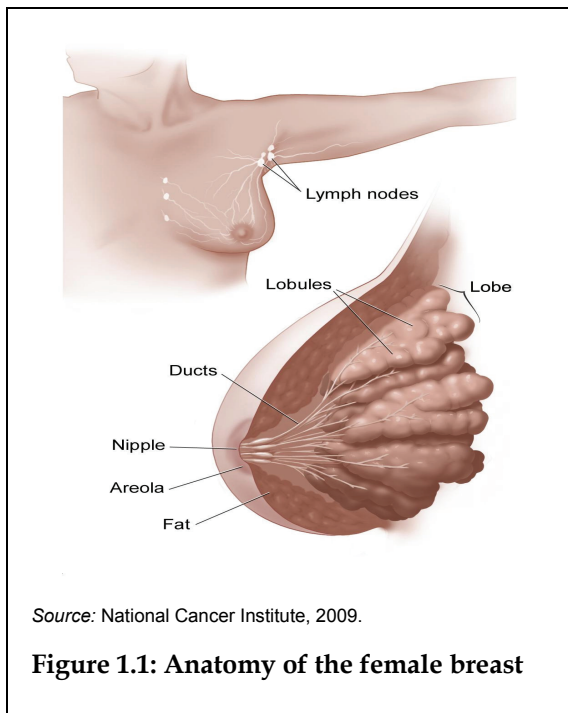
# 1 Introduction

Breast cancer is a major cause of illness and death for women in Australia. On average, one in nine Australian women will develop breast cancer and one in 38 women will die from it before the age of 85 years. Although much less common in males, men also develop breast cancer. Because breast cancer affects so many people – either directly through personally developing the disease or indirectly through family and community members – breast cancer is an important topic of interest to many and a priority issue for the Australian health system.

## What is breast cancer?

Breast cancer is a disease in which abnormal cells in the breast tissues multiply and form an invasive (or malignant) tumour. Such tumours can invade and damage the tissue around them and spread to other parts of the body through the lymphatic or vascular systems. If the spread of these tumours is not controlled, they can result in death. Not all tumours are

invasive; some are benign tumours that are not life-threatening.



Breast tissue consists mainly of fat, glandular tissue (arranged in lobes which, in women, can produce milk), ducts (the tubes that carry milk to the nipple) and connective tissue (see Figure 1.1). In the majority of invasive breast cancers, the abnormal cell growth begins in the ducts; this type of breast cancer is referred to as *infiltrating (or invasive) duct carcinoma*. *Invasive lobular carcinoma* is another type of invasive breast cancer which, as the name suggests, begins in the lobes. Other, less common types of breast cancers include *inflammatory breast cancer*, *medullary carcinoma* and *Paget disease* (see ACS 2009a for a description of the various types of breast cancer).

If abnormal cell growth does not spread but instead begins and remains within the duct, or the lobes, these conditions are referred to as 'ductal carcinoma in situ' (DCIS) and 'lobular carcinoma in situ' (LCIS), respectively. These forms of abnormal cell growth are not a type of invasive breast cancer and nearly all carcinomas at this stage can be cured. However, it is thought that invasive breast cancer often starts as DCIS (ACS 2008; NBCC 2004) and having DCIS or LCIS is associated with an increased risk of developing invasive breast cancer (ACS 2007; NCI 2005).

## Purpose and structure of this report

The purpose of this report is to provide a comprehensive overview of national statistics on breast cancer in Australia. The aim is to increase levels of understanding about this disease and to inform decision-making, resource allocation and the evaluation of breast cancer control programs and policies. The report is aimed at a wide audience, including health professionals, policy makers, health planners, educators, researchers, consumers and the general public.

As in the previous edition (AIHW & NBCC 2006), this report brings together the latest available statistics and trend data to answer questions such as:

- How many people are diagnosed with breast cancer and how is this changing over time (Chapter 2)?
- Is the number of people who die from breast cancer decreasing (Chapter 3)?
- What are the prospects of survival for those diagnosed with breast cancer (Chapter 4)?
- How many living people have been diagnosed with breast cancer (Chapter 5)?
- How much of the total burden of disease for women is due to breast cancer (Chapter 6)?
- How many people have a mammogram (Chapter 7)?
- How is the number of hospitalisations for breast cancer changing (Chapter 8)?
- How many health-care dollars are spent on breast cancer (Chapter 9)?

This report builds on the previous edition in a number of ways. For the first time, information on the burden of disease due to breast cancer is included, as is national information on how patterns of breast cancer differ within Australia according to country of birth. It also provides additional information on how Australian breast cancer data compare globally and by Aboriginal and Torres Strait Islander status within Australia. Furthermore, this edition has been re-structured to increase readability and the alignment of the information with policy questions. Also, more methodological details are provided, together with caveats around data interpretation and use. While graphs are frequently used for illustrative purposes, the underlying data are included in appendix tables.

Given that the proportion of females who develop breast cancer is much greater than the proportion of males who do so, the emphasis in this report is on breast cancer in females. However, a range of statistics on breast cancer in males is also presented.

## Data interpretation

In this report, the term 'breast cancer' is used to refer to *primary* breast cancers which are *invasive* (i.e. malignant). It does not encompass secondary breast cancers, nor does it include benign breast tumours or non-invasive breast cancers, such as DCIS. Nonetheless, given that invasive breast cancer may begin as DCIS and given the large number of cases of DCIS diagnosed each year, incidence data are provided for these lesions in Chapter 2.

A number of different classifications are referred to in this report, such as ICD (i.e. International Statistical Classification of Diseases and Related Health Problems) and ICD-O (i.e. International Classification of Diseases for Oncology). Information about these classifications is included in Appendix A.

It is well recognised that information on tumour stage, size and nodal status at time of diagnosis is important in relation to both prognosis and determining the most appropriate type of treatment. Information on change over time in stage, size and nodal status also assists in the monitoring of breast cancer control policies and programs. While some of the states and territories collect information on tumour stage, size and/or nodal status, not all do so and there are no nationally agreed standards for the collection of these data. While national data on these items are not available, some state-level and overseas data on incidence and survival are presented by tumour stage in this report.

Information on the actual *number* of breast cancer cases and deaths is presented, together with *age-standardised rates*. The use of age-standardised rates is important when making comparisons between groups and within groups over time in order to take into account differences in the age structure and size of the population. This is especially important in regard to breast cancer since the risk of this disease is strongly linked to age. Rates have been standardised to the Australian population at 30 June 2001 and are generally expressed per 100,000 population. In addition, for some of the key statistics, data were standardised to the World Health Organization (WHO) 2000 World Standard Population. Since this standard is utilised widely throughout the world, its use allows for the comparison of the Australian data with those of other countries. Note that within the text of this report, all discussion of age-standardised rates pertains to the rates that were standardised to the Australian population, with the exception of the discussion on international comparisons. Further information on age standardisation and other technical matters can be found in Appendix B.

In this report, 95% confidence intervals are shown in graphs (as error bars) and tables. As explained more fully in Appendix B, confidence intervals can be used as a guide when considering whether differences in rates may be a result of chance variation. Where confidence intervals do not overlap, the difference between rates may be greater than would readily be attributable to chance. While such differences may be regarded as 'significant' in statistical terms, they may or may not be 'significant' from a practical or clinical perspective.

International comparisons are provided in relation to breast cancer incidence, mortality and survival. While such comparisons help to put the Australian situation into a global context, caution must be taken when comparing cancer data from different countries for a number of reasons. In particular, observed differences in cancer incidence and mortality may be influenced not only by the underlying number of cancer cases, but also by differences in the following:

- cancer detection and screening
- types of treatment provided and access to treatment services
- characteristics of the cancer such as stage at diagnosis and histology type
- coding practices and cancer registration methods, as well as the accuracy and level of cancer coverage of the data.

## Data sources

A key data source for this report was the Australian Cancer Database (ACD), which was previously known as the National Cancer Statistics Clearing House. The ACD is a database that holds information on 1.8 million Australian cancer cases diagnosed between 1982 and 2006. The ACD is compiled and maintained by the Australian Institute of Health and Welfare (AIHW), in partnership with the Australasian Association of Cancer Registries (AACR), with

each state and territory providing data to the AIHW on an annual basis. Each jurisdiction has legislation that makes the reporting of all newly diagnosed invasive cancers (other than two types of non-melanoma skin cancer (NMSC)) mandatory. Note that compared with past reports prepared by the AIHW, a different approach to the exclusion of NMSC from the data shown has been used in this report. Additional information about the ACD can be found in Appendix C.

Another key data source was the National Mortality Database. This database contains information on dates and causes of death for all deaths in Australia that were registered from 1964 to 2006. Unless stated otherwise, death information in this report was based on the year of death, except for the most recent year (namely, 2006) where year of registration was used. Previous investigation has shown that, due to a lag in processing of deaths, year of death information for the latest available year generally underestimates the true number of deaths, with the number of deaths registered in that year being closer to the true value.

In addition, several other data sources – including the National Death Index, the BreastScreen Australia Program, the National Hospital Morbidity Database, Medicare Australia and the Disease Expenditure Database – have been used to present a broad picture of the effect of breast cancer in Australia. Information about each of these data sources can be found in Appendix C.

**Throughout this report:**

- The term ‘breast cancer’ refers to primary breast cancers that are invasive.
- Differences that are described as ‘significant’ refer to a statistically significant difference. Such differences may or may not be significant from a practical or clinical perspective.