

## 8 Hospitalisations for breast cancer

People with breast cancer may require hospitalisation as an admitted patient for a variety of reasons including diagnostic procedures, treatments (e.g. surgery, chemotherapy, the management of associated conditions) and reconstructive surgery. The number of such hospitalisations for breast cancer in any 1 year is related to a range of factors, including the number of people with breast cancer and the number of these requiring health services as an admitted patient in a hospital. Other factors include the availability of alternative health-care services, relative accessibility of hospital care, admission criteria and administrative policies.

In this chapter, details are provided on the number and characteristics of admitted patient hospitalisations that are related to the care and/or treatment of persons with invasive breast cancer, with the term ‘hospitalisations’ used interchangeably with ‘separations’.

Identifying those hospitalisations within the admitted patient data that are due specifically to breast cancer is not straightforward. Due to the method in which the principal diagnosis for hospitalisations of cancer patients is coded, it is insufficient to simply select those hospitalisations for which breast cancer was the principal diagnosis. Most importantly, when a patient receives same-day chemotherapy as a treatment for cancer, the Australian Coding Standards (NCCH 2008a) indicate that the principal diagnosis is to be coded to reflect the fact that the patient received chemotherapy, with the type of cancer listed as an additional diagnosis. The same coding practice is used for a number of other same-day cancer-related interventions – such as the implanting of chemotherapy ports. Hence, the number of hospitalisations would be greatly underestimated if only those for which the principal diagnosis was listed as invasive breast cancer (i.e. ICD-10 code of C50) were included. For this reason, ‘breast cancer-related hospitalisations’ are defined in this report as those admitted patient hospitalisations in which:

(i) the principal diagnosis was breast cancer (i.e. ICD-10 code of C50)

or

(ii) breast cancer (i.e. ICD-10 code of C50) was recorded as an *additional* diagnosis and the principal diagnosis code related specifically to the treatment or care of a cancer patient (see Appendix E for a list of these codes).

The number of hospitalisations that pertained to each of the inclusions in the definition of breast cancer-related hospitalisations is shown in Appendix Table E.1. The principal diagnosis was ‘breast cancer’ for one in four (25%) of all breast cancer-related hospitalisations. Thus, if one were to define breast cancer hospitalisations based solely on this disease being classified as the principal diagnosis, 75% of hospitalisations due to this disease would be missed. For over two in three (69%) breast cancer-related hospitalisations, the principal diagnosis was ‘pharmacotherapy session for neoplasm’ (e.g. chemotherapy) with breast cancer listed as an additional diagnosis.

The data source for this chapter was the National Hospital Morbidity Database (NHMD) which contains data on admitted patient separations. The most recent data available pertain to the 2007–08 financial year. Note that the data from the NHMD refer to hospitalisations and not individuals; any one person may have multiple hospitalisations during the course of a year but data on the number of people hospitalised for a particular disease are not available. Further information about this data source can be found in Appendix C.

Over the course of the past decade, a number of hospitals (mainly in the public sector) in New South Wales, South Australia and the Australian Capital Territory changed their admissions practices so that not all patients who receive same-day chemotherapy services are admitted to hospital. Instead, these hospitals provide chemotherapy treatment on an outpatient (i.e. non-admitted patient) basis. This change in process, which is discussed in more detail in Appendix E, must be taken into account when examining change over time in the number of hospitalisations due to breast cancer since the data are not comparable over time. However, since the change applies largely to same-day hospitalisations (and not to overnight ones), separate information is provided in this chapter on the number and rate of same-day and overnight hospitalisations. Ideally, data on the number of chemotherapy services provided to breast cancer patients on an outpatient basis would be included in this chapter, but such data are not available.

In this chapter, as indicated in the notes for each table, rates of hospitalisations of women are presented per 1,000 females; for men, they are presented per 100,000 males.

## Hospitalisations of females for breast cancer

### Hospitalisations in 2007–08

In the 2007–08 financial year, there were just over 106,000 hospitalisations of female patients due to breast cancer (Table 8.1); these accounted for 3% of all hospitalisations of women. The age-standardised rate of breast cancer–related hospitalisations was 9 (per 1,000 females).

**Table 8.1: Hospitalisations for breast cancer and all reasons, females, 2007–08**

	Number	Per cent of all hospitalisations	Age-standardised rate <sup>(a)</sup>	95% confidence interval
Breast cancer	106,067	2.6	9.3	9.3–9.4
All hospitalisations	4,149,381	100.0	370.0	369.6–370.3

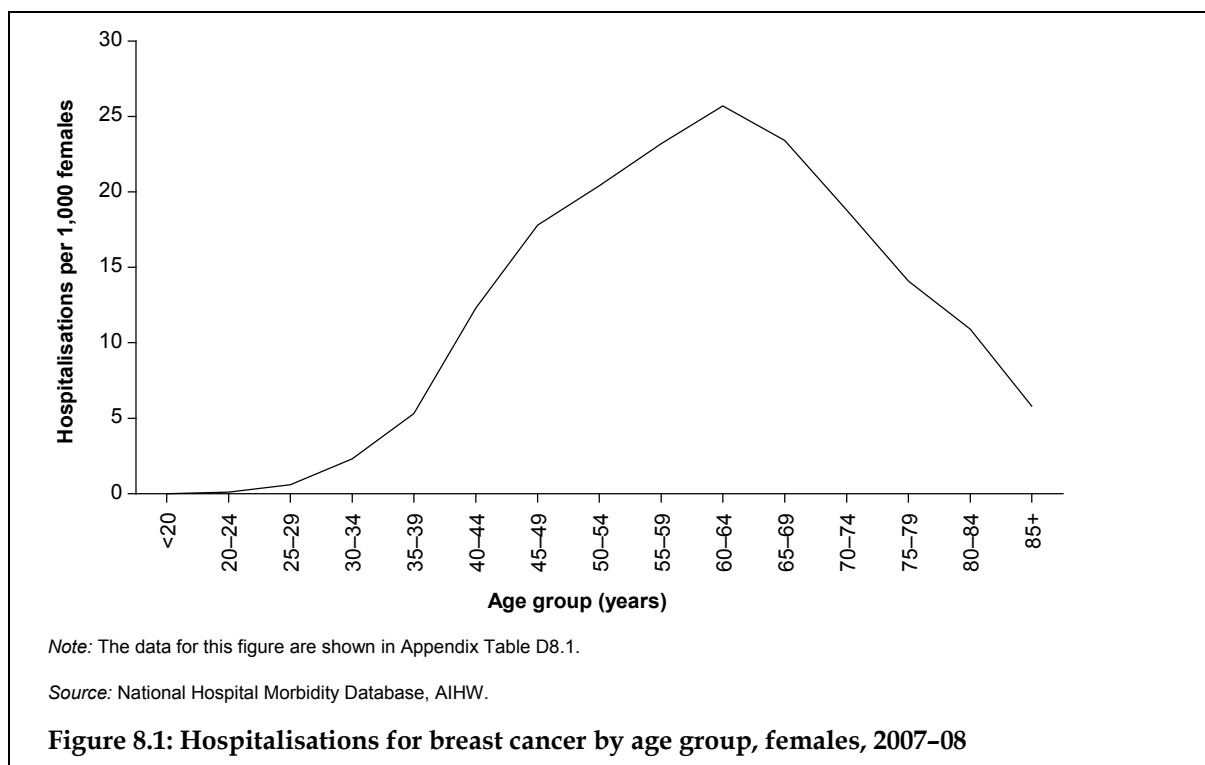
(a) Standardised to the Australian population as at 30 June 2001 and expressed per 1,000 females.

Source: National Hospital Morbidity Database, AIHW.

Of the total number of hospitalisations for breast cancer, over eight out of ten (83%) were same-day hospitalisations (87,561), while the remainder were overnight hospitalisations (18,506).

### Differences by age

Differences in the hospitalisation rate for breast cancer–related care according to age are shown in Figure 8.1. An inverted ‘U-shaped’ pattern is observed with the youngest and oldest age groups having the lowest rates, and those aged 50 to 70 years having the highest rates. In particular, women in the 60 to 64 year age group had a significantly higher hospitalisation rate for breast cancer (28 hospitalisations per 1,000 females) than the overall average (9 per 1,000). The next highest rates were for women aged 55 to 59 years and those aged 65 to 69 years (both had 25 hospitalisations per 1,000 females).



### Average length of stay

Data on the total number of days that patients stayed in hospital are collected in the NHMD, with a length of stay of 1 day allocated to all same-day hospitalisations. By using those data, as well as information on the *number* of hospitalisations, the average length of stay (ALOS) can be derived. In 2007-08, the average length of stay for breast cancer-related hospitalisations was 1.5 days (Table 8.2). When same-day hospitalisations are excluded, the average length of stay was 4.1 days.

**Table 8.2: Average length of stay (ALOS) for breast cancer-related hospitalisations by same-day and overnight status and by age group, females, 2007-08**

Age group (years)	ALOS of overnight hospitalisations (days)	ALOS of same-day hospitalisations (days)	Total ALOS (days)
<30	3.3	1.0	1.4
30-39	3.3	1.0	1.4
40-49	3.3	1.0	1.4
50-59	3.8	1.0	1.4
60-69	3.6	1.0	1.5
70-79	5.3	1.0	2.0
80+	6.8	1.0	3.2
<b>Total</b>	<b>4.1</b>	<b>1.0</b>	<b>1.5</b>

Source: National Hospital Morbidity Database, AIHW.

The average length of stay was longer for hospitalisations of women aged 70 years and over. Considering only those hospitalisations that involved an overnight stay, the average length of stay for women aged 70 to 79 years was 5.3 days, and for those aged 80 years and over, it

was 6.8 days. This compares with an average length of an overnight hospitalisation of 3.3 days for those under the age of 50 years.

## Trends

The total number of hospitalisations of females for breast cancer increased by 74% over the years from 1999–00 (60,833 hospitalisations) to 2007–08 (106,067 hospitalisations) (Table 8.3). While there was some increase in the number of overnight hospitalisations (an increase of 21% over the years considered), the majority of change was related to the number of same-day hospitalisations which increased by 73% between 1999–00 and 2007–08. This is despite the fact that, as noted earlier, during this time, changes occurred in hospital admission procedures such that by 2007–08, some cancer patients in three jurisdictions who received same-day chemotherapy were not classified as admitted patients and thus not included in the data.

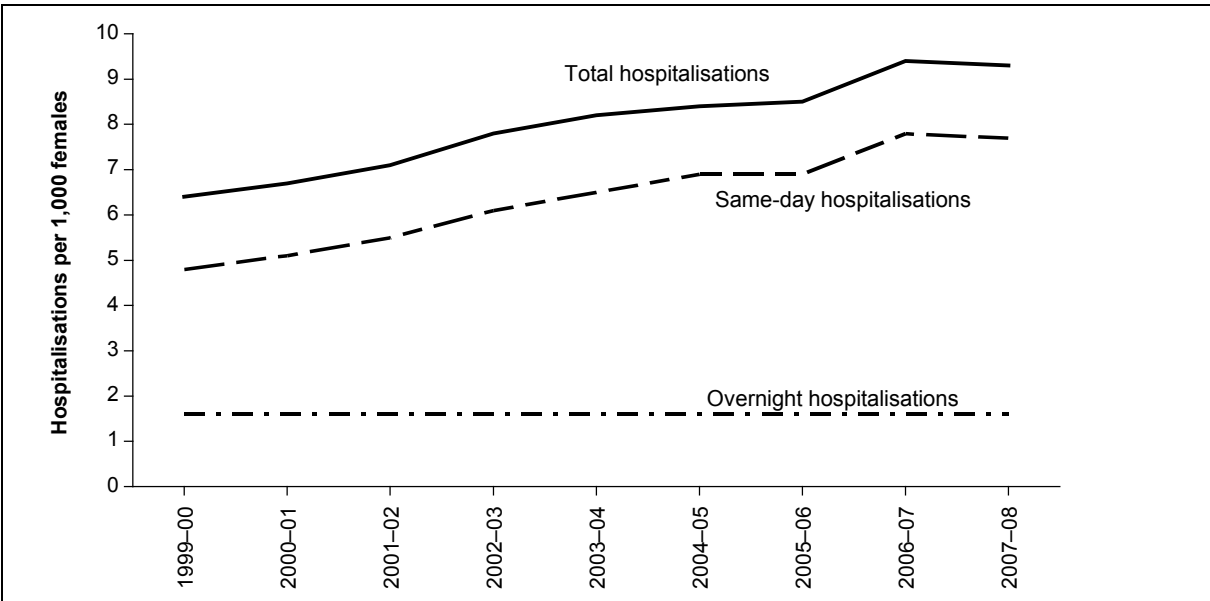
**Table 8.3: Hospitalisations for breast cancer by same-day or overnight status, females, 1999–00 to 2007–08**

Year	Number of same-day hospitalisations	Number of overnight hospitalisations	Total number of hospitalisations
1999–00	45,499	15,334	60,833
2000–01	49,031	15,943	64,974
2001–02	54,489	16,271	70,760
2002–03	62,238	16,962	79,200
2003–04	67,674	17,220	84,894
2004–05	72,975	16,914	89,889
2005–06	74,444	18,148	92,592
2006–07	86,404	18,250	104,654
2007–08	87,561	18,506	106,067

Source: National Hospital Morbidity Database, AIHW.

In Figure 8.2, trends in the age-standardised rate of breast cancer-related hospitalisations of women are shown. For all breast cancer-related hospitalisations, the rate increased from 6 hospitalisations per 1,000 females in 1999–00 to 9 hospitalisations per 1,000 females in 2007–08. As shown, the increase over time was driven primarily by changes in the number of same-day hospitalisations of women, with the rate of overnight hospitalisations remaining stable over the period considered.

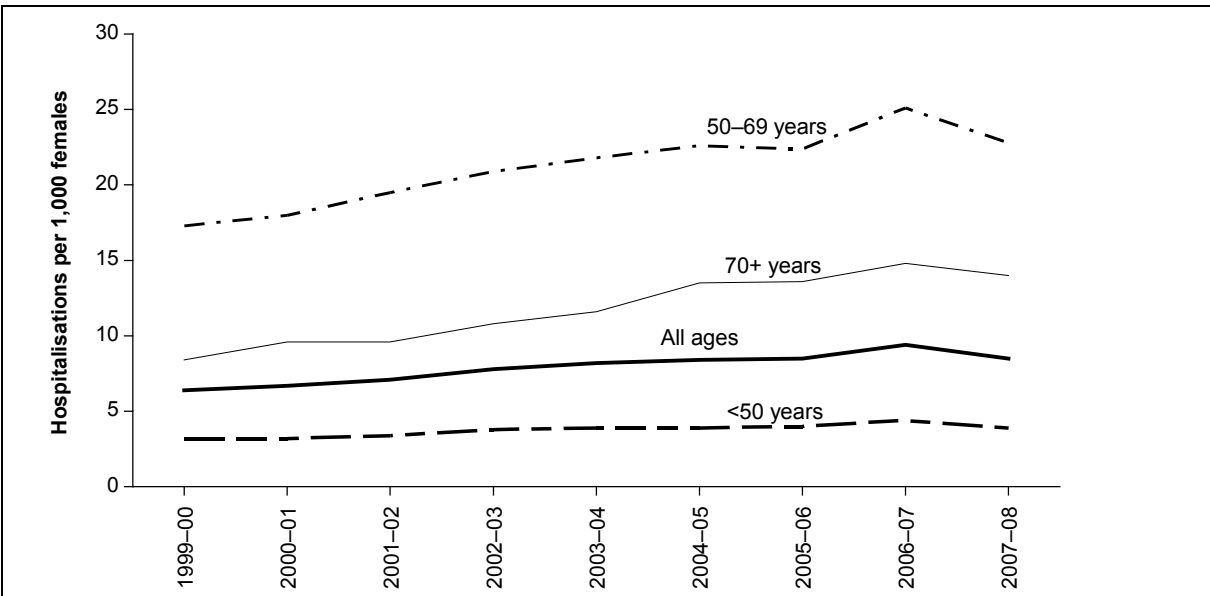
Trends in the rate of hospitalisations for breast cancer by age group are shown in Figure 8.3. For each of the age groups, the rate increased over the period from 1999–00 to 2007–08, with the largest increase in percentage terms observed for those aged 70 years and over (a 76% increase from 8 per 1,000 females in 1999–00 to 15 per 1,000 in 2007–08).



Note: The data for this figure are shown in Appendix Table D8.2.

Source: National Hospital Morbidity Database, AIHW.

**Figure 8.2: Hospitalisations for breast cancer by same-day and overnight status, females, 1999-00 to 2007-08**



**Notes**

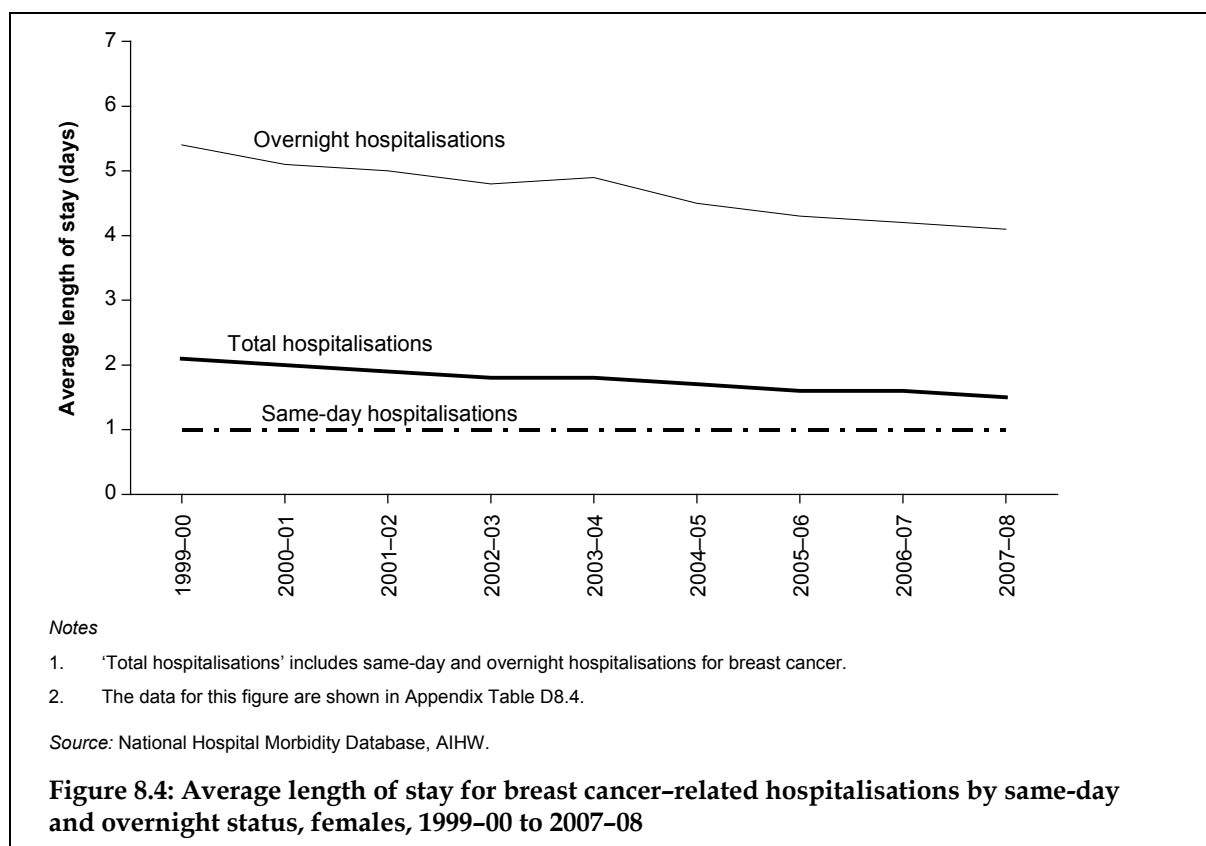
1. The rates are age-standardised to the Australian population as at 30 June 2001 and are expressed per 1,000 females.
2. The data for this figure are shown in Appendix Table D8.3.

Source: National Hospital Morbidity Database, AIHW.

**Figure 8.3: Hospitalisations for breast cancer by age group, females, 1999-00 to 2007-08**

## Trends in average length of stay

Trends in the average length of stay of women who were hospitalised for breast cancer are shown in Figure 8.4. In 1999-00, the average length of stay for breast cancer-related hospitalisations that involved an overnight stay was 5.4 days, which is longer than the 4.1 days observed in 2007-08.



## Procedures undertaken during hospitalisations

Procedures undertaken in hospitals include surgical procedures, non-surgical procedures for investigative and therapeutic purposes (such as chemotherapy), and client support interventions (e.g. anaesthesia). One or more procedures can be reported for each hospitalisation, but procedures are not undertaken during all hospitalisations; thus, only some hospitalisations include data on procedures. The classification system that was used to code the 2007-08 procedures' data was the fifth edition of the Australian Classification of Health Interventions (ACHI) (NCCH 2006).

Data on the proportion of breast cancer-related hospitalisations of females that included specific procedures during 2007-08 are shown in Table 8.4. The majority of these hospitalisations included the 'Administration of pharmacotherapy' (i.e. chemotherapy); this procedure was undertaken in well over half (58%) of all breast cancer-related hospitalisations of females. In addition, 17% of the hospitalisations involved the provision of general anaesthesia and sedation (which is referred to as 'Cerebral anaesthesia') and a further 16% included the 'Loading of a drug delivery device'.

**Table 8.4: Most common procedures for breast cancer-related hospitalisations, females, 2007–08**

Procedure description (ACHI <sup>(a)</sup> code)	Count of hospitalisations <sup>(b,c)</sup>	Per cent <sup>(c)</sup>
Administration of pharmacotherapy (1920)	62,017	58.5
Cerebral anaesthesia (1910)	18,190	17.1
Loading of drug delivery device (1921)	16,551	15.6
Excision procedures on lymph node of axilla (808)	12,564	11.8
Excision of lesion of breast (1744)	10,035	9.5
Generalised allied health professions (1916)	8,614	8.1
Vascular infusion device and pump (766)	5,480	5.2
Simple mastectomy (1748)	5,187	4.9
Examination procedures on breast (1740)	2,731	2.6
Other circulatory system nuclear medicine imaging study (2005)	2,500	2.4
Transfusion of blood and gamma globulin (1893)	2,089	2.0
Therapeutic interventions on cardiovascular system (1890)	1,753	1.7
Postprocedural analgesia (1912)	863	0.8
Reconstruction procedures on breast (1756)	775	0.7
Immunisation (1884)	711	0.7
Biopsy of breast (1743)	633	0.6
Computerised tomography of chest, abdomen and pelvis (1961)	480	0.5
Venous catheterisation (738)	463	0.4
Whole body bone nuclear medicine imaging study (2011)	426	0.4
Megavoltage radiation treatment (1915)	363	0.3
<b>Total breast cancer-related hospitalisations</b>	<b>106,067</b>	<b>100.0</b>

(a) Australian Classification of Health Interventions.

(b) Indicates the number of hospitalisations in which the indicated procedure was undertaken.

(c) The sum of the count of hospitalisations does not equal the total number of hospitalisations since no procedures, or multiple procedures, may be undertaken during each hospitalisation. For the same reason, the sum of the percentages does not equal 100.

Source: National Hospital Morbidity Database, AIHW.

## Hospitalisations of males for breast cancer

There were 420 breast cancer-related hospitalisations for male patients in 2007–08. This equates to 4 hospitalisations per 100,000 males. The majority (64%) of the hospitalisations for males were on a same-day basis (269), while the remainder (151) involved an overnight stay in hospital.

**Table 8.5: Hospitalisations for breast cancer and all reasons, males, 2007–08**

	Number	Age-standardised rate <sup>(a)</sup>	95% confidence interval
Breast cancer	420	3.9	3.5–4.3
All hospitalisations	3,724,423	35,335.3	35,299.2–35,371.4

(a) Standardised to the Australian population as at 30 June 2001 and expressed per 100,000 males.

Source: National Hospital Morbidity Database, AIHW.

Hospitalisations of males for breast cancer by age group are shown in Table 8.6. The majority of these hospitalisations were for men aged 50 to 69 years (48%), followed by those aged 70 years and over (38%). Meanwhile, the highest hospitalisation rate was observed for those aged 70 years and over (19 hospitalisations per 100,000 males), with a significantly lower rate for those aged 50 to 69 years (9 per 100,000 males) and those aged less than 50 years (1 per 100,000 males).

**Table 8.6: Hospitalisations for breast cancer by age group, males, 2007–08**

Age group (years)	Number of hospitalisations	Age-standardised rate <sup>(a)</sup>	95% confidence interval
<50	57	0.8	0.6–1.0
50–69	202	8.6	7.4–9.8
70+	161	18.6	15.9–21.7
<b>Total</b>	<b>420</b>	<b>3.9</b>	<b>3.5–4.3</b>

(a) Standardised to the Australian population as at 30 June 2001 and expressed per 100,000 males.

Source: National Hospital Morbidity Database, AIHW.

Change over time in breast cancer-related hospitalisations of male patients is shown in Table 8.7. Over the years considered, the number of hospitalisations ranged from a low of 293 (in 2001–02) to a high of 543 (in 2006–07).

**Table 8.7: Hospitalisations for breast cancer, males, 1999–00 to 2007–08**

Year	Number of hospitalisations	Age-standardised rate <sup>(a)</sup>	95% confidence interval
1999–00	368	4.1	3.7–4.5
2000–01	309	3.4	3.0–3.8
2001–02	293	3.1	2.7–3.5
2002–03	396	4.0	3.6–4.4
2003–04	432	4.3	3.9–4.7
2004–05	501	4.9	4.5–5.4
2005–06	449	4.4	4.0–4.9
2006–07	543	5.2	4.7–5.6
2007–08	420	3.9	3.5–4.3

(a) Standardised to the Australian population as at 30 June 2001 and expressed per 100,000 males.

Source: National Hospital Morbidity Database, AIHW.

The most common procedures for males for breast cancer-related hospitalisations in 2007–08 are shown in Table 8.8. Similar to females, the most common procedure for males was 'Administration of pharmacotherapy', with half (50%) of the hospitalisations for males involving this procedure. The second most common procedure included the provision of general anaesthesia and sedation (i.e. 'Cerebral anaesthesia') (34% of hospitalisations).

**Table 8.8: Most common procedures for breast cancer-related hospitalisations, males, 2007-08**

<b>Procedure description (ACHI<sup>(a)</sup> code)</b>	<b>Count of hospitalisations<sup>(b,c)</sup></b>	<b>Per cent<sup>(c)</sup></b>
Administration of pharmacotherapy (1920)	210	50.0
Cerebral anaesthesia (1910)	142	33.8
Excision procedures on lymph node of axilla (808)	105	25.0
Simple mastectomy (1748)	99	23.6
Generalised allied health professions (1916)	77	18.3
Excision of lesion of breast (1744)	31	7.4
Loading of drug delivery device (1921)	21	5.0
Other circulatory system nuclear medicine imaging study (2005)	16	3.8
Megavoltage radiation treatment (1788)	11	2.6
Transfusion of blood and gamma globulin (1893)	8	1.9
<b>Total breast cancer-related hospitalisations</b>	<b>420</b>	<b>100.0</b>

(a) Australian Classification of Health Interventions.

(b) Indicates the number of hospitalisations in which the indicated procedure was undertaken.

(c) The sum of the count of hospitalisations does not equal the total number of hospitalisations since no procedures, or multiple procedures, may be undertaken during each hospitalisation. For the same reason, the sum of the percentages does not equal 100.

Source: National Hospital Morbidity Database, AIHW.