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Health system expenditure on cancer and other neoplasms in Australia, 2008–09

CANCER SERIES NO. 81

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Authoritative information and statistics to promote better health and wellbeing

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Please note that there is the potential for minor revisions of data in this report. Please check the online version at <www.aihw.gov.au> for any amendments.

Contents

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Abbreviations

ABS	Australian Bureau of Statistics
AHMAC	Australian Health Ministers' Advisory Council
AIHW	Australian Institute of Health and Welfare
BEACH	Bettering the Evaluation and Care of Health
DRG	Diagnostic Related Groups
GP	General Practitioner
ICD-10	International Classification of Diseases, tenth edition
ICPC2	International Classification of Primary Care Version 2
SNAP study	Subacute and non-acute patient study

Symbols

–	zero
. .	not applicable
n.a.	not available
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data

Summary

This report provides estimates of Australia's health system expenditure on care for those with cancer and on the prevention and treatment of cancer. The report presents cancer expenditure by age group, sex and type of cancer, and it compares health system expenditure on cancer in 2008–09 to 2004–05 and 2000–01 in constant prices (see Glossary).

Expenditure estimates included in this report are based on health system expenditure that can be directly attributed to cancer. Not included in this analysis are expenditure on items such as capital goods, including equipment used exclusively for the treatment of individual chronic diseases (such as, linear accelerators for cancer) and expenditure on health administration other than for cancer screening programs (see Chapter 3 for more detail).

All references to "total health system expenditure" within this report relate to "total health system expenditure on chronic disease" unless otherwise stated. Not all health system expenditure can be allocated to specific diseases. There are other limitations to the data, and these are explained in Chapter 2.

Main findings

In 2008–09:

- Total health system expenditure in Australia on cancer and other neoplasms (excluding national population screening programs) was $4,526 million, which was 7% of total health system expenditure on chronic disease ($65,129 million). Total expenditure (in 2008–09 prices) on cancer has increased from $2,894 million in 2000–01 and $3,640 million in 2004–05.
- Cancer ranked sixth in terms of Australia's estimated total health system expenditure on chronic diseases.
- Cancer expenditure for *hospital admitted patient services* totalled $3,566 million (79%), *out-of-hospital services* totalled $420 million (9%), and *prescription pharmaceuticals* totalled $540 million (12%).
- Total health system expenditure for cancer was higher for older age groups; increasing from $83 million for people aged 15–24 to a maximum of $1,117 million for those aged 65–74.
- Colorectal cancer accounted for the highest expenditure, followed by non-melanoma skin cancer, prostate cancer, non-Hodgkin lymphoma, leukaemia, and breast cancer.
- Expenditure on national population screening programs totalled just over $332.2 million, comprising $174.5 million for BreastScreen Australia, $125.2 million for cervical screening, and $32.5 million for bowel cancer screening.
- Total health system expenditure on national population screening programs in 2000–01 was $184.1 million (BreastScreen Australia and the National Cervical Screening Program). In 2008–09, this increased to $332.2 million (current prices) partly due to the introduction of the National Bowel Cancer Screening Program in 2006.

1 Introduction

Cancer has a significant social and economic impact on individuals, families and the community in terms of the provision of health care infrastructure, absence from work and premature mortality (ABS 2005). It accounts for a major proportion of total health system expenditure in Australia.

Cancer (also called malignant neoplasm) is a diverse group of diseases characterised by the uncontrolled proliferation of abnormal cells (Box 1.1). These abnormal cells invade and damage the tissues around them, and sooner or later spread to other parts of the body. This can cause further damage and eventually death (AIHW & AACR 2012). Other neoplasms include benign, *in situ* and unspecified neoplasms.

Cancers are distinguished from each other by the location in the body in which the disease began (known as the site) and sometimes by the type of cell involved (known as histology). The spread of cancerous cells from the primary tumour to another (that is, secondary) site is referred to as metastasis (AIHW & AACR 2012). For example, cancer that begins in the lung is called lung cancer, regardless of whether or not it has metastasised (spread) to other sites. The original site in which a cancerous tumour is formed is referred to as the primary cancer.

Box 1.1: Reference to cancer

Unless otherwise stated, reference to cancer within this report includes malignant neoplasms and other neoplasms.

The number of cancer cases diagnosed in Australia is increasing (see Box 1.2). Between 2001 and 2007, the number of new cancer cases diagnosed increased by 21% from 90,288 to 109,623. In 2012, it is estimated that the number of new cases increased to more than 120,700, excluding basal and squamous cell carcinoma of the skin (AIHW & AACR 2012). The increase in the incidence of cancer can be attributed to many things, including improved detection, lifestyle factors, and an ageing population (noting that cancer incidence increases with age (Figure 1.1).

In 2007, prostate cancer was the most commonly diagnosed cancer (with 19,572 cases), followed by colorectal cancer (14,624 cases) and breast cancer (12,756 cases).

In general, previous studies have shown increasing survival trends throughout Australia (AIHW 2004; AIHW & AACR 2008; English et al. 2007). In 2006–2010, the 5-year relative survival was 66%. That is, people diagnosed with cancer had a 66% chance of surviving for at least 5 years compared with their counterparts in the general population (AIHW 2012a). At the end of 2007, a total of 339,077 people were alive who had been diagnosed with cancer in the previous 5 years (AIHW & AACR 2012).

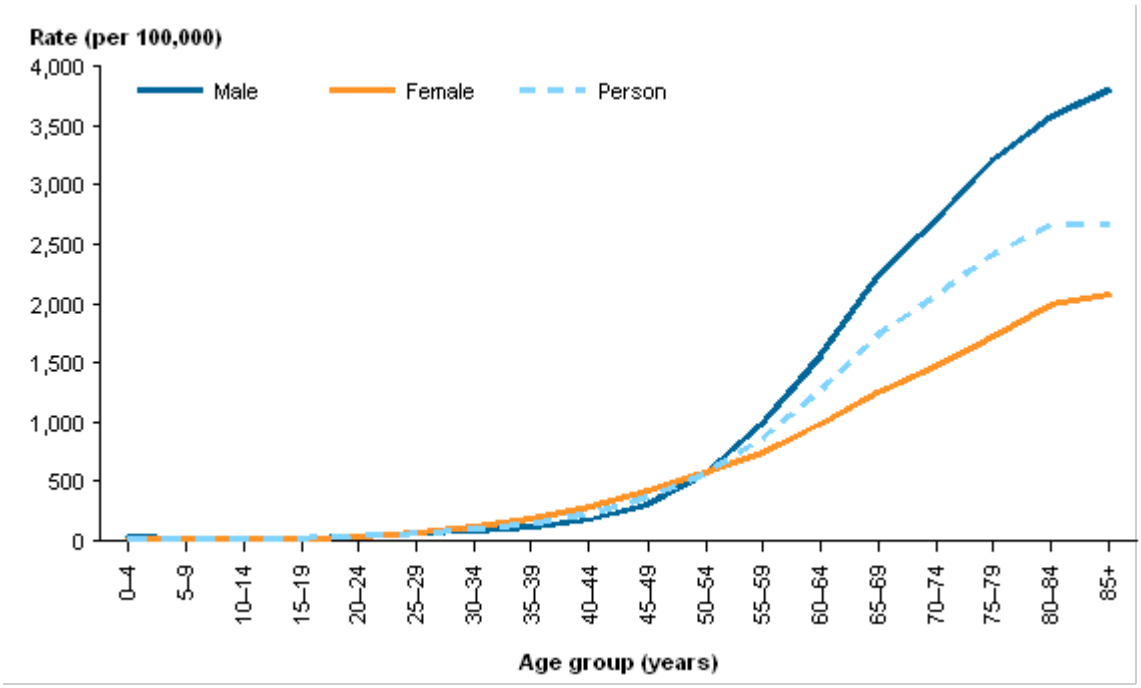
In 2010, a total of 42,844 Australians died from cancer. Lung cancer was the most common cause of death from cancer (8,099 deaths), followed by bowel cancer (3,982 deaths), prostate cancer (3,235 deaths), breast cancer (2,864 deaths) and pancreatic cancer (2,434 deaths) (AIHW & AACR 2012).

Box 1.2: Incidence of cancer in Australia

Cancer, with the exception of non-melanoma skin cancer, is a notifiable disease in all Australian states and territories. The data are collected by cancer registries and include clinical and demographic information about people with newly diagnosed cancer. This information is obtained from hospitals, pathologists, radiation oncologists, cancer treatment centres and nursing homes.

Incidence data indicate the number of new cancers that have been diagnosed during a specific period, usually 12 months. Data on the incidence of cancer refers to the number of *cases* newly diagnosed and not to the number of *people* newly diagnosed with cancer.

The incidence of cancer increases with age and differs between males and females (Figure 1.1). In 2009, the age-standardised incidence rate for people aged 25–54 was slightly higher for females than for males. After the age of 55, the incidence rate was higher for males.



Notes

1. The rates were standardised to the Australian population as at 30 June 2001.
2. Cancers coded in ICD-10 as C00-C97, D45, D46, D47.1 and D47.3 with the exception of those C44 codes that indicate basal or squamous cell carcinoma of the skin.
3. Data for this figure are in Appendix Table C1.1.

Source: AIHW ACIM Books 2009.

Figure 1.1: Incidence rates of all cancers combined by age at diagnosis, Australia, 2007

2 Data sources and methodology

Expenditure

The predominant source of information for this report is the AIHW Disease Expenditure Database. It provides a broad picture of the use of health system resources classified by disease group, and it is a reference source for planners and researchers interested in costs and use patterns for particular disease groups. These results are useful for comparing expenditure for different diseases and for ranking diseases by levels of expenditure.

The expenditure estimates reported here provide a broad picture of the use of health system resources classified by disease. The method for estimating disease expenditure is a 'top–down' approach where total expenditure across the health system is estimated and then allocated to the relevant conditions. This method yields consistency and totals that add up to known expenditures. It is not as sensitive or accurate for analysis of absolute costs incurred by patients for specific diseases, but it does allow the relative cost of expenditure on diseases to be more accurately represented (see Appendix A for the classification codes).

Estimates in the Disease Expenditure Database are derived by combining information from the National Hospital Morbidity Database, the National Public Hospitals Establishments Database, the Health Expenditure Database, the National Hospital Cost Data Collection, and the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH survey data used for this report were aggregated over 3 years: 2007, 2008 and 2009.

The AIHW is continually seeking to improve the methods used to produce these estimates. As a consequence, disease expenditure estimates are subject to revision, and the most recently published results might not be comparable with previously published data.

The Disease Expenditure Database contains estimates of expenditure by disease category, sex and age group for admitted patient hospital services, out-of-hospital medical services, and prescription pharmaceuticals.

A data quality statement for the Disease Expenditure Database is in Appendix B. This provides information on a range of aspects of the quality of the data being reported by the AIHW. It is included to help readers understand the limitations of the data so they can make informed judgments about their use of the data.

It is not possible to allocate all expenditure on health goods and services by disease. Expenditure that could not be allocated by disease includes:

- capital expenditure
- non-admitted patient hospital services
- over-the-counter drugs
- community health services (except community mental health)
- other health practitioner services (except optometry)
- public health programs (except population screening programs)
- health administration
- health aids and appliances
- patient transport (ambulance)
- research.

This underestimation can vary between diseases, but the expenditure estimates are considered to be a good guide to the relative distribution of expenditure between diseases.

Readers need to bear in mind that cost-of–illness data provide only estimates of the impact a disease has on health system expenditures. The estimates of the cost of treating or preventing a disease do not measure loss of productivity, inability to work, and loss of income.

Estimated expenditure for out-of-hospital medical services and pharmaceuticals requiring a prescription are reliant on sample survey data that can vary from year to year. Time-series comparisons should be treated with caution.

Expenditure associated with disease treatment should not be interpreted as simply an estimate of the savings that would result from prevention of disease. Conversion of the opportunity cost—or the benefits forgone—of resources being devoted to disease treatment into expenditure savings involves a number of additional considerations (see, for example Mathers & Penm 1998).

Hospital admitted patients

The proportions of total expenditure in public acute hospitals that relate to admitted patients are estimated using the 'admitted patient costs proportion' estimated by each state and territory and published in Australian Hospital Statistics 2010–11 (AIHW 2012b). Private hospital expenditure data are derived from the Australian Bureau of Statistics Private Health Establishments Survey.

The expenditure method estimates acute hospital admitted patient costs by apportioning the total admitted patient expenditure to individual episodes of hospitalisation, with an adjustment for the resource intensity of treatment for the specific episode (using the Diagnostic Related Groups, or DRGs) and the length of stay (see Box 2.1). Length of stay is adjusted to reflect the fact that some costs are proportional to length of stay (for example, ward costs and meals) whereas others are independent of length of stay (for example, theatre costs). The subdivision of episode costs into these categories is made using the National Hospital Costs Data Collection data.

The standard DRG method for estimating costs uses state DRG weights, and so assumes that the hospital has the same average costliness as the average for the state. DRGs can lack sensitivity and specificity with regard to reasons for hospitalisations.

The Establishments Database contains the actual cost of treating admitted patients at each hospital, and these data are used to scale up or down the estimate that comes from using whole-of-state DRG weights.

For subacute and non-acute patients, where there are no DRG weights, the most recent data on costs comes from the July to December 1996 subacute and non-acute patient (SNAP) study (Eagar et al. 1997). Costs based on day rates have been applied and adjusted to 2000–01 prices using the implicit price deflator for final government consumption expenditure on hospital and nursing home care.

Principal diagnosis is used to apportion expenditure. Estimates of expenditure on medical services for private patients in hospitals are included in admitted patient hospital costs.

Box 2.1: Interpreting cancer hospitalisations

The number and rate of hospital admitted cancer-related chemotherapy procedures changes over time due to the admission processes of public hospitals in states and territories. These hospitals provide same-day chemotherapy for outpatients on a non-admitted basis. This means that patients who receive same-day chemotherapy treatment for cancer in those hospitals are usually not recorded in the National Hospitals Morbidity Database and will contribute to out-of-hospital services expenditure.

For more information about the National Hospitals Morbidity Database, see the *National Hospital Morbidity Database data quality statement: 2010–11* <http://meteor.aihw.gov.au/content/index.phtml/itemId/511338>.

Out-of-hospital medical services

Data from the general practitioners' survey—the BEACH survey—was used to allocate private medical services provided by both general practitioners (GPs) and specialists. The International Classification of Primary Care Version 2 codes (ICPC2) were mapped to the disease costing-groups to enable medical services expenditure to be allocated by disease.

For out-of-hospital medical services, the BEACH data were aggregated over 3 years (2007, 2008 and 2009) to estimate the proportion of GP encounters in which cancer was a 'problem managed'. This proportion was then applied to the Medicare Benefits Schedule (MBS) data for the reference year.

Expenditures for 'Unreferred attendances', 'Imaging' and 'Pathology' were allocated to disease on the basis of GP encounters, and expenditure for 'Other medical services' (i.e. specialist services) was allocated to diseases on the basis of the referral pattern in BEACH. Allocation of GP costs where there were multiple presenting conditions in the GP encounter was done on a *pro rata* basis. For example, expenditure is apportioned equally three ways if a patient has three problems managed. Total expenditure was from the health expenditure database, which was derived from Medicare Australia data.

Pharmaceuticals

Cancer expenditure estimates for pharmaceuticals provided out-of-hospital are derived using the BEACH survey data in conjunction with data from a number of other sources including the MBS, Pharmaceutical Benefits Scheme, Repatriation Pharmaceutical Benefits Scheme, and script volumes for private and under co-payment drugs. The BEACH data were previously collected by the Family Medicine Research Centre of the University of Sydney in collaboration with the AIHW. This collaboration concluded in June 2011.

For cancer management medications, the BEACH survey data were aggregated over 3 years to allocate expenditure on prescription drugs to each disease group based on the problems managed in the GP encounter that related to the prescribing of a particular drug.

The Anatomical Therapeutic Chemical Classification System codes were mapped to codes for prescription drugs used in the BEACH survey. Time-series comparisons for both out-of-hospital medical services and prescription pharmaceuticals should be treated with caution because GP prescription and referral patterns could have varied over time.

Only drugs prescribed specifically for cancer are included in the expenditure in this report. Pharmaceuticals dispensed in hospitals are included in the estimates of hospital costs.

AIHW National Mortality Database

The AIHW National Mortality Database contains information provided by the Registries of Births, Deaths and Marriages, the Australian Bureau of Statistics (ABS) and the National Coronial Information System, for deaths from 1964 to 2011.

Registration of deaths is the responsibility of the state and territory Registrars of Births, Deaths and Marriages. These data are collated and coded by the ABS.

In the AIHW National Mortality Database, both the year of occurrence of the death and the year in which the death was registered are provided. For this report, unless otherwise stated, mortality data relate to the *year of death.*

Statements on data quality relating to the AIHW National Mortality Database are available from the ABS website:

1. Quality declaration summary, *Deaths, Australia, 2011*, ABS Cat. no 3302.0 <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/3302.0Quality%20Declaration02011?opendocument&tabname=Notes&prodno=3302.0&issue=2011&num=&view=>.
2. Quality declaration summary, *Causes of death, 2011*, ABS Cat. no. 3303.0 <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/3303.0Quality%20Declaration02011?opendocument&tabname=Notes&prodno=3303.0&issue=2011&num=&view=>.

3 Total health system expenditure on cancer and population screening programs

Cancer management

Health system expenditure on cancer includes expenditure funded by Australian and state and territory governments, private health insurers, and individuals and households. Expenditure not allocated by disease and therefore not presented in this report includes capital expenditure and capital consumption, patient transport, health administration (except in the case of population screening programs), health aides and appliances.

In 2008–09, cancer accounted for 7% ($4,526) of the $65,129 million spent for all chronic diseases in Australia (Table 3.1), making cancer the sixth highest in terms of total health system expenditure.

Hospital admitted patient services

The health-care sector with the highest level of cancer-related expenditure in 2008–09 was *hospital admitted patient services* ($3,566 million), accounting for 79% of total health system expenditure for cancer. *Hospital admitted patient services* also include services provided to day-admitted patients.

Out-of-hospital sector

The *out-of-hospital sector* expenditure on cancer, including general practitioner, imaging, pathology and other medical services, totalled $420 million, which accounted for 9% of total health system expenditure on cancer.

Prescription pharmaceuticals

Expenditure on *prescription pharmaceuticals* obtained outside hospital totalled $540 million, accounting for 12% of total health system expenditure on cancer. In-patient and day-admitted patient hospital pharmaceuticals are included in hospital expenditure (Table 3.1).

Table 3.1: Cancer and all chronic disease expenditure by area of expenditure, 2008–09

	Cancer[(a)]		All chronic diseases	
Area of expenditure	**$ (million)**	**Per cent**	**$ (million)**	**Per cent**
Hospital admitted patient services	3,566	78.8	38,675	59.4
Out-of-hospital services	420	9.3	15,871	24.4
Prescription pharmaceuticals	540	11.9	10,583	16.2
Total allocated expenditure[(b)]	**4,526**	**100.0**	**65,129**	**100.0**

(a) Includes cancers coded in the International Statistical Classification of Disease and related health Problems, 10th edition (ICD-10) as C00–C97 and D00–D48.

(b) Total expenditure does not include cancer screening. Components may not sum to the total due to rounding.

Source: AIHW Disease expenditure database.

Health system expenditure for cancer is distributed differently to that of all chronic diseases (see Table 3.1). For example, expenditure on cancer for *hospital admitted patient services* accounted for 79% of total health system expenditure on cancer. In comparison, just over 59% of expenditure on all chronic diseases was for *hospital admitted patient services*.

Conversely, the proportion of total expenditures allocated to cancers for *out-of-hospital* services (9%) and *prescription pharmaceuticals* (12%) sectors were much lower than their equivalent for all chronic diseases, 24% and 16%.

Cancer screening programs

National cancer population screening programs aim to reduce illness and death resulting from cancer through an organised approach to screening. Australia has three cancer screening programs:

- BreastScreen Australia
- National Cervical Screening Program
- National Bowel Cancer Screening Program.

BreastScreen Australia

Australia's national breast cancer screening program was established as the National Program for the Early Detection of Breast Cancer. This program is now known as BreastScreen Australia, and is a joint program of the Australian and state and territory governments. The program targets asymptomatic women aged 50–69 for free 2-yearly screening mammograms to detect cases of breast cancer in women, enabling intervention at an early stage (AIHW & AACR 2012).

National Cervical Screening Program

In 1991, the Australian Health Ministers' Advisory Council (AHMAC) accepted recommendations made by the Screening Evaluation Steering Committee in the report *Cervical cancer screening in Australia: options for change* (AHMAC 1991) that saw the establishment of the Organised Approach to Preventing Cancer of the Cervix, Australia's cervical screening program. Now known as the National Cervical Screening Program, Australia's cervical screening program operates as a joint program of the Australian Government and state and territory governments, targeting women aged 18–69 years.

National Bowel Cancer Screening Program

The National Bowel Cancer Screening Program was implemented in August 2006 by the Australian Government, in partnership with state and territory governments following the success of the Bowel Cancer Screening Pilot Program. Data are available only for 2008–09, so they cannot be used to present expenditure over time.

The program currently offers free bowel cancer screening using a faecal occult blood test to people turning 50, 55, 60 and 65 years of age. The program is scheduled to be expanded from July 2015, with phasing in of biennial screening for those aged 50 to 74.

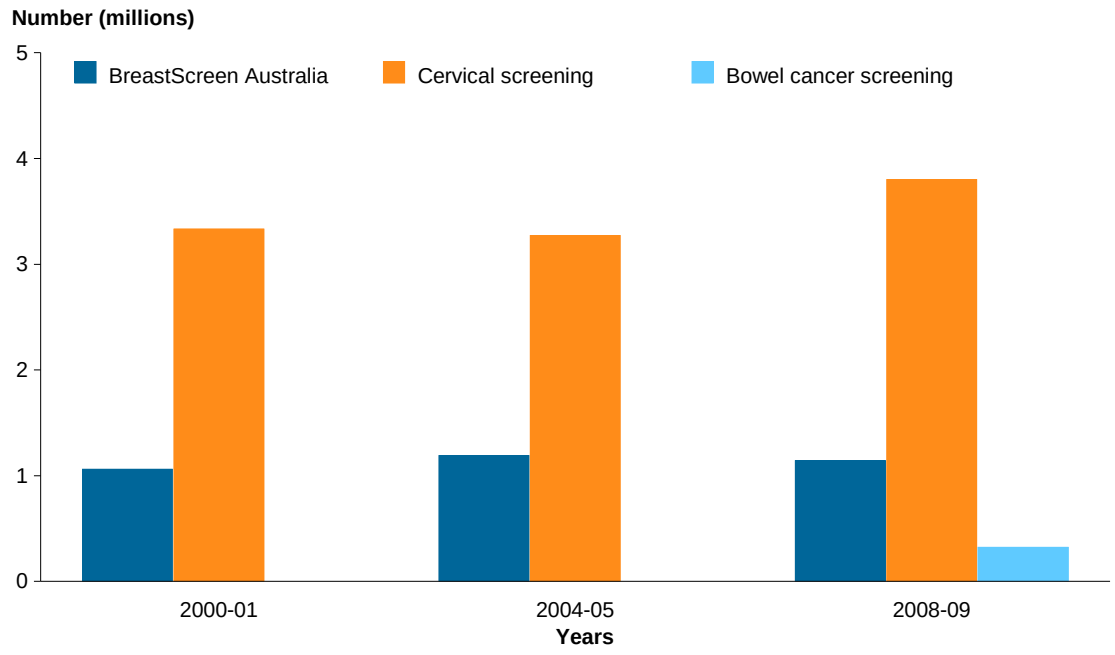
Participation in national population screening programs

Participation in national cancer screening programs allows for early detection of cancers and is associated with improved morbidity and mortality outcomes.

More than 1.3 million women had a screening mammogram through Breastscreen Australia in 2008 and 2009. This was 55% of women in the target age group. In 2009 and 2010, this increased to more than 1.7 million Breastscreen Australia mammograms (AIHW & AACR 2012).

In the 2-year period 2008–2009, just over 3.6 million women aged 20–69 participated in the National Cervical Screening Program. This equated to 58% of eligible women (AIHW 2011). In 2009–10, some 3.6 million women aged 20–69 participated in the National Cervical Screening Program (Figure 3.1).

In 2008–09, the National Bowel Cancer Screening Program invited about 780,000 eligible Australians to participate and nearly 304,000 people returned a completed faecal occult blood test kit for analysis. In 2011–12, 929,433 eligible people were invited into the program. A total of 325,276 (35.0%) had participated by 31 December 2012 (AIHW 2013).



Note: Data for this figure are in Appendix Table C3.2.

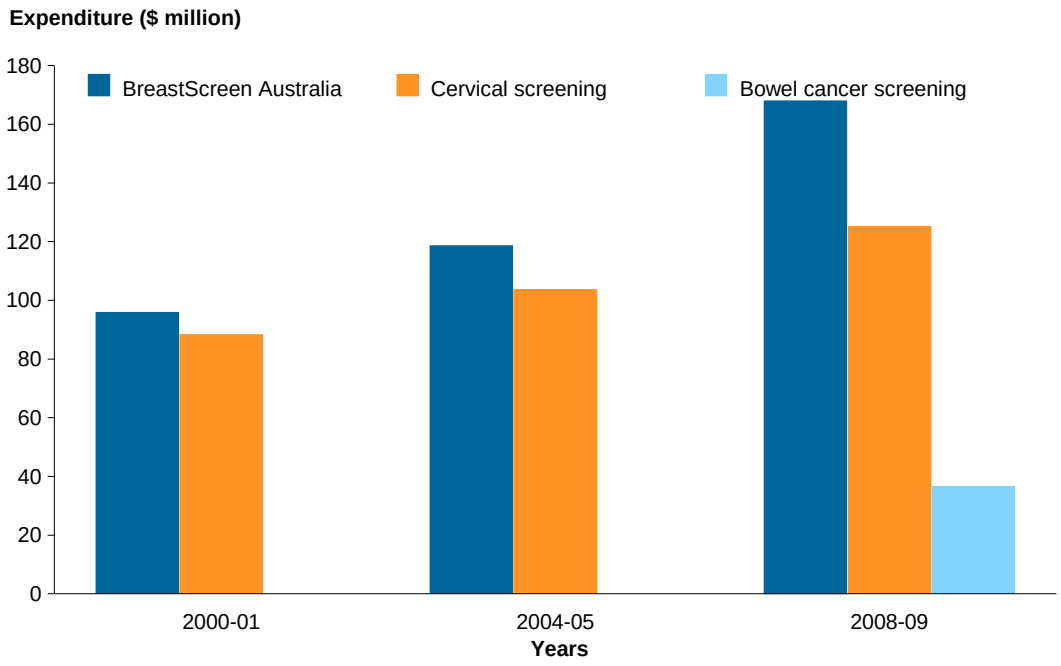
Source: National Bowel Cancer Screening Program Register; AIHW analysis of state and territory cervical cytology register data; AIHW analysis of BreastScreen Australia data.

Figure 3.1: National screening program participation numbers, targeted participants, Australia, 2000–01, 2004–05 and 2008–09

Health system expenditure on national population screening programs

BreastScreen Australia expenditure increased from $95.9 million in 2000–01, to $174.5 million in 2008–09. National Cervical Screening Program expenditure increased from just over $88.2 million to $125.2 million in current prices (Figure 3.2).

As the National Bowel Cancer Screening Program was not implemented until 2006, expenditure data are limited to 2008–09. In 2008–09, Bowel Cancer Screening Program expenditure totalled $32.5 million.



Notes

1. National screening program data are in current prices.
2. Data for this figure are in Appendix Table C3.1.

Source: AIHW disease expenditure database.

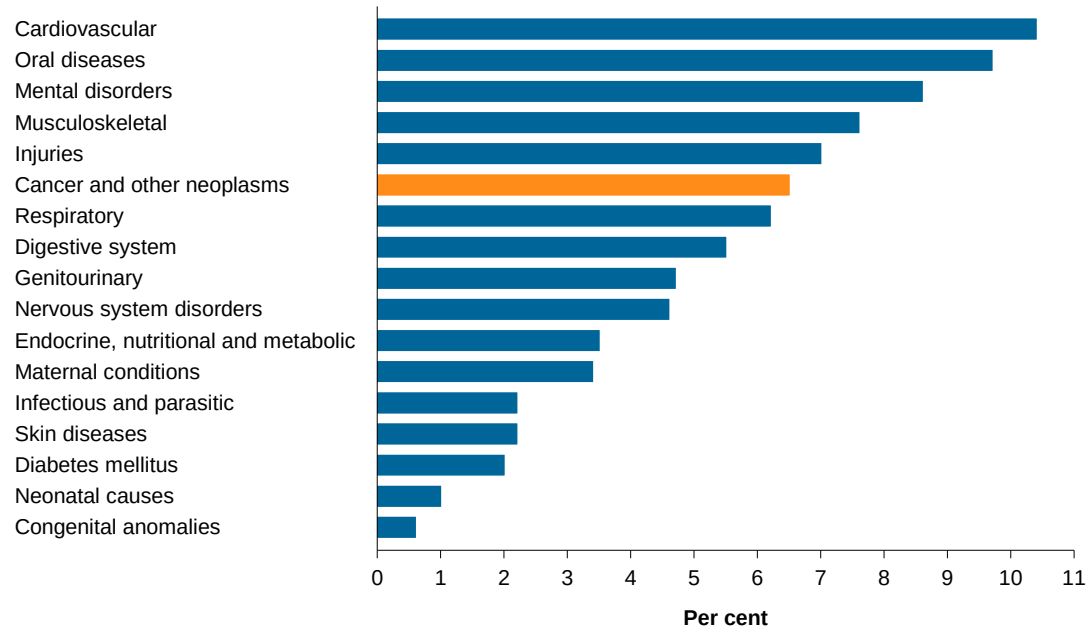
Figure 3.2: Total health system expenditure on screening programs, Australia, 2000–01, 2004–05 and 2008–09

Total expenditure on cancer compared to other chronic diseases

In 2008–09, cancer ranked sixth in terms of estimated health system expenditure on chronic diseases. Cancer accounted for 7% of total health system expenditure on all chronic diseases. This excludes national population cancer-screening programs.

Figure 3.3 shows the proportion of health system expenditure by broad disease group in 2008–09. Cardiovascular disease accounted for the highest proportion of health system expenditure in 2008–09, totalling $7,741 million (10.4%). This was followed by:

- oral diseases, totalling $7,176 million (9.7%)
- mental disorders, $6,375 million (8.6%)
- musculoskeletal, $5,671 million (7.6%)
- injuries, $5,184 million (7.0%).



Notes

1. Burden of disease categories were used to produce this graph to allow all disease groups to be included.
2. Percentages do not add up to 100 because not all diseases are included.
3. Data for this figure are in Appendix Table C3.3.

Source: AIHW disease expenditure database.

Figure 3.3: Proportion of health system expenditure on chronic diseases by disease group, 2008–09

4 Expenditure on cancer by sex

In contrast to many other chronic diseases, many cancers are 'gender related'. That is, they either affect women or men due to the origin or localisation of the cancer on the genital organs, or the link with 'secondary sexual characteristics'. These include cervical and ovarian cancers in the case of women, and prostate and testicular cancers in the case of men (European Commission 2009).

In 2008–09, the top six cancers in terms of health system expenditure in Australia accounted for 42% of total health system expenditure on cancer (Table 4.1). Total estimated expenditure on cancer was higher for males, totalling $2,467 million (54.5%), than for females, totalling $2,059 million (45.5%).

For males, the top six cancers in terms of estimated health system expenditure accounted for 50% of total male health system expenditure on cancer. These were: prostate cancer, totalling $347 million (14.0%); colorectal cancer at $248 million (10.0%); non-melanoma skin cancer at $219 million (8.9%); leukaemia at $152 million (6.2%); non-Hodgkin lymphoma at $149 million (6.0%) and lung cancer at $123 million (5.0%).

For females, the top six cancers in terms of health system expenditure accounted for 42% of total female health system expenditure on cancer. These were: breast cancer, totalling $235 million, (11.4%); colorectal cancer at $180 million (8.7%); non-melanoma skin cancer at $148 million (7.2%); non-Hodgkin lymphoma at $114 million (5.5%); leukaemia at $104 million (5.1%), and lung cancer at $87 million (4.2%).

Table 4.1: Expenditure by health-care sector, all persons, males and females, 2008–09

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
All persons								
Colorectal	387.90	18.25	21.20	427.35	9.4	14,624	4,182	47,397
NMSC[d]	224.59	133.07	9.71	367.37	8.1	*n.a.*	460	*n.a.*
Prostate	194.53	30.22	121.85	346.60	7.7	19,572	2,988	72,590
Non-Hodgkin lymphoma	170.24	6.81	85.80	262.85	5.8	4,111	1,365	14,087
Leukaemia	243.98	5.08	7.49	256.55	5.7	2,902	1,486	8,084
Breast	147.24	29.15	60.49	236.88	5.2	12,756	2,747	55,974
Total (mo.)	*1,368.48*	*222.58*	*306.54*	*1,897.60*	*41.9*	*54,701*	*13,228*	*194,811*
Total (%)[e]	*38*	*53*	*57*	*. .*	*. .*	*50*	*32*	*57*
Other cancers	2,197.26	197.90	233.39	2,628.55	58.1	54,922	27,724	149,424
All cancers	**3,565.73**	**420.48**	**539.93**	**4,526.15**	**100.0**	**109,623**	**40,952**	**349,951**

(Continued)

Table 4.1 (continued): Expenditure by health-care sector, all persons, males and females, 2008–09

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
Males								
Prostate	194.53	30.22	121.85	346.60	14.0	19,572	2,988	72,914
Colorectal	217.98	11.91	17.62	247.50	10.0	7,972	2,275	25,864
NMSC[d]	135.94	77.46	5.66	219.05	8.9	n.a.	316	n.a.
Leukaemia	141.92	2.78	7.44	152.14	6.2	1,783	901	4,875
Non-Hodgkin lymphoma	101.36	4.19	43.32	148.87	6.0	2,238	755	7,743
Lung	111.54	6.92	4.07	122.53	5.0	6,045	4,806	7,436
Total (no.)	*903.27*	*133.48*	*199.96*	*1,236.69*	*50.1*	*38,062*	*12,041*	*115,597*
Total (%)[e]	*47*	*64*	*58*	*. .*	*. .*	*61*	*52*	*62*
Other cancers	1,012.05	76.25	141.99	1,230.29	49.9	24,671	11,150	72,914
All cancers	**1,915.32**	**209.74**	**341.94**	**2,467.00**	**100.0**	**62,733**	**23,191**	**192,859**
Females								
Breast	146.33	28.90	59.40	234.63	11.4	12,653	2,722	55,546
Colorectal	169.93	6.33	3.58	179.85	8.7	6,652	1,907	21,533
NMSC[d]	88.65	55.61	4.05	148.31	7.2	*n.a.*	144	*n.a.*
Non-Hodgkin lymphoma	68.88	2.61	42.48	113.98	5.5	1,873	610	6,344
Leukaemia	102.06	2.30	0.05	104.41	5.1	1,119	585	3,209
Lung	77.02	4.37	5.31	86.70	4.2	3,830	2,938	5,213
Total (no.)	*652.87*	*100.12*	*114.87*	*867.88*	*42.1*	*26,411*	*8,906*	*90,681*
Total (%)[e]	*40*	*48*	*58*	*. .*	*. .*	*56*	*50*	*59*
Other cancers	997.55	110.62	83.11	1,191.27	57.9	20,479	8,855	64,289
All cancers	**1,650.41**	**210.75**	**197.99**	**2,059.14**	**100**	**46,890**	**17,761**	**157,092**

(a) Out-of-hospital services includes unreferred attendances, imaging, pathology and other medical services.

(b) Deaths registered in 2007 are based on the final version of cause-of-death data.

(c) See glossary for definition.

(d) Non-melanoma skin cancer (NMSC). The two most common types of NMSC are not notifiable diseases. Therefore the incidence and prevalence of non-melanoma skin cancer are unknown.

(e) Expenditure on the six most expensive cancers as per cent of all cancers.

Notes

1. Benign myomas, other malignant neoplasms and other benign neoplasms are excluded from the six most expensive cancers.
2. The mortality data in the AIHW National Mortality Database were provided by the Registries of Births, Deaths and Marriages and the National Coronial Information System and coded by the Australian Bureau of Statistics.
3. Number of deaths in the table refers to the year of occurrence of death.

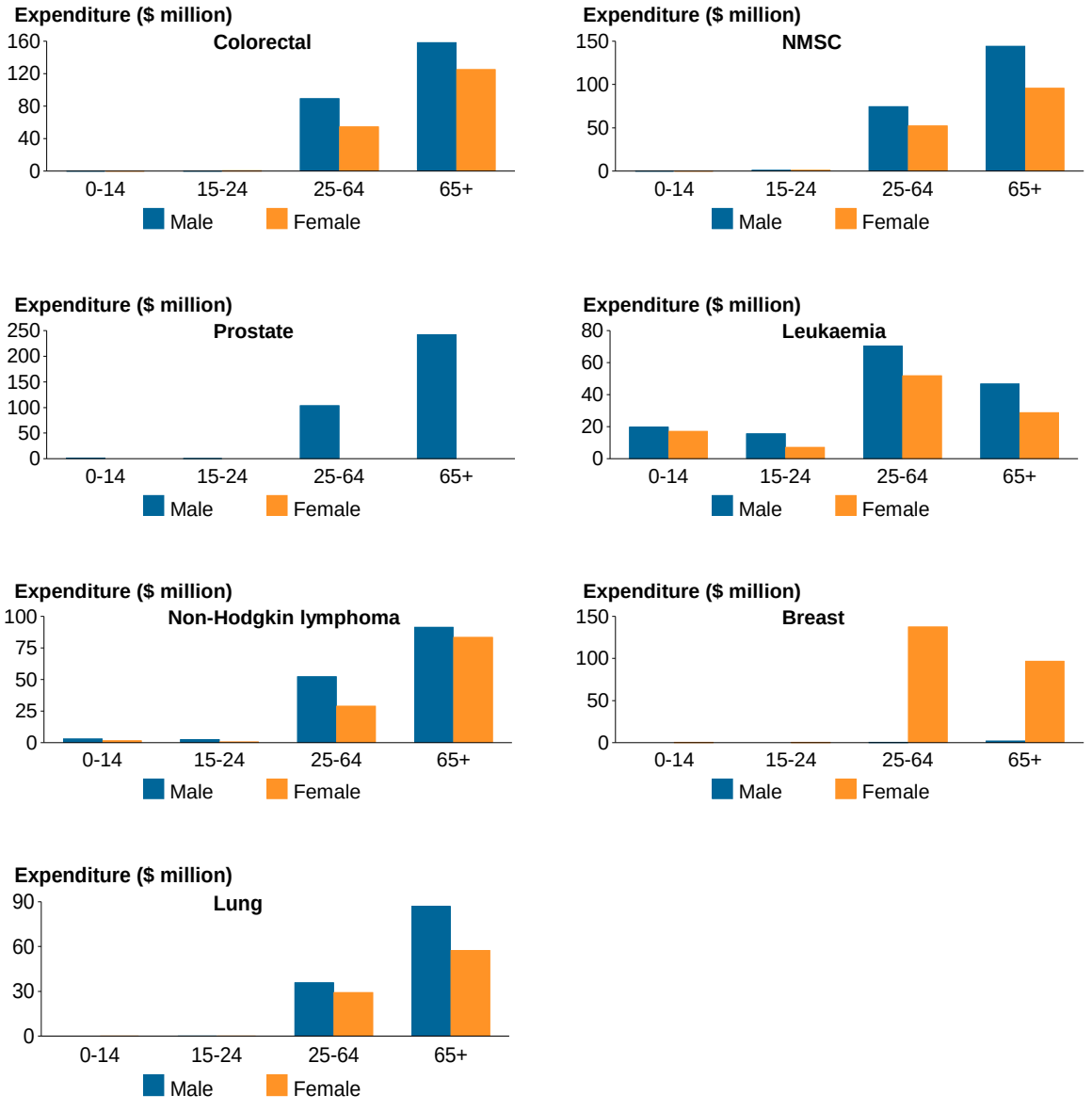
Sources: AIHW disease expenditure database; AIHW Australian Cancer Database 2009; analysis of AIHW National Mortality Database.

There were 109,623 new cases of cancer diagnosed in 2007: 62,733 for males and 46,890 for females were diagnosed. The six cancers with the highest health system expenditure accounted for 61% of all new cancer cases in males and 56% in females.

At the end of 2007, there were 349,951 people in Australia (192,859 males and 157,092 females) who had been diagnosed with cancer in the previous 5 years and were still alive. The six cancers with the highest health system expenditure accounted for 57% of all people who had been diagnosed with cancer in the previous 5 years and were still alive.

There were 40,952 deaths due to cancer in 2007, 23,191 males and 17,761 females. The six cancers with the highest health system expenditure accounted for 32% of all deaths from cancer in 2007.

Figure 4.1 shows total health system expenditure for each of the six cancers with the highest health system expenditure for males or females by age group.



Note: Data for this figure are in Appendix Table C4.1. NMSC is non-melanoma skin cancer.

Source: AIHW disease expenditure database.

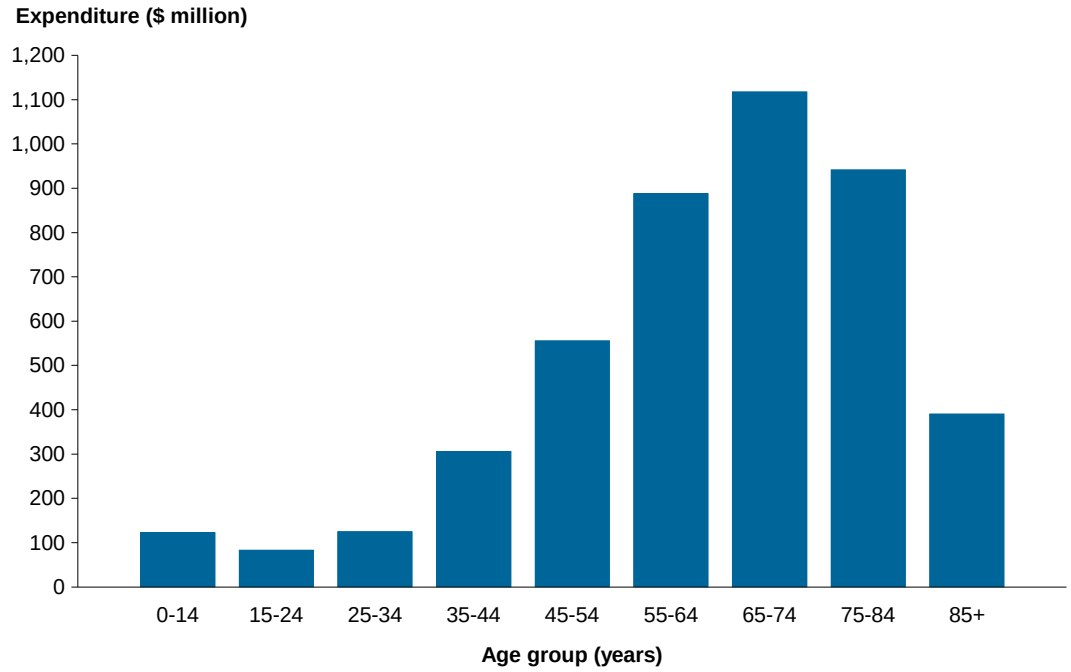
Figure 4.1: Health system expenditure on major cancers, by sex, Australia, 2008–09

5 Expenditure on cancer by age group

Total health system expenditure on cancers varies considerably between age groups (Figure 5.1). This report focuses on four main age groups, which correspond with four broad life stages: children (0–14), adolescents and young adults (15–24), adults (25–64), and older adults (65 and over).

In 2008–09, total health system expenditure on cancer for children aged 0–14 totalled $122 million, which was 2.7% of health system expenditure on cancer. Expenditure was slightly lower for those aged 15–24, totalling $83 million (1.8%).

Expenditure increased considerably with age, with the highest expenditure of $1,117 million (24.7%) for people aged 65–74. Expenditure then reduced ($941 million, or 20.8%) for those aged 75–84, and for those aged 85 and over ($390 million, or 8.6%).



Note: Data for this figure are in Appendix Table C5.1.

Source: AIHW disease expenditure database.

Figure 5.1: Health system expenditure by sex and age group, Australia, 2008–09

For those aged 0–14, 15–24 and 25–34, leukaemia accounted for the highest proportion of cancer expenditure.

For those aged 35–44, brain cancer accounted for the highest proportion of cancer expenditure, totalling $32 million.

For those aged 45–54, breast cancer accounted for the highest proportion of cancer expenditure, totalling $53 million.

For those aged 55–64 to 85 years and above, colorectal cancer accounted for the highest proportion of cancer expenditure.

Expenditure on cancer for children aged 0–14

In 2008–09, health system expenditure on cancer for children aged 0–14 was $122 million, accounting for 2.7% of total health expenditure on cancer for all ages. The six cancers with the highest health system expenditure accounted for 61% of health system expenditure on cancer for this age group (Table 5.1 and Figure 5.2).

Leukaemia accounted for the highest expenditure in this age group, totalling $36.83 million (30% of total cancer expenditure). This was followed by brain cancer at $11.76 million (9.6%) and multiple myeloma at $11.59 million (9.5%).

Expenditure on *hospital admitted patients* totalled $102.76 million, accounting for 84.1% of total expenditure in this age group, followed by *prescription pharmaceuticals* at $12.94 million (10.6%) and o*ut-of-hospital services* at $6.42 million (5.3%).

Table 5.1: Expenditure by area of expenditure for cancer, children aged 0–14, 2008–09; number of new cancer cases and deaths, 2007

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
All children								
Leukaemia	36.52	0.31	—	36.83	30.2	213	13	876
Brain	11.76	—	—	11.76	9.6	79	38	200
Multiple myeloma[d]	—	0.36	11.23	11.59	9.5	—	—	n.p.
Bone and connective tissue	6.16	0.03	0.03	6.21	5.1	47	6	157
Non-Hodgkin lymphoma	4.42	0.01	—	4.43	3.6	46	n.p.	152
Kidney	3.47	0.03	—	3.50	2.9	35	n.p.	150
Total (no.)	*62.33*	*0.74*	*11.26*	*74.32*	*60.9*	*385*	*61*	*1,535*
Total (%)[e]	*61*	*11*	*87*	*. .*	*. .*	*71*	*66*	*73*
Other cancers	40.43	5.69	1.68	47.81	39.1	175	31	586
All cancers	**102.76**	**6.42**	**12.94**	**122.13**	**100.0**	**595**	**92**	**2,122**

(a) Out-of-hospital services includes unreferred attendances, imaging, pathology and other medical services.

(b) Deaths registered in 2007 are based on the final version of cause-of-death data.

(c) See glossary for definition.

(d) Also includes immunoproliferative cancers.

(e) Expenditure on the six most expensive cancers as per cent of all cancers.

Notes

1. The mortality data in the AIHW National Mortality Database were provided by the Registries of Births, Deaths and Marriages and the National Coronial Information System and coded by the Australian Bureau of Statistics.
2. Number of deaths in the table refers to the year of occurrence of death.

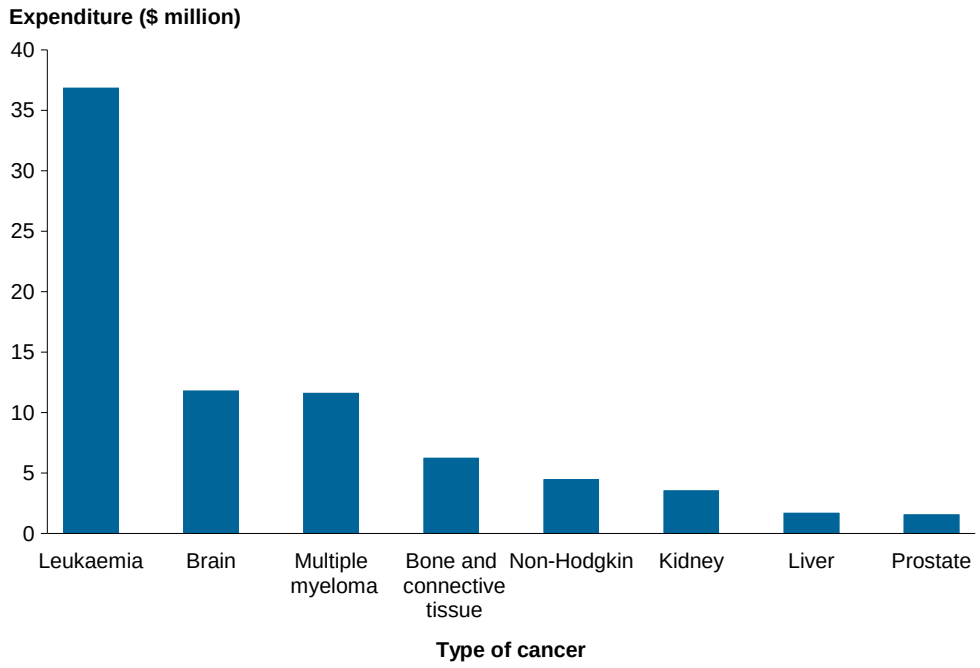
Sources: AIHW disease expenditure database; AIHW Australian Cancer Database 2009; analysis of AIHW National Mortality Database.

There were 595 new cases of cancer diagnosed in children aged 0–14 in 2007. Leukaemia accounted for the highest incidence in this age group with 213 new cases diagnosed. The six

cancers with the highest health system expenditure accounted for 71% of all new cancer cases in 2007 in the 0–14 age group.

At the end of 2007, there were 2,122 children aged 0–14 who had been diagnosed with cancer in the previous 5 years and were still alive. The six cancers with the highest health system expenditure accounted for 73% of all children who had been diagnosed with cancer in the previous 5 years and were still alive.

There were 92 deaths due to cancer in children aged 0–14 in 2007. Of these, 38 deaths were due to brain cancer, the highest number of deaths from any type of cancer in this age group in 2007. The six cancers with the highest health system expenditure accounted for 66% of all deaths from cancer in this group.



Note: Data for this figure are in Appendix Table C5.2.

Source: AIHW disease expenditure database.

Figure 5.2: Health system expenditure all children, aged 0–14, Australia, 2008–09

Expenditure on cancer for people aged 15–24

In 2008–09, health system expenditure on cancer for people aged 15–24 was $83 million, accounting for 1.8% of total health expenditure on cancer. The six cancers with the highest health system expenditure for people aged 15–24 accounted for 51% of total cancer expenditure for this group (Table 5.2, Figure 5.3).

Leukaemia accounted for the highest expenditure for this age group, totalling $22.59 million (27.3%). This was followed by bone and connective tissue, totalling $5.47 million (6.6%), then brain cancer at $4.02 million (4.8%).

Expenditure on *hospital admitted patients* totalled $69.25 million (83.5%) of total expenditure in this age group. This was followed by *out-of-hospital services* at $12.49 million (15.1%) and *prescription pharmaceuticals* at $1.15 million (1.4%).

Table 5.2: Expenditure by area of expenditure for cancer, people aged 15–24, 2008–09; number of new cancer cases and deaths, 2007

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
All persons								
Leukaemia	22.43	0.17	—	22.59	27.3	77	36	347
Bone and connective tissue	5.20	0.15	0.12	5.47	6.6	62	14	255
Brain	4.02	—	—	4.02	4.8	43	14	152
Carcinoma in situ of cervix uteri[d]	3.44	0.17	—	3.61	4.4	n.a.	—	n.a.
Hodgkin lymphoma	3.21	0.02	—	3.22	3.9	125	n.p.	475
Non-Hodgkin lymphoma	2.98	—	—	2.98	3.6	50	n.p.	218
Total (no.)	41.28	0.51	0.12	41.90	50.5	357	72	1,447
Total (%)[e]	60	4	10	. .	. .	41	53	47
Other cancers	27.96	11.99	1.03	40.98	49.4	513	63	1,650
All cancers	**69.25**	**12.49**	**1.15**	**82.89**	**100.0**	**870**	**135**	**3,097**

(Continued)

Table 5.2 (continued): Expenditure by area of expenditure for cancer, people aged 15–24, 2008–09; number of new cancer cases and deaths, 2007

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
Males								
Leukaemia	15.41	0.17	—	15.58	37.6	56	24	214
Bone and connective tissue	3.00	0.15	0.12	3.27	7.9	42	10	144
Non-Hodgkin lymphoma	2.49	—	—	2.49	6.0	32	5	138
Brain	2.24	—	—	2.24	5.4	25	6	85
Hodgkin's lymphoma	1.69	—	—	1.69	4.1	55	n.p.	239
Testicular	1.05	0.07	—	1.12	2.7	103	n.p.	302
Total (no.)	*25.88*	*0.39*	*0.12*	*26.39*	*63.6*	*313*	*49*	*1,122*
Total (%)[e]	*71*	*8*	*81*	*. .*	*. .*	*67*	*63*	*67*
Other cancers	10.36	4.70	0.03	15.09	36.4	153	29	542
All cancers	**36.25**	**5.08**	**0.15**	**41.48**	**100.0**	**466**	**78**	**1,668**
Females								
Leukaemia	7.02	—	—	7.02	17.0	21	12	133
Carcinoma in situ of cervix uteri[d]	3.44	0.17	—	3.61	8.7	n.a.	—	n.a.
Bone and connective tissue	2.20	—	—	2.20	5.3	20	4	108
Brain	1.78	—	—	1.78	4.3	18	8	66
Hodgkin's lymphoma	1.52	0.02	—	1.53	3.7	70	n.p.	236
Thyroid	0.80	0.07	—	0.87	2.1	48	n.p.	162
Total (no.)	*16.76*	*0.26*	*—*	*17.01*	*41.1*	*177*	*25*	*705*
Total (%)[e]	*51*	*3*	*0*	*. .*	*. .*	*44*	*44*	*50*
Other cancers	16.24	7.16	1.00	24.40	58.9	227	32	717
All cancers	**33.00**	**7.41**	**1.00**	**41.41**	**100.0**	**404**	**57**	**1,429**

(a) Out-of-hospital services includes, unreferred attendances, imaging, pathology and other medical services.

(b) Deaths registered in 2007 are based on the final version of cause-of-death data.

(c) See glossary for definition.

(d) Carcinoma in situ of the cervix is not a notifiable disease in all states or territories of Australia. Therefore the incidence and prevalence are unknown.

(e) Expenditure on the six most expensive cancers as per cent of all cancers.

*Note*s

1. The mortality data in the AIHW National Mortality Database were provided by the Registries of Births, Deaths and Marriages and the National Coronial Information System and coded by the Australian Bureau of Statistics.
2. Number of deaths in the table refers to the year of occurrence of death.

Sources: AIHW disease expenditure database and AIHW; AIHW Australian Cancer Database 2009; analysis of AIHW National Mortality Database.

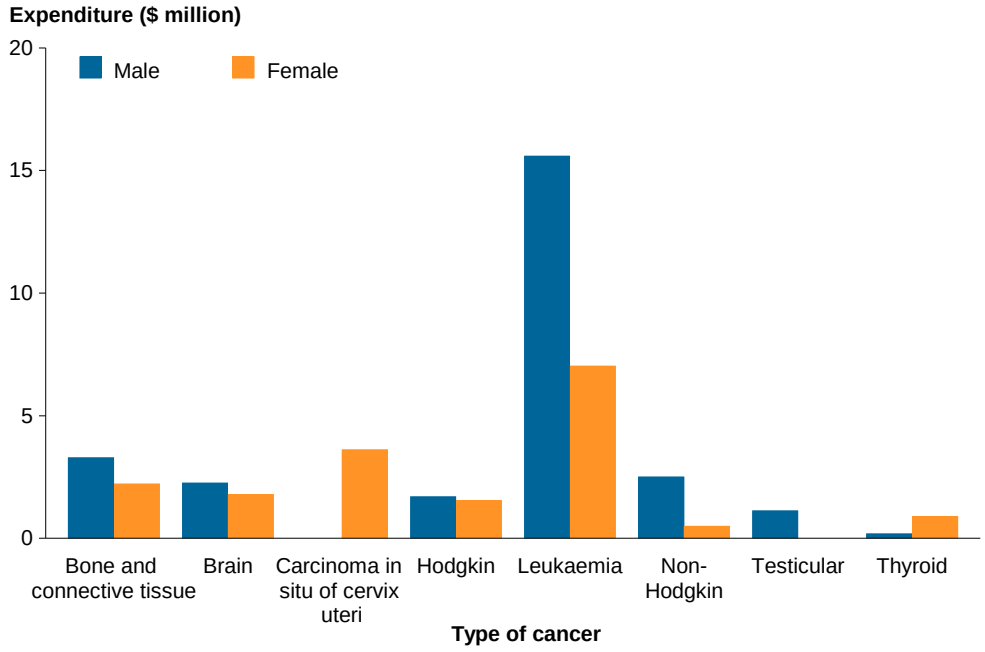
There were 870 new cases of cancer diagnosed in people aged 15–24 in 2007 (466 in males and 404 in females). The six cancers with the highest health system expenditure accounted for 41% of all new cancer cases in 2007 in this age group.

At the end of 2007, there were 3,097 people aged 15–24 (1,668 males and 1,429 females) who had been diagnosed with cancer in the previous 5 years and were still alive. The six cancers with the highest health system expenditure accounted for 47% of all people who had been diagnosed with cancer in the previous 5 years in this age group and were still alive.

There were 135 deaths due to cancer in 15–24-year olds in 2007, of which 78 were male and 57 were female. The six cancers with the highest health system expenditure accounted for 53% of all deaths from cancer in 2007.

In 2008–09, total health system expenditure on cancer for people aged 15–24 totalled $82.89 million ($41.48 million for males and $41.41 million for females).

Leukaemia accounted for the highest expenditure for males and females in this age group, totalling $15.58 million and $7.02 million respectively (see Figure 5.3).



Note: Data for this figure are in Appendix Table C5.3.

Source: AIHW disease expenditure database.

Figure 5.3: Health system expenditure, males and females aged 15– 24, by type of cancer, Australia, 2008–09

Expenditure on cancer for people aged 25–64

In 2008–09, health system expenditure on cancer for people aged 25–64 was $1,873 million, accounting for 41.4% of total health expenditure on cancer. The six cancers with the highest health system expenditure for people aged 25–64 accounted for 38% of total cancer expenditure for this group (Table 5.3).

Colorectal cancer accounted for the highest expenditure for this age group, totalling $143.58 million (7.7%). This was followed by breast cancer totalling $137.69 million (7.4%) and non-melanoma skin cancer at $126.19 million (6.7%).

Expenditure on *hospital admitted patient services* totalled $1,542.11 million (82.3% of total expenditure in this age group), followed by *out-of-hospital services* at $208.19 million (11.1%), and *prescription pharmaceuticals* at $122.66 million (6.5%).

Table 5.3: Expenditure by area of expenditure for cancer, people aged 25–64, 2008–09; number of new cancer cases and deaths, 2007

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
All persons								
Colorectal	119.37	5.49	18.72	143.58	7.7	4,879	1,043	15,157
Breast	90.24	17.49	29.96	137.69	7.4	8,067	1,161	34,028
NMSC[d]	68.00	54.18	4.01	126.19	6.7	n.a.	74	861
Leukaemia	115.53	2.07	4.23	121.84	6.5	1,075	320	3,172
Prostate	81.44	8.40	13.45	103.29	5.5	7,136	231	21,789
Non-Hodgkin lymphoma	78.46	2.28	0.24	80.99	4.3	1,729	313	6,483
Total (no.)	*533.04*	*89.92*	*70.62*	*713.58*	*38.1*	*23,134*	*3,142*	*81,490*
Total (%)[e]	*36*	*43*	*58*	. .	. .	*51*	*29*	*53*
Other cancers	989.07	118.27	52.04	1,159.38	61.9	22,670	7,517	73,597
All cancers	**1,542.11**	**208.19**	**122.66**	**1,872.96**	**100.0**	**45,804**	**10,659**	**155,087**

(Continued)

Table 5.3 (continued): Expenditure by area of expenditure for cancer, people aged 25–64, 2008–09; number of new cancer cases and deaths, 2007

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
Males								
Prostate	81.44	8.40	13.45	103.29	11.2	7,136	231	1,789
Colorectal	69.28	3.11	16.64	89.04	9.7	2,742	603	8,392
NMSC[d]	41.85	29.86	2.44	74.15	8.0	n.a.	154	487
Leukaemia	64.63	1.32	4.21	70.15	7.6%	666	194	1,949
Brain	30.27	0.08	23.37	53.73	5.8	466	341	953
Non-Hodgkin lymphoma	50.21	1.73	0.19	52.13	5.7	964	202	3,655
Total (no.)	*337.68*	*44.50*	*60.30*	*442.49*	*48.0*	*12,128*	*1,626*	*17,225*
Total (%)[e]	*44*	*52*	*79*	*. .*	*. .*	*51*	*28*	*23*
Other cancers	423.63	40.40	15.59	479.62	52.0	11,772	4,213	36,434
All cancers	**761.31**	**84.9**	**75.89**	**922.11**	**100.0**	**23,900**	**5,839**	**73,659**
Females								
Breast	89.93	17.40	29.91	137.24	14.4	8,030	1,153	33,875
Colorectal	50.09	2.37	2.08	54.54	5.7	2,137	440	6,765
NMSC[d]	26.15	24.32	1.57	52.04	5.5	n.a.	94	374
Leukaemia	50.91	0.75	0.03	51.69	5.4	409	126	1,223
Lung	26.89	1.64	0.60	29.14	3.1	1,207	824	1,892
Non-Hodgkin lymphoma	28.25	0.56	0.05	28.86	3.0	765	111	2,828
Total (no.)	*272.22*	*47.05*	*34.24*	*353.51*	*37.2*	*12,642*	*2,673*	*46,957*
Total (%)[e]	*35*	*38*	*73*	*. .*	*. .*	*58*	*55*	*58*
Other cancers	508.58	76.25	12.53	597.34	62.8	8,997	2,172	34,471
All cancers	**780.80**	**123.29**	**46.77**	**950.85**	**100.0**	**21,904**	**4,820**	**81,428**

(a) Out-of-hospital services includes, unreferred attendances, imaging, pathology and other medical services.

(b) Deaths registered in 2007 are based on the final version of cause-of-death data.

(c) See glossary for definition.

(d) Non-melanoma skin cancer (NMSC). The two most common types of NMSC are not notifiable diseases. Therefore the incidence and prevalence of NMSC are unknown.

(e) Expenditure on the six most expensive cancers as per cent of all cancers.

Notes

1. The mortality data in the AIHW National Mortality Database were provided by the Registries of Births, Deaths and Marriages and the National Coronial Information System and coded by the Australian Bureau of Statistics.
2. Number of deaths in the table refers to the year of occurrence of death.

Sources: AIHW disease expenditure database and AIHW; AIHW Australian Cancer Database 2009; analysis of AIHW National Mortality Database.

There were 45,804 new cases of cancer diagnosed in people aged 25–64 in 2007 (23,900 for males and 21,904 for females). The six cancers with the highest health system expenditure accounted for 51% of all new cancer cases in 2007 in this age group.

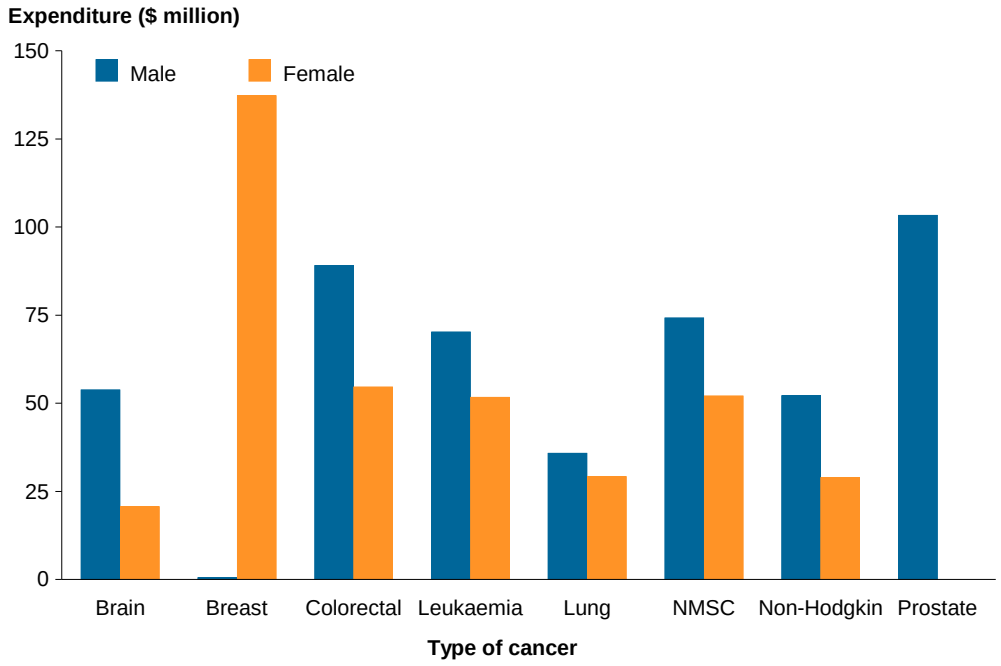
At the end of 2007, there were 155,087 people aged 25–64 (73,659 males and 81,428 females) who had been diagnosed with cancer in the previous 5 years and were still alive. The six

cancers with the highest health system expenditure accounted for 53% of all people who had been diagnosed with cancer in the previous 5 years in this age group and were still alive.

There were 10,659 deaths due to cancer among people aged 25–64 in 2007 (5,839 males and 4,820 females). The six cancers with the highest health system expenditure accounted for 29% of all deaths in this age group.

The 25–64 year age group was the only age group for which total health system expenditure on cancer was higher for females than males, totalling $950.85 million and $922.11 million respectively.

Prostate cancer accounted for the highest expenditure for males (totalling $103.29 million), and breast cancer in females (totalling $137.24 million) (Figure 5.4). Colorectal cancer accounted for the second highest expenditure for both males and females at $89.04 million and $54.54 million respectively.



Note: Data for this figure are in Appendix Table C5.4.

Source: AIHW disease expenditure database.

Figure 5.4: Health system expenditure, males and females aged 25–64, by type of cancer, Australia, 2008–09

Expenditure on cancer for people aged 65 and over

In 2008–09, health system expenditure on cancer for people aged 65 and over was $2,448 million, accounting for 54.1% of total health expenditure on cancer. The six cancers with the highest health system expenditure for persons aged 65 and over accounted for 48% of total cancer expenditure for this group (Table 5.4).

Colorectal cancer accounted for the highest expenditure for this age group, totalling $283.11 million (11.6%). This was followed by prostate cancer, totalling $241.60 million (9.9%), and non-melanoma skin cancer $239.47 million (9.8%).

Expenditure on *hospital admitted patients* totalled $1,851.61 million (75.6% of total expenditure in this age group), followed by *prescription pharmaceuticals* at $403.17 million (16.5%) and *out-of-hospital services* at $193.38 million (7.9%).

Table 5.4: Expenditure by area of expenditure for cancer, people aged 65 and over, 2008–09; number of new cancer cases and deaths, 2007

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
All persons								
Colorectal	267.87	12.76	2.48	283.11	11.6	9,708	3,131	32,142
Prostate	112.89	21.82	106.89	241.60	9.9	12,436	2,757	50,798
NMSC[d]	156.27	77.50	5.70	239.47	9.8	n.a.	386	1,491
Non-Hodgkin lymphoma	84.38	4.51	85.56	174.45	7.1	2,286	1,046	7,234
Lung	128.59	8.38	7.13	144.10	5.9	7,006	5,704	8,500
Breast	56.69	11.44	30.38	98.51	4.0	4,680	1,586	21,923
Total (no.)	*806.69*	*136.41*	*238.14*	*1,181.24*	*48.2*	*36,596*	*14,610*	*122,088*
Total (%)[e]	*44*	*71*	*59*	*. .*	*. .*	*59*	*49*	*64*
Other cancers	1,044.92	56.98	165.03	1,266.93	51.8	25,758	15,456	67,557
All cancers	**1,851.61**	**193.38**	**403.17**	**2,448.17**	**100.0**	**62,354**	**30,066**	**189,645**

(Continued)

Table 5.4 (continued): Expenditure by area of expenditure for cancer, people aged 65 and over, 2008–09; number of new cancer cases and deaths, 2007

	Hospital admitted patients ($m)	Out-of-hospital ($m)[a]	Pre-scription pharma-ceuticals ($m)	Total expenditure ($m)	Proportion of all cancer expenditure (%)	New cases in 2007 (No.)	Deaths in 2007 (No.)[b]	5-year pre-valence (No.)[c]
Males								
Prostate	112.89	21.82	106.89	241.60	16.9	12,436	2,757	50,798
Colorectal	148.40	8.80	0.97	158.17	11.0	5,217	1,667	17,433
NMSC[d]	93.89	46.76	3.22	143.87	10.0	n.a.	261	926
Non-Hodgkin lymphoma	45.65	2.46	43.13	91.24	6.4	1,212	548	3,834
Lung	78.64	5.65	2.44	86.73	6.1	4,389	3,591	5,189
Oesophagus	18.98	1.70	32.11	52.80	3.7	555	511	779
Total (no.)	*498.45*	*87.19*	*188.76*	*774.41*	*54.0*	*24,101*	*9,335*	*78,959*
Total (%)[e]	*47*	*75*	*75*	*. .*	*. .*	*63*	*54*	*68*
Other cancers	565.03	29.47	64.40	658.90	46.0	13,940	7,889	37,401
All cancers	**1,063.48**	**116.66**	**253.16**	**1,433.31**	**100.0**	**38,041**	**17,224**	**116,360**
Females								
Colorectal	119.48	3.96	1.51	124.94	12.3	4,491	1,464	14,709
Breast	56.09	11.27	29.35	96.71	9.5	4,614	1,569	21,649
NMSC[d]	62.38	30.74	2.48	95.6	9.4	n.a.	125	565
Non-Hodgkin lymphoma	38.73	2.05	42.43	83.21	8.2	1,074	498	3,400
Lung	49.95	2.73	4.69	57.37	5.7	2,617	2,113	3,311
Leukaemia	27.30	1.31	0.03	28.63	2.8	597	440	1,458
Total (no.)	*353.91*	*52.06*	*80.49*	*486.46*	*47.9*	*13,581*	*6,209*	*45,092*
Total (%)[e]	*45*	*68*	*54*	*. .*	*. .*	*56*	*48*	*62*
Other cancers	434.21	24.67	69.52	528.40	52.1	10,732	6,633	28,193
All cancers	**788.13**	**76.72**	**150.01**	**1,014.86**	**100.0**	**24,313**	**12,842**	**73,285**

(a) Out-of-hospital services includes unreferred attendances, imaging, pathology and other medical services.

(b) Year of death in table refers to the year of occurrence of death.

(c) See glossary for definition.

(d) Non-melanoma skin cancer (NMSC). The two most common types of NMSC are not notifiable diseases. Therefore the incidence and prevalence of NMSC are unknown.

(e) Expenditure on the six most expensive cancers as per cent of all cancers.

Notes

1. The mortality data in the AIHW National Mortality Database were provided by the Registries of Births, Deaths and Marriages and the National Coronial Information System and coded by the Australian Bureau of Statistics.
2. Number of deaths in the table refers to the year of occurrence of death.

Sources: AIHW disease expenditure database and AIHW; AIHW Australian Cancer Database 2009; analysis of AIHW National Mortality Database.

There were 62,354 new cases of cancer diagnosed among people 65 and over in 2007 (38,041 for males and 24,313 for females). The six cancers with the highest health system expenditure accounted for 59% of all new cancer cases in 2007 in this age group.

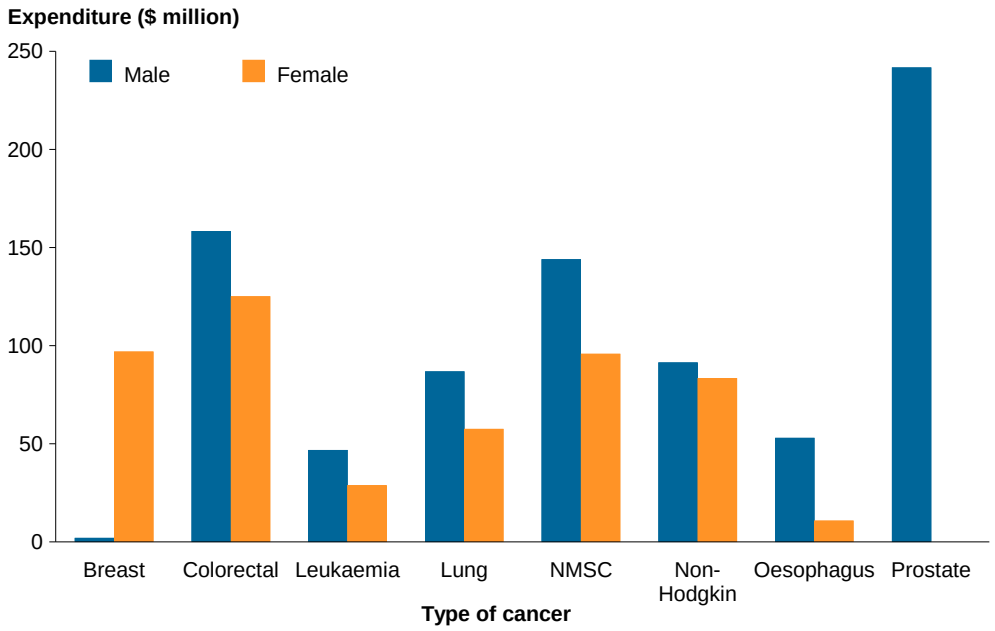
At the end of 2007, there were 189,645 people aged 65 years and over (116,360 males and 73,285 females) who had been diagnosed with cancer in the previous 5 years and were still

alive. The six cancers with the highest health system expenditure accounted for 64% of expenditure for of all people who had been diagnosed with cancer in the previous 5 years in this age group and were still alive.

There were 30,066 deaths due to cancer among the 65 and over age group in 2007 (17,224 males and 12,842 females). The six cancers with the highest health system expenditure for people age 65 and over accounted for 49% of all deaths from cancer in 2007. In 2008–09, total health system expenditure on cancer in people aged 65 and over totalled $1,433.31 million for males and $1,014.86 million for females.

The highest expenditure on cancer for people in this age group was on prostate cancer for males (totalling $241.60 million) and colorectal cancer for females at ($124.94 million) (Figure 5.5).

Colorectal cancer accounted for the second highest expenditure for males, totalling $158.17 million. For females, breast cancer accounted for the second highest expenditure at $96.71 million.



Note: Data for this figure are in Appendix Table C5.5.

Source: AIHW disease expenditure database.

Figure 5.5: Health system expenditure, males and females aged 65 and over, by type of cancer, Australia, 2008–09

6 Change over time in expenditure on cancer 2000–01, 2004–05 and 2008–09

This chapter describes the change in health system expenditure between 2000–01, 2004–05 and 2008–09, adjusting for inflation.

The allocation of health system expenditure statistics over time should be interpreted with caution. Variations in hospital admission practices, including cancer-related chemotherapy procedures, differ between states and territories. The types of facilities providing services also change over time. Hospitals often provide same-day chemotherapy for outpatients on a non-admitted basis.

For example, out-patient activity in South Australia increased between 2006–07 and 2007–08, largely due to a change in admission practices for chemotherapy and selected endoscopies. In 2006–07, these were treated as same-day admissions, and from 2007–08 onwards, they were treated as outpatient occasions of service (AIHW 2012b).

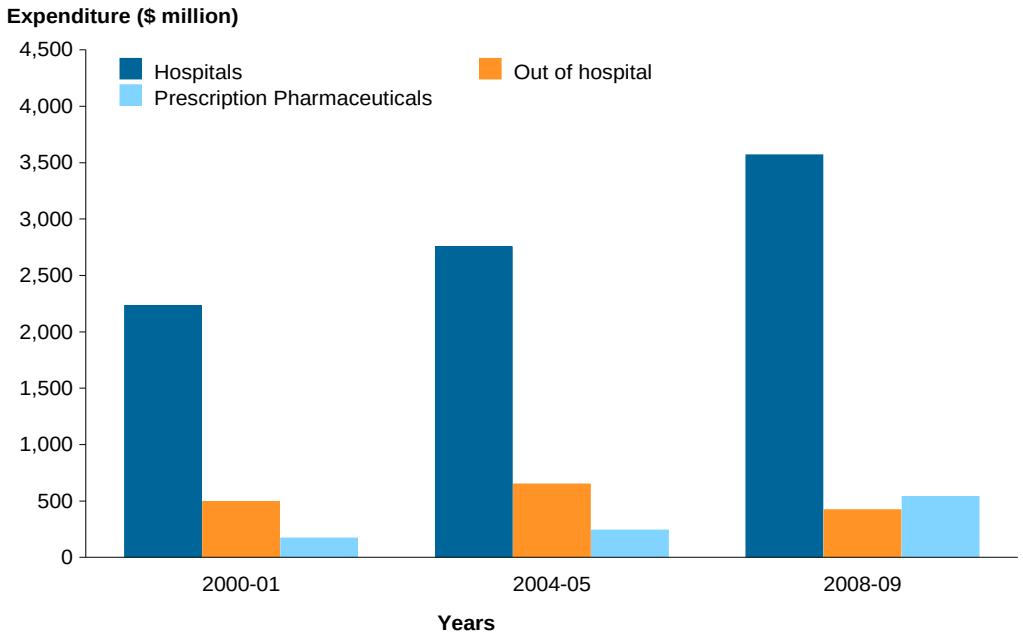
From 2000–01 to 2008–09, total health system expenditure on cancer increased by 56% from $2,894 million to $4,526 million (constant prices). This compares to a total increase of 60% for all chronic diseases—from $40,699 million in 2000–01 to $65,129 million in 2008–09. Over the same period, total health system expenditure (including chronic disease and other expenditure) increased by 52% from $74,679 million in 2000–01 to $113,661 million in 2008–09.

Expenditure for *hospital admitted patient services* was highest in all three years compared with *out-of-hospital services* and *prescription pharmaceuticals*, increasing from $2,232 million in 2000–01, then $2,753 million in 2004–05, and ending at $3,566 million in 2008–09 (Figure 6.1).

Prescription pharmaceuticals also had a steady increase in expenditure from $169 million in 2000–01, then $239 million in 2004–05, and $540 million in 2008–09.

Expenditure for *out-of-hospital services* increased between 2000–01 ($493 million) and 2004–05 ($648 million) but then reduced considerably in 2008–09 ($420 million).

Expenditure estimates are, in part, based on survey data, so caution is required when interpreting differences and changes over time.



Note: Data for this figure are in Appendix Table C6.1.

Source: AIHW disease expenditure database.

Figure 6.1: Total health system expenditure on cancer by health-sector, Australia, 2000–01, 2004–05 and 2008–09

7 Discussion

With 1 in 2 Australians developing cancer, and 1 in 5 dying from it before the age of 85, cancer has a major impact on individuals, their families and the health-care system (AIHW & AACR 2012).

Cancer prevalence is trending upwards, both in Australia and globally, with an estimated 12.7 million cancer cases around the world in 2008. This number is expected to increase to 21 million by 2030 (WCRF International 2013). This is due to a range of factors, including:

- increasing population
- increased life expectancy
- improved cancer management and treatment (leading to improved survival)
- ageing population.

In Australia, total health system expenditure on cancer in 2008–09 (excluding national population screening programs) totalled $4,526 million. This has resulted in cancer moving from the ninth most expensive chronic disease in 2000–01 to the sixth in 2008–09, overtaking respiratory and digestive system diseases.

Health system expenditure on *hospital admitted patient services* accounted for the highest proportion of expenditure on cancer at 77% ($2,232 million) in 2000–01, 76% ($2,753 million) in 2004–05 and 79% ($3,566 million) in 2008–09.

The health sector that saw the greatest proportional increase in expenditure during this period was *prescription pharmaceuticals,* which increased from 6% of health system expenditure ($169 million) in 2000–01, to 7% ($239 million) in 2004–05, and 12% ($540 million) in 2008–09. New pharmaceuticals that became available, including chemotherapy drugs, could have contributed to changes in expenditure on cancer over time.

Out-of-hospital medical expenses accounted for 17% ($493 million) of health system expenditure in 2000–01, increasing slightly to 18% ($648 million) in 2004–05, but then decreasing considerably in 2008–09 to 9% ($420 million).

Expenditure for *out-of-hospital services* and *prescription pharmaceuticals* are inextricably linked because patients are prescribed medicines directly by their general practitioner or specialist physician. Expenditure for medicines prescribed for admitted patents are included in *hospital admitted patient* expenditure.

Expenditure estimates are largely based on survey data, so caution is required when interpreting outcomes. Estimates are believed to underestimate the true level of health system expenditure in Australia. The limitations of the data and the methods used are important and have been explained in detail in Chapter 2.

The three national population screening programs are designed to reduce illness and death through early detection of cancer and pre-cancerous abnormalities with effective follow-up treatment. The programs are BreastScreen Australia, the National Cervical Screening Program, and the National Bowel Cancer Screening Program.

Expenditure on national population screening programs totalled $332 million in 2008–09, accounting for around 6.8% of total health system expenditure on cancer.

Breast cancer screening accounted for the highest proportion of this expenditure, totalling $175 million, followed by cervical screening at $125 million, and bowel cancer screening at $33 million.

The bowel cancer screening program currently offers free screening using a faecal occult blood test to people turning 50, 55, 60 and 65 years of age. The program is scheduled to be expanded from July 2015, with phasing in of biennial screening for those aged 50 to 74. Expenditure for this program is expected to increase as a result of the increase in participation.

Health system expenditures for cancer, as a proportion of total health system expenditure for chronic diseases, has remained at 7% from 2000–01 ($2,894 million) to 2008–09 ($4,526 million) (population screening programs excluded).

Appendix A Cancer codes

Cancer site/type	ICD-10 codes
Lip, oral cavity and pharynx	
Lip	C00
Tongue	C01–C02
Mouth	C03–C06
Salivary glands	C07–C08
Oropharynx	C09–C10
Nasopharynx	C11
Hypopharynx	C12–C13
Other sites in pharynx, etc.	C14
Digestive organs	
Oesophagus	C15
Stomach	C16
Small intestine	C17
Bowel	C18–C20
Anus	C21
Liver	C22
Gallbladder & bile ducts	C23–C24
Pancreas	C25
Other digestive organs	C26
Respiratory system and intrathoracic organs	
Nose, sinuses, etc.	C30–C31
Larynx	C32
Lung	C33–C34
Other thoracic and respiratory organs	C37–C39
Bone	C40–C41
Skin	
Melanoma of the skin	C43
Non-melanoma of the skin	C44[(a)]
Mesothelioma and soft tissue	
Mesothelioma	C45
Kaposi sarcoma	C46
Peritoneum	C48
Other soft tissue	C47, C49
Breast	C50

(continued)

Cancer site/type	ICD-10 codes
Female genital organs	
Vulva	C51
Vagina	C52
Cervix	C53
Uterus	C54–C55
Ovary	C56
Other female genital organs and placenta	C57–C58
Male genital organs	
Penis	C60
Prostate	C61
Testis	C62
Other male genital organs	C63
Urinary tract	
Kidney	C64
Bladder	C67
Other urinary organs	C65–C66, C68
Eye, brain and other parts of the central nervous system	
Eye	C69
Brain	C71
Other central nervous system	C70, C72
Thyroid and other endocrine glands	
Thyroid	C73
Other endocrine glands	C74–C75
Blood and lymphatic system	
Hodgkin lymphoma	C81
Non-Hodgkin lymphoma	C82–C85
Immunoproliferative cancers	C88
Myeloma	C90
Acute lymphoblastic leukaemia	C91.0
Chronic lymphocytic leukaemia	C91.1
Other and unspecified lymphoid leukaemia	C91.2–C91.9
Total lymphoid cancers	*C81–C85, C88, C90, C91*
Chronic myelogenous leukaemia	C92.1
Other myeloproliferative cancers	C94.1, C94.3, C96.2, D45, D47.1, D47.3
Myelodysplastic syndrome	D46
Acute myeloid leukaemia	C92.0, C92.3–C92.5, C93.0, C94.0, C94.2, C94.4, C94.5

(continued)

Cancer site/type	ICD-10 codes
Unspecified myeloid leukaemia	C92.2, C92.7, C92.9, C93.1–C93.9, C94.7
Total myeloid cancers	*C92–C94, C96.2, D45, D46, D47.1, D47.3*
Other cancers of the blood and lymphatic system	C95, C96.0, C96.1, C96.3–C96.9
Other	
Other and ill-defined sites	C76
Unknown primary site	C80[(b)]
Multiple primary	C97[(c)]
All cancers	**C00–C96[(a)], D45, D46, D47.1, D47.3**

(a) For incidence data, those C44 codes that indicate basal or squamous cell carcinoma of the skin are not included.

(b) For mortality data prior to 2008, the applicable codes are C77–C80.

(c) Of relevance for mortality data only.

Source: AIHW Australian Cancer Database 2009.

Appendix B Data quality statement

Disease expenditure database 2008–09

Summary of key data quality issues

- The Disease Expenditure Database contains estimates of expenditure by disease category, age group and sex for each of the following areas of expenditure: admitted patient hospital services, out-of-hospital medical services, prescription pharmaceuticals, optometrical and dental services, community mental health services, and public health cancer screening.
- Estimates are derived from combining information from the National Hospital Morbidity Database (NHMD), the National Public Hospitals Establishments Database (NPHED), the Health expenditure database, the National Hospital Cost Data Collection (NHCDC) and the Bettering the Evaluation and Care of Health (BEACH) survey.
- The database contains a conservative estimate of total expenditure and equates to around 70% of total recurrent health expenditure.

Description

The Disease Expenditure Database contains estimates of expenditure by disease category, age group and sex for admitted patient hospital services, out-of-hospital medical services, prescription pharmaceuticals, optometrical and dental services, community mental health services and public health cancer screening. Definitions for admitted patient hospital services, out of-hospital medical services and prescription pharmaceuticals are as follows:

Admitted patient hospital costs refer to the cost of services for admitted patients in both public and private acute hospitals and psychiatric hospitals, as well as expenditure on medical services provided to private admitted patients in hospitals.

Out-of-hospital medical expenses refer to the cost for services provided by, or on behalf of, registered medical practitioners that are funded by the Medicare Benefits Schedule (MBS), Department of Veterans' Affairs, compulsory motor vehicle third-party insurance, workers compensation insurance, private health insurance funds, Australian Government premium rebates allocated to medical services, MBS co-payments and other out-of-pocket payments. They also include non-MBS medical services, such as the provision of vaccines for overseas travel, as well as some expenditure by the Australian Government under funding arrangements that are alternatives to the fees for service. They exclude medical services provided to public admitted patients in public hospitals and medical services provided to public patients at outpatient clinics in public hospitals. Also excluded are the costs for medical services provided to private admitted patients in hospitals, which are counted as part of admitted patient costs.

Prescription pharmaceuticals refer to the cost of pharmaceuticals that are listed in the schedule of the pharmaceuticals under the Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (RPBS), for which pharmaceutical benefits have been paid or are payable. Also included are the costs for under copayment prescriptions and private prescriptions. Under copayment prescriptions are those pharmaceuticals listed in the PBS or RPBS, the total costs of which are equal to or less than the statutory patient contribution for the class of patient concerned, while private

prescriptions are those pharmaceuticals dispensed through private prescriptions that do not fulfil the criteria for payment or benefit under the PBS or RPBS.

Estimates are derived from combining information from the National Hospital Morbidity Database (NHMD), the National Public Hospitals Establishments Database (NPHED), the National Hospital Cost Data Collection (NHCDC) and the Health expenditure database.

Proportions derived from the Bettering the Evaluation and Care of Health (BEACH) survey relating to 2007 to 2009 are also used in compiling the estimates for out-of-hospital medical services and prescription pharmaceuticals. The BEACH data were collected by the Family Medicine Research Centre of the University of Sydney in collaboration with the Australian Institute of Health and Welfare.

It is not possible to allocate all expenditure on health goods and services by disease. Expenditure that was not able to be allocated by disease includes: capital expenditure, non-admitted patient hospital services, over-the-counter drugs, other health practitioner services (except optometry), community health services expenditure (except community mental health), expenditure on public health programs (except cancer screening programs), health administration, health aids and appliances, and patient transport (ambulance).

Institutional environment

The Australian Institute of Health and Welfare (AIHW) is a major national agency set up by the Australian Government under the *Australian Institute of Health and Welfare Act 1987* to provide reliable, regular and relevant information and statistics on Australia's health and welfare. It is an independent statutory authority established in 1987, governed by a management board, and accountable to the Australian Parliament through the Health portfolio.

The AIHW aims to improve the health and wellbeing of Australians through better health and welfare information and statistics. It collects and reports information on a wide range of topics and issues, ranging from health and welfare expenditure, hospitals, disease and injury, and mental health, to ageing, homelessness, disability and child protection.

The Institute also plays a role in developing and maintaining national metadata standards. This work contributes to improving the quality and consistency of national health and welfare statistics. The Institute works closely with governments and non-government organisations to achieve greater adherence to these standards in administrative data collections to promote national consistency and comparability of data and reporting.

One of the AIHW's main functions is to work with the states and territories to improve the quality of administrative data and, where possible, to compile national data sets based on data from each jurisdiction, to analyse these datasets and disseminate information and statistics.

The *Australian Institute of Health and Welfare Act 1987*, in conjunction with compliance to the *Privacy Act 1988* (Cwlth), ensures that the data collections managed by the AIHW are kept securely and under the strictest conditions with respect to privacy and confidentiality.

For further information, see the AIHW website <http://www.aihw.gov.au/>.

The BEACH survey data 2007–08 and 2008–09 were collected by the Family Medicine Research Centre of the University of Sydney in collaboration with the Australian Institute of Health and Welfare. Data for the Disease Expenditure Database were derived from data from the NHMD, NPHED and Health Expenditure Database as well as survey based data.

Timeliness

The reference period for this data set is 2008–09. The Disease Expenditure Database can only be updated once the NHMD, NPHED, NHCDC and Health Expenditure Databases have all been updated for the relevant financial year, which is currently a minimum of 15 months after the end of the financial year.

The AIHW first published 2008–09 data from the Disease Expenditure Database in *Australia's health 2012* in June 2012.

Accessibility

The AIHW provides a variety of products that draw upon the Disease Expenditure Database 2008–09. Published products currently available on the AIHW website include:

- *Australia's health 2012*
- *Dementia in Australia*
- *Incontinence in Australia: prevalence, experience and cost.*

Users can request data not available online or in reports via the Expenditure and Economics Unit on (02) 6244 1119 or via email to <expenditure@aihw.gov.au>. Requests that take longer than half an hour to compile are charged for on a cost-recovery basis.

Interpretability

Supporting information on the quality and use of the Disease Expenditure Database are published in *Health system expenditure on disease and injury in Australia, 2004–05 (technical notes)*, available in hard copy or on the AIHW website.

Most important to note is that the Disease Expenditure Database estimates:

- are a conservative estimate based on around 70% of total recurrent health expenditure
- are only one measure of the size of the disease burden on the community (that is, the 'size of the problem')
- are not the same as loss of health due to disease
- should not be regarded as how much would be saved if a specific disease or all diseases were prevented
- are not an estimate of the total economic impact of diseases in the Australian community. This is because the estimates do not include costs that are not accrued by the health system, such as travel costs of patients, costs associated with the social and economic burden on carers and family, and owing to lost quality and quantity of life.

Relevance

Disease expenditure estimates provide a broad picture of the use of health system resources classified by disease group, as well as a reference source for planners and researchers interested in costs and use patterns for particular disease groups.

The Disease Expenditure Database contains a conservative estimate based on around 70% of total recurrent health expenditure.

It is not possible to allocate all expenditure on health goods and services by disease. Expenditure that was not able to be allocated by disease includes: capital expenditure, non-admitted patient hospital services, over-the-counter drugs, other health practitioner

services (except optometry), community health services expenditure (except community mental health), expenditure on public health programs (except cancer screening programs), health administration, health aids and appliances, and patient transport (ambulance).

Readers need to bear in mind that cost-of-illness data only provide estimates of the impact of a disease on health system expenditures. The estimates of the cost of treating and/or preventing a disease cannot be used to indicate the loss of health due to that disease.

Care should be taken not to interpret expenditure associated with disease treatment as simply an estimate of the savings that would result from prevention of disease. Conversion of the opportunity cost—or the benefits forgone—of resources being devoted to disease treatment into expenditure savings involves a number of additional considerations. See, for example, AIHW: Mathers & Penm 1998.

Accuracy

Apart from hospital admitted patient services data, the method for estimating disease expenditure is generally a 'top–down' approach, where total expenditure across the health system is estimated and then allocated to the relevant conditions. Although this method yields consistency, good coverage, and totals that add up to known expenditures, it is not as sensitive or accurate for any specific disease as a detailed 'bottom–up' analysis of actual costs incurred by patients with that disease. In most cases, a more granular analysis is not possible due to a lack of available data.

Both out-of-hospital medical services and prescription pharmaceuticals expenditure estimates draw upon proportions derived from BEACH surveys relating to 2007 to 2009. In each BEACH survey, the vocationally registered GPs and all general practice registrars who claimed a minimum of 375 general practice A1 Medicare items in the most recently available 3 months make up the population from which a sample is drawn (Britt et al. 2009). GPs are randomly selected from this population and approached for participation in the survey. Each BEACH survey includes a sample of 1,000 recognised practising GPs across the country (about a 6% of all recognised practising GPs) completing details for 100 consecutive GP encounters. Each BEACH survey contains details of about 100,000 encounters between GPs and patients (about a 0.1% sample of all general practice encounters) (Britt et al. 2009). For further information regarding data collection methods in BEACH surveys, refer to the *General practice activity in Australia 2008–09* report (Britt et al. 2009). In light of these sampling methods used, time series comparisons of expenditure estimates for out-of-hospital medical services and prescription pharmaceuticals need to be treated with caution. Refer to the data quality statements for the NHMD, NPHED and the Health Expenditure Database for further information on the accuracy of the data within these databases.

Coherence

To ensure consistency between the Disease Expenditure Database and associated burden of disease projects, the disease groups used in the 2008–09 disease expenditure estimates were based on the 176 diseases that were published in the Australian burden of disease studies (AIHW: Mathers et al. 1999; Begg et al. 2007). Extra categories were added to provide a more comprehensive list of diseases and the two categories of 'Symptoms, signs and ill-defined conditions' and 'Other contact with health services' were included to cover some health service expenditures that cannot be allocated by disease.

The methodologies used to estimate expenditures for admitted patient hospital services have remained unchanged between 2004–05 and 2008–09. Hence, time series comparisons for admitted patient hospital services are possible.

While the methodologies used to estimate expenditures for out-of-hospital medical services and prescription pharmaceuticals have also remained unchanged between 2004–05 and 2008–09, the use of the BEACH survey-based data in the methodologies has meant that time series comparisons for these areas of expenditure should be made with caution.

Comparisons over time for optometrical and dental services, community mental health services and public health cancer screening can be made with more confidence.

Implementation date

6 February 2012

Appendix C Detailed statistical tables

Table C1.1: Incidence rates of all cancers combined by age at diagnosis, Australia, 2007

Age Group	Males	Females	Persons
0–4	23.72	19.27	21.55
5–9	10.87	8.46	9.70
10–14	13.55	13.66	13.60
15–19	22.44	21.66	22.06
20–24	39.36	37.76	38.59
25–29	58.36	66.00	62.12
30–34	81.47	114.26	97.86
35–39	114.48	179.04	147.00
40–44	174.53	281.11	228.20
45–49	307.84	420.58	364.77
50–54	566.58	572.27	569.45
55–59	993.37	745.40	868.26
60–64	1,554.26	985.27	1,269.43
65–69	2,239.19	1,247.54	1,738.49
70–74	2,708.10	1,469.90	2,067.01
75–79	3,216.99	1,724.47	2,416.17
80–84	3,581.53	1,989.62	2,665.86
85+	3,798.00	2,075.96	2,661.25

Notes

1. Rates are per 100,000 population and are age-standardised to the Australian population as at 30 June 2001.
2. Cancers coded in ICD-10 as Coo-C97, D45, D46, D47.1 and D47.3 with the exception of those C44 codes which indicate basal or squamous cell carcinoma of the skin.

Source: AIHW ACIM Books 2009.

Table C3.1: National screening program participation numbers, Australia, 2000–01, 2004–05 and 2008–09

	2000–01	2004–05	2008–09
Breast cancer screening[(a)]	1,063,479	1,188,720	1,319,771
Cervical screening[(b)]	3,331,408	3,268,984	3,638,941
Bowel cancer screening[(c)]	0	0	303,951
Total	**4,394,887**	**4,457,704**	**5,232,835**

(a) BreastScreen Australia.

(b) National Cervical Screening Program.

(c) National Bowel Cancer Screening Program.

Source: National Bowel Cancer Screening Program Register; AIHW analysis of state and territory cervical cytology register data; AIHW analysis of BreastScreen Australia data.

Table C3.2: Total health system expenditure on screening programs, Australia, 2000–01, 2004–05 and 2008–09, ($ million)

	2000–01	2004–05	2008–09
Breast cancer screening[(a)]	95.9	118.5	174.5
Cervical screening[(b)]	88.2	103.6	125.2
Bowel cancer screening[(c)]	0.0	0.0	32.5
Total	**184.1**	**222.1**	**332.2**

(a) BreastScreen Australia.

(b) National Cervical Screening Program.

(c) National Bowel Cancer Screening Program.

Source: AIHW disease expenditure database.

Table C3.3: Health system expenditure on chronic disease by disease group and area of expenditure, 2008-09 ($ million)

Chronic disease	Hospital admitted patients ($m)[(a)]	Out-of-hospital ($m)[(b)]	Prescription pharmaceuticals ($m)[(c)]	Other services ($m)[(d)]	Total expenditure by disease ($m)	Proportion of total allocated expenditure (%)
Cardiovascular	4,518	1,537	1,685	—	7,741	10.4
Oral health	265	97	24	6,790	7,176	9.7
Mental disorders	2,695	915	1,057	1,708	6,375	8.6
Musculoskeletal	3,091	1,661	919	—	5,671	7.6
Injuries	4,115	923	146	—	5,184	7.0
Cancer and other neoplasms	3,566	420	540	336	4,862	6.5
Respiratory	2,401	1,343	845	—	4,588	6.2
Digestive system	2,826	550	701	—	4,076	5.5
Genitourinary	2,257	918	279	—	3,453	4.7
Nervous system disorders	1,502	841	762	282	3,387	4.6
Endocrine, nutritional and metabolic	814	615	1,204	—	2,634	3.5
Maternal conditions	2,450	53	10	—	2,514	3.4
Infectious and parasitic	845	556	254	—	1,654	2.2
Skin diseases	667	570	360	—	1,597	2.2
Diabetes mellitus	649	367	505	—	1,521	2.0
Neonatal causes	766	3	0	—	770	1.0
Congenital anomalies	378	30	4	—	411	0.6
Proportion of total (%)	**52.1**	**21.4**	**14.3**	**12.3**	**100.0**	

(a) Public and private acute hospitals and psychiatric hospitals. Includes a preliminary estimate of private medical services provided in hospital.

(b) Out-of-hospital services includes unreferred attendances, imaging, pathology and other medical services.

(c) All pharmaceuticals for which a prescription is required, including private prescriptions and under co-payment prescriptions, and includes over-the-counter medicines such as vitamins and minerals, first aid and would care products, analgesics, feminine hygiene products, cold sore preparations, and a number of complimentary health products that are sold in both pharmacy and other retail outlets.

(d) Includes aged care homes, dental and other professional services, community and public health, and research. Cancer screening is also included.

Source: AIHW disease expenditure database.

Table C4.1: Health system expenditure on major cancers, by sex and age group, Australia, 2008–09 ($million)

	Age group (years)			
Sex	**0–14**	**15–24**	**25–64**	**65+**
		Colorectal		
Males	15,321	281,532	89,039,170	158,167,180
Females	32,660	328,773	54,540,649	124,943,932
		Leukaemia		
Males	19,753,887	15,578,052	70,154,184	46,650,724
Females	17,078,354	7,015,520	51,686,088	28,632,156
		Lung cancer		
Males	1,547	43,584	35,755,786	86,733,002
Females	131,461	61,018	29,138,632	57,366,118
		Non-Hodgkin's lymphoma		
Males	3,007,665	2,492,700	52,130,027	91,242,015
Females	1,420,142	489,867	28,860,107	83,206,243
		Non-melanoma skin cancer		
Males	79,851	959,241	74,146,737	143,868,517
Females	32,038	641,298	52,041,906	95,597,071
		Breast cancer		
Males	—	—	446,492	1,802,204
Females	359,092	319,042	137,243,274	96,709,667
		Prostate cancer		
Males	1,517,549	187,731	103,290,607	241,604,574
Females	—	—	—	—

Source: AIHW disease expenditure database.

Table C5.1: Health system expenditure by sex and age group, Australia, 2008–09 ($million)

Age group (years)	Males	Females	Persons
0–14	70,099,404	$52,027,698	122,127,102
15–24	41,480,864	41,407,453	82,888,317
25–34	49,947,624	74,707,072	124,654,696
35–44	129,970,510	175,552,716	305,523,227
45–54	236,363,594	318,569,675	554,933,270
55–64	505,823,777	382,024,605	887,848,382
65–74	647,009,031	470,049,032	1,117,058,063
75–84	563,673,209	377,317,724	940,990,933
85+	222,627,290	167,490,448	390,117,738

Source: AIHW disease expenditure database.

Table C5.2: Health system expenditure all children aged 0–14, by type of cancer Australia, 2008–09

Cancer type	Total expenditure ($m)
Leukaemia	36,832,242
Brain	11,761,383
Multiple myeloma	11,587,969
Bone and connective tissue	6,211,433
Non-Hodgkin's	4,427,806
Kidney	3,500,229
Liver	1,648,693
Prostate	1,517,549

Source: AIHW disease expenditure database.

Table C5.3 Health system expenditure people aged 15 to 24 years, by type of cancer, Australia, 2008–09

Cancer type	Total expenditure ($m)
Leukaemia	$22,593,572
Bone and connective tissue	5,472,428
Brain	4,024,168
Carcinoma *in situ* of cervix uteri	3,606,425.99
Hodgkin's	3,224,723
Non-Hodgkin's	2,982,567
Testicular	1,118,617
Thyroid	1,046,166

Source: AIHW disease expenditure database.

Table C5.4 Health system expenditure people aged 25 to 64 years, by type of cancer, Australia, 2008–09

Cancer type	Total expenditure ($m)
Colorectal	143,579,819
Breast	137,689,766
Non-melanoma skin cancer	126,188,643
Leukaemia	121,840,272
Prostate	103,290,607
Non-Hodgkin's	80,990,135
Brain	74,306,918
Lung	64,894,418

Source: AIHW disease expenditure database.

Table C5.5 Health system expenditure people aged 65 years and over, by type of cancer, Australia, 2008–09

Cancer type	Total expenditure ($m)
Colorectal	$283,111,112
Prostate	$241,604,574
Non-melanoma skin cancer	$239,465,588
Non-Hodgkin's	$174,448,258
Lung	$144,099,120
Breast	$98,511,871
Leukaemia	$75,282,880
Oesophagus	$63,349,108

Source: AIHW disease expenditure database.

Table C6.1: Total health system expenditure on cancer by area of expenditure, Australia, 2000–01, 2004–05 and 2008–09 ($ million)

	Hospital admitted patient services	Out-of-hospital medical expenses	Prescription pharmaceuticals	Total expenditure
2000–01	2,232	493	169	2,894
2004–05	2,753	648	239	3,640
2008–09	3,566	420	540	4,526

Note: Data excludes cancer screening.

Source: AIHW disease expenditure database.

Glossary

5-year prevalence: The number of people alive at a specific date who were newly diagnosed with cancer in the previous five years.

admitted patient: A patient who undergoes a hospital's formal admission process to receive treatment or care. The treatment and care are provided over a period of time and can occur in hospital or in the person's home (for hospital-in-the-home patients).

Admitted Patient Costs Proportions: A measure used to calculate the cost-per-casemix adjusted separations. It is the ratio of admitted patient costs to total hospital costs, also known as the 'inpatient fraction' (IFRAC).

Anatomical Therapeutic Chemical Classification System code: Assigns therapeutic drugs to different groups according to the organ or system on which they act, as well as their therapeutic and chemical characteristics.

benign: Non-cancerous tumours that can grow larger but do not spread to other parts of the body.

Bettering the Evaluation and Care of Health (BEACH): An ongoing national survey of general practitioners in Australia. It is conducted by the Australian General Practice Statistics and Classification Centre at the University of Sydney. It involves a random sample of about 1,000 general practitioners a year, each of whom records the details of 100 consecutive patient encounters.

constant prices: Constant price expenditure adjusts current prices for the effects of inflation; that is, it aims to remove the effects of inflation.

current prices: The term *current prices* refers to expenditures reported for a particular year, unadjusted for inflation. Changes in current price expenditures reflect changes in both price and volume.

Diagnostic Related Groups: An admitted patient classification system that provides a clinically meaningful way of relating the number and type of patients treated in a hospital (that is, its casemix) to the resources required by the hospital.

***in situ*:** A Latin term meaning in place or position; undisturbed.

Medicare Benefits Schedule (MBS): A Department of Health list that is part of the Medicare Benefits Scheme, the aim of which is to provide an entitlement to benefits for medical and hospital services for all Australian residents.

metastasis: the process by which cancerous cells are transferred from one part of the body to another, for example, via the lymphatic system or the bloodstream.

Pharmaceutical Benefits Scheme (PBS): The Australian Government–funded scheme that subsidises the cost of a wide range of pharmaceutical drugs and covers all Australians to help them afford standard medications.

Repatriation Pharmaceutical Benefits Scheme (RPBS): This scheme provides assistance to eligible veterans (with recognised war, or service-related disabilities) and their dependants for both pharmaceuticals listed on the PBS and a supplementary repatriation list, at the same cost as patients entitled to the concessional payment under the PBS.

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Findings include:

- Cancer and other neoplasms ranked sixth in terms of estimated health system expenditure on chronic diseases, accounting for 6.9% of total health system expenditure on all chronic diseases.
- Expenditure on national population screening programs totalled $332 million.
- From 2000–01 to 2008–09, total health system expenditure on cancer increased by 56% from $2,894 million to $4,526 million.