

Cancer survival and prevalence in Australia

Cancers diagnosed from 1982 to 2004

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- coordinate and liaise between the wide range of organisations, groups and service providers with an interest in cancer care and support
- guide improvements to cancer prevention and care
- ensure treatments are based on the best available evidence
- make recommendations to the Australian Government about cancer policy and priorities
- work with the research community to develop and fund research programs to improve cancer prevention and care
- help implement Australian Government policies and programs in cancer control.

The Australasian Association of Cancer Registries (AACR) is a collaborative body representing state and territory cancer registries in Australia and the cancer registries of New Zealand and Tonga. Most are members of the International Association of Cancer Registries (IACR). The AACR was formed in November 1982 to provide a formal mechanism for promoting uniformity of collection, classification and collation of cancer data nationally.

The objectives of the AACR are to:

- Achieve national agreement on cancer-specific data definitions and coding and to encourage compliance with such agreements. As far as possible, data definitions and coding should be consistent with existing IACR protocols and conventions.
- Facilitate the production of Australian national statistical publications on cancer that are comparable with each other and with international statistical publications.
- Improve the operational efficiency and data completeness and quality of member cancer registries through collaborative sharing of information.
- Contribute to national cancer control development through the regular and timely publication of local and national cancer statistics and the provision of data for cancer control research and health promotion.
- Contribute national data to international publications of the IACR.
- Contribute to international cancer coding and statistical analysis developments via members' involvement with the IACR.
- Facilitate national epidemiological research projects on cancer (given appropriate local and AIHW ethics committee approvals).

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Cancers diagnosed from 1982 to 2004

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the Australasian Association of Cancer Registries**

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Foreword

This report on cancer survival and prevalence in Australia is the first in what is planned to be a series of collaborations between Cancer Australia, the Australian Institute of Health and Welfare and the Australasian Association of Cancer Registries to support Cancer Australia's National Cancer Data Strategy in assisting research and planning to reduce the impact of cancer in Australia.

It achieves a number of other milestones in cancer information in Australia:

- It is the first national report on prevalence, and the findings highlight both the burden of cancer and the challenge faced in reducing that burden. The finding that almost 17% of males and 12% of females aged 65 years and over in the Australian population had been diagnosed with cancer during the previous 23 years and were still alive supports the anecdote that 'everyone has either had cancer or knows someone with cancer'. Overall there were 655,000 people at the end of 2004 who had been diagnosed with invasive cancer during the previous 23 years and who were still alive. These figures exclude those with a history of non-melanocytic skin cancer. Notably, an estimated 400,000 new cases of non-melanocytic skin cancer are diagnosed in Australia each year.
- From a cancer workforce planning viewpoint, existing incidence data have now been supplemented by 1-year prevalence numbers of over 81,000 persons, most of whom would be undergoing intensive first-year cancer treatment, and 5-year prevalence numbers of almost 300,000 persons, many of whom would either be receiving initial intensive treatment or ongoing follow-up management.
- The survival data demonstrate continuing gains for most cancers across the age groups, with the greatest gains in the 50–59 and 60–69 year age groups which are those primarily targeted by public health programs, community education and general practitioner health checks. However, the report also finds a lack of progress in increasing survival for some cancers, including cancers of the brain and bladder, and that survival reduces with increasing geographic remoteness. Survival is also lower for people living in low socioeconomic status areas compared with those living in high socioeconomic status areas.

This report highlights the need to better understand to what extent the gains in survival are being achieved by early detection of cancer and improvements in treatment, and which of these factors is most effective in increasing survival. At present there is no national collection of data on stage of cancer at diagnosis, nor of treatment by stage. It is pleasing that the development of clinical cancer registries to collect this information is occurring to some extent in most states; basic information on extent of disease has been collected by the New South Wales Central Cancer Registry for many years and helps shed some light on these issues.

There is also a need to research further the contributors to lower survival for people living in rural and remote areas and low socioeconomic status areas.

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The report would not have been possible without the provision of data by, and support of, the state and territory members of the Australasian Association of Cancer Registries who also assisted in determining the scope and reviewing the content. Deaths data in the National Death Index were provided by the Registrars of Births Deaths and Marriages in all states and territories. The National Death Index contributes greatly to survival analyses for many cancer and other health research studies in Australia.

Abbreviations

AACR	Australasian Association of Cancer Registries
ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ASGC	Australian Standard Geographical Classification
CI	confidence interval
ICD-10	International Classification of Diseases, 10th Revision
IR	Inner Regional (area)
IRSD	Index of Relative Socioeconomic Disadvantage
MC	Major Cities
NMD	National Mortality Database
NMSC	non-melanocytic skin cancer
OR	Outer Regional (area)
R	Remote (area)
SEIFA	Socioeconomic Indexes for Areas
SES	socioeconomic status
SLA	statistical local area
VR	Very Remote (area)

Summary

This report by the Australian Institute of Health and Welfare (AIHW), Cancer Australia and the Australasian Association of Cancer Registries (AACR) aims at providing a comprehensive update on the changes in cancer survival in Australia since the first national report was published in 2001. For the first time, it presents national prevalence statistics other than estimates previously produced by the Australian Bureau of Statistics for private households from National Health Surveys.

The report includes Australian relative survival and prevalence statistics for 1.6 million invasive cancer cases diagnosed between 1982 and 2004 and followed to the end of 2006. Relative survival is examined by cancer site, sex, age, period of diagnosis, survival time, geographic region and socioeconomic status. In addition, the report provides prevalence calculations by cancer site, sex, age, duration since diagnosis, region and socioeconomic status.

Key findings

Survival trends

- For both males and females, all-cancer 5-year relative survival increased significantly for diagnoses made during 1998–2004 compared with diagnoses made during earlier time periods back to 1982–1986. Apart from artificial increases in survival from lead-time and related effects, this increase is considered to reflect real gains from earlier detection and treatment advances.
- The increase in survival over time was generally greater for males than for females. All-cancer 5-year relative survival for males increased from 41% in 1982–1986 to 58% in 1998–2004, compared with the increase from 53% to 64% for females.
- For males, the cancers that showed the greatest increase in 5-year relative survival were prostate cancer (57% in 1982–1986 and 85% in 1998–2004), kidney cancer (45% in 1982–1986 and 66% in 1998–2004) and non-Hodgkin lymphoma (46% in 1982–1986 and 62% in 1998–2004).
- For females, the cancers that showed the greatest increase in 5-year relative survival were kidney cancer (49% in 1982–1986 and 66% in 1998–2004), breast cancer (72% in 1982–1986 and 88% in 1998–2004) and non-Hodgkin lymphoma (48% in 1982–1986 and 63% in 1998–2004).
- Brain cancer showed no significant change in survival between 1982–1986 and 1998–2004.
- Bladder cancer survival decreased significantly from 1982–1986 (69% for males, 65% for females) to 1998–2004 (62% for males, 55% for females). This finding for bladder cancer might be due to changes in the coding of this cancer over time in Australia or changes in the age distribution at diagnosis.

Survival by selected cancer site

- Cancers with the highest 5-year relative survival in 1998–2004 were testicular cancer (97%), thyroid cancer (93%), melanoma of the skin (92%), breast cancer (88%) and prostate cancer (85%).
- Cancers with the lowest 5-year relative survival in 1998–2004 were pancreatic cancer (4.6%), cancer of unknown primary site (9.1%), lung cancer (12%), brain cancer (19%) and stomach cancer (25%).

Survival by age at diagnosis

- For diagnoses in 1998–2004, all-cancer 5-year relative survival was highest for the 20–29 year age group for both males (86%) and females (89%).
- For both males and females, a significant increase in all-cancer 5-year relative survival occurred for all age groups under 90 years from 1982–1986 to 1998–2004.
- Survival showed the greatest increase for age groups targeted by screening programs for the over-50s. In particular, these screening programs have targeted specific age groups and underlying cancers that benefit from early detection and where incidence is high enough to lead to benefits from screening. Accordingly, all-cancer 5-year relative survival showed the greatest increase for the 50–59 year age group between 1982–1986 and 1998–2004, from 42% to 65% for males and 58% to 76% for females. The second greatest increase was in the 60–69 year age group, from 39% to 62% for males and from 50% to 66% for females.

Survival for children with cancer

- Cancer survival for children aged 0–14 years was high, with an all-cancer 5-year relative survival of 79% for children diagnosed in 1998–2004.
- For both boys and girls aged 0–14 years, all-cancer 1-, 5- and 10-year relative survival increased significantly between 1982–1986 and 1998–2004.
- Of the three most common childhood cancers, only leukaemia showed a significant increase in 5-year survival from 64% in 1982–1986 to 83% in 1998–2004.
- For children aged 0–14 years, survival from cancers of the brain and central nervous system and of bone and connective tissue showed no significant increase between 1982–1986 and 1998–2004.

Survival for older Australians with cancer

- Cancer survival for Australians aged 65 years and over was lower than for younger age groups but has been increasing significantly. All-cancer 5-year relative survival for persons aged 65 years and over was 38% for those diagnosed in 1982–1986 and 51% for those diagnosed in 1998–2004.
- All of the five most common cancers in older Australians (colorectal cancer, lung cancer, breast cancer, prostate cancer and melanoma of the skin) showed a significant increase in 1-, 5- and 10-year relative survival between 1982–1986 and 1998–2004.

Survival by region

- Cancer survival decreased with increasing remoteness for persons diagnosed in 1997–2004. This trend was more pronounced for males than for females, where only marginal differences were observed.
- For males, all-cancer 5-year relative survival was 59% in Major Cities, 58% in Inner Regional areas, 56% in Outer Regional areas and 54% in Remote and Very Remote areas.
- For females, all-cancer 5-year relative survival was similar across regions – 64% in Major Cities and Inner Regional areas, 62% in Outer Regional areas and 63% in Remote and Very Remote areas.
- In Inner Regional areas and Outer Regional areas compared with Major Cities, the cancer that had the lowest 5-year survival was stomach cancer for both males and females.
- In Remote and Very Remote areas compared with Major Cities, only thyroid cancer for males had significantly lower 5-year survival.

Survival by socioeconomic status

- For both males and females, all-cancer 1- and 5-year relative survival increased with socioeconomic advantage for cancers diagnosed in 2000–2004.
- For diagnoses made in 2000–2004, all-cancer 5-year relative survival was 54% for males and 61% for females living in areas of the lowest socioeconomic status quintile. This compares with 65% relative survival for males and 68% relative survival for females living in areas of the highest socioeconomic status quintile at the time of diagnosis.
- Cancers that had the greatest difference in 5-year relative survival between the lowest and highest socioeconomic status area quintiles were non-Hodgkin lymphoma for males (59% compared with 67%) and cervical cancer for females (65% compared with 78%).

Prevalence

- At the end of 2004, 1-year prevalence was 81,225 persons (0.4% of the Australian population) and 5-year prevalence was 297,142 persons (1.5%); 23-year prevalence was 654,977 persons, which represented 3.2% of the Australian population (3.1% of males and 3.3% of females).
- For persons aged 50 years and over, 9.0% of the Australian population (9.3% of males and 8.7% of females) had been diagnosed with cancer during the last 23 years and were still alive at the end of 2004. This proportion increased for persons aged 65 years and over, where 14% of the population (17% of males and 12% of females) had been diagnosed with cancer in the last 23 years and were still alive.
- For males, the three most prevalent types of cancer in 2004 were prostate cancer (5-year prevalence 53,296; 23-year prevalence 98,485), melanoma of the skin (5-year prevalence 23,514; 23-year prevalence 59,947) and colorectal cancer (5-year prevalence 23,148; 23-year prevalence 48,084).
- For females, the three most prevalent types of cancer in 2004 were breast cancer (5-year prevalence 53,051; 23-year prevalence 129,438), colorectal cancer (5-year prevalence 18,940; 23-year prevalence 43,286) and melanoma of the skin (5-year prevalence 18,697; 23-year prevalence 56,235).

- The 5-year prevalence estimates for Outer Regional and Remote and Very Remote areas were lower than those for Major Cities and Inner Regional areas because of relatively lower incidence and lower survival. The prevalence estimates per 100,000 population were 1,425 for Major Cities, 1,422 for Inner Regional areas, 1,303 for Outer Regional areas and 1,102 for Remote and Very Remote areas combined.
- The 5-year prevalence of 1,555 per 100,000 population for cancer survivors living in areas of the highest quintile of socioeconomic status in Australia was higher than that for other quintiles because of their significantly higher survival. Associated with this higher survival was the fact that in 2000–2004 95% of persons with cancer in this socioeconomic status quintile resided in Major Cities and therefore would have had greatest access to ongoing screening and treatment services.
- The 5-year prevalence was 1,332 per 100,000 for the 20% of persons with cancer living in areas of the lowest quintile of socioeconomic status in Australia. This population of cancer sufferers had the lowest survival and only 57% of them were living in Major Cities at the time of diagnosis.

1 Introduction

Purpose

This report by the Australian Institute of Health and Welfare (AIHW), Cancer Australia and the Australasian Association of Cancer Registries (AACR) is the second national report on cancer survival and the first on cancer prevalence in Australia. It has been funded by Cancer Australia.

The purpose of the report is to provide data which will assist Cancer Australia in its objectives of:

- helping reduce the impact of cancer for all Australians
- lessening the divide in outcomes for groups of people whose survival rates or cancer outcomes are lower, including Aboriginal and Torres Strait Islander peoples, people living in rural and remote areas, people from certain cultural and linguistic backgrounds and people from lower socioeconomic backgrounds.

Data issues have precluded analyses in this report of survival outcomes for Aboriginal and Torres Strait Islander peoples and people from certain cultural and linguistic backgrounds. However, the analyses presented for other population subgroups have found great variations in survival and prevalence outcomes by:

- cancer site
- sex and age group
- geographic area
- socioeconomic status.

Content

This report provides relative survival and prevalence statistics for 1.6 million Australian invasive cancer cases diagnosed between 1982 and 2004 and followed to the end of 2006. Relative survival is examined by cancer site, sex, age, period of diagnosis, survival time (Chapter 2), geographic region (Chapter 3) and socioeconomic status (Chapter 4). In addition, the report provides prevalence calculations by duration since diagnosis, region and socioeconomic status (Chapter 7). Summaries of survival and prevalence findings for the National Health Priority Area cancers are presented in Chapter 8.

Methodology

Data sources

The primary data source was the National Cancer Statistics Clearing House, a database of all new cases of invasive cancer in Australia (excluding non-melanocytic skin cancer) provided by the state and territory cancer registries and updated annually since 1982. The analysis was

performed on records of cancer cases diagnosed between 1 January 1982 and 31 December 2004.

These cancer incidence data were linked to the National Death Index (NDI) for death records between 1982 and 2006. The NDI is a database maintained by the AIHW which contains information on all deaths that have occurred in Australia since 1980. The data contained in the NDI are obtained from the state and territory Registrars of Births Deaths and Marriages for fact of death information and from the Australian Bureau of Statistics (ABS) for cause of death. However, cause of death is not used in relative survival analysis.

During data preparation, the following rules were applied based on criteria agreed upon by the AACR:

- Records flagged as death certificate only (i.e. diagnosis only at the time of death) and autopsy should be excluded.
- Records for persons 100 years of age and over should be excluded or grouped as aged less than 100 years. In reality, persons aged 100 years and over represented only 0.01% of total cases and were retained as there was no effect on the results.
- Records of living people with a survival time of less than 1 month which are not death certificate only shall be included, even if there is close to zero survival time.
- Where a nominal day of diagnosis has been recorded (15th of the month), and death occurs within that month, an average survival time of 2 weeks will be imputed (this should make no difference to results which are normally reported in terms of 1-year, 5-year, 10-year, 15-year etc. survival).
- Where a person has multiple cancers, e.g. a breast cancer and a lung cancer, the person will be included in multiple sets for survival analysis, i.e. one for breast cancer and one for lung cancer.

In total, 1,617,155 cancer cases were submitted for survival analysis. This represented 1,530,442 persons diagnosed with cancer. Hence a single person with multiple cancers contributed towards survival analysis more than once. These cases were followed to 31 December 2006 to ascertain who had died by then and when they had died.

Relative survival analysis

Relative survival analysis compares the survival of persons diagnosed with cancer (observed survival) with the survival of the entire Australian population of the same sex and age in the same calendar year as the cancer cohort (expected survival). This method of analysis does not require knowledge of the cause of death.

Relative survival is defined as the observed survival divided by the expected survival and is usually given as a proportion. For example, a 5-year relative survival of 89% for women diagnosed with breast cancer in 1997 and who were aged 60–64 years at diagnosis means that a woman from that category had an 89% chance of surviving 5 or more years relative to all Australian females aged 60–64 years in 1997.

In order to calculate the expected survival belonging to the age-, sex- and calendar-year matched population, the life tables for the population under study were required. Derivation of these life tables is explained in Appendix A.

The software used to calculate the relative survival figures was written by Dickman (2004). It uses the Ederer II method of calculating the interval-specific expected survivals.

The cohort and period methods of relative survival analysis

Relative survival proportions have traditionally been calculated using the 'cohort method' and this was preferred by Cancer Australia as the primary method for this report with a view to seeking more precise estimates (i.e. estimates with narrower confidence intervals). In this method, a cohort of patients diagnosed with cancer is followed over time to estimate the proportion surviving for a selected timeframe (e.g. 1, 5 or 10 years).

An alternative approach to calculating relative survival is the period method, developed by Brenner and Gefeller in 1996. This method examines the survival experience of people who were alive at the beginning of a particular recent calendar period and who were diagnosed with cancer before this period. Therefore, the period method might provide more up-to-date estimates of survival, especially in the presence of temporal trends affected by improvements in cancer detection and treatment.

In this report, the cohort method was used to calculate all relative survival proportions, with the exception of the analysis in Chapter 5, which includes period method results to provide a comparison of the two methods.

Survival period

This analysis focuses on 1-, 5- and 10-year survival.

One-year survival might indicate:

- the net short-term effectiveness of treatment
- the stage at which the cancer was detected.

Five- and 10-year survival might indicate:

- the effectiveness of treatment
- the impact of the cancer treatment and whether long-term side-effects are associated with additional mortality
- the numbers of cancers needing ongoing monitoring rather than cancer treatment, and might also be interpreted as a milestone indicating an arrest in the disease process or a slow development of the disease.

However, these indicators might vary by type of cancer, stage of the cancer at diagnosis and the aggressiveness of the tumour.

Interpretation of trends in relative survival

A trend showing increased relative survival might be due to a number of factors. These include:

- earlier detection through public education about screening programs, self-examination and recognition of symptoms
- increased effectiveness of general practitioners in diagnosing and following up suspicious signs and symptoms
- improvements in appropriate referral
- more effective investigation and staging of disease
- more widespread availability of treatment
- increasing subspecialisation of cancer treatment

- more effective treatment
- the effect of changing mortality patterns from other causes of death because all-cause mortality rates in the general population declined over the period from 1982 to 2006 (AIHW 2005), which were likely to be accompanied by reduced levels of significant co-morbidity among cancer cases.

Differences in coding practices by cancer registries might also influence survival measures. For instance, it has been reported that the US Surveillance, Epidemiology and End Results (SEER) program combines in situ and invasive bladder cancers when reporting incidence, making comparability difficult (Parkin et al. 1992). In this report, a decline measured in relative survival for bladder cancer might be due to changes in coding bladder cancer over time in Australia or changes in the age distribution at diagnosis.

Prevalence

N-year prevalence on a given day, where *N* is any number 1, 2, 3, etc., is defined as the number of people alive at the end of that day who have been diagnosed with cancer at any point in the past *N* years. The two most commonly used values of *N* are 1 and 5:

- 1-year prevalence is the number of living people who have been diagnosed in the past year.
- 5-year prevalence is the number of living people who have been diagnosed in the past 5 years. This includes the people defined by the 1-year prevalence.

This report includes prevalence estimates for 2004 at 1, 3, 5, 10, 20 and 23 years. The 23-year figure provides an approximation of the complete prevalence of people surviving with a previous diagnosis of cancer in Australia.

Time periods used in reporting

The time periods used in this report are 1982–1986, 1987–1991, 1992–1997 and 1998–2004. The three earlier time periods are the same as those in the first national cancer survival report, *Cancer survival in Australia 2001* (AIHW & AACR 2001), and were retained for comparability. The most recent time period in this report is 1998–2004, which allows coverage of the latest cancer data available. Chapters 3 and 4 present survival statistics by region and socioeconomic status for cancer cases diagnosed in 1997–2004 and 2000–2004 respectively. These years were selected based on the available information for constructing the life tables used in survival analysis.

Caveats

- Complete incidence data on non-melanocytic skin cancer (NMSC) are not routinely collected by state and territory cancer registries as they are not legally notifiable. Therefore, the incidence, prevalence and survival estimates in this report for all cancers combined exclude NMSC.
- Information about socioeconomic status and remoteness was determined using postcodes at the time of diagnosis. It should be noted that persons with cancer might move to different geographic areas after diagnosis. Although not analysed here, a person's place of residence and socioeconomic status following diagnosis might also affect cancer survival. Hence, particular care should be taken when interpreting

prevalence statistics across geographic region and socioeconomic status, since these were areas where a person was living at the time of diagnosis. Information about a person's area of residence in the years following cancer diagnosis is not collected by cancer registries and therefore was not available for the analyses in this report.

- There is minor variation between state and territory cancer registries in the proportion of death certificate only cases registered. Because these are excluded from survival calculations, the extent to which these cases are followed up to determine whether they are unreported previous diagnoses might affect survival calculations. It is considered that this has not had a significant impact on the calculations in this report.

Previous studies

Recent state publications on survival and prevalence of cancer have been released in New South Wales (Tracey, Baker et al. 2007; Tracey, Barraclough et al. 2007), Victoria (Cancer Council Victoria Epidemiology Centre 2007), Queensland (Youlden & Baade 2005; Youlden et al. 2005) Western Australia (Threlfall & Brameld 2000) and South Australia (South Australian Cancer Registry 2007). In general, these reports indicate higher relative survival for females compared with males, and for younger compared with older age groups. These reports have also found increasing cancer survival over time, especially for colorectal, breast and prostate cancer.

The first national survival report was *Cancer survival in Australia 2001* (AIHW & AACR 2001). It showed increased cancer survival between the diagnosis periods 1982–1986 and 1992–1997, higher survival for females than for males, and for younger compared with older age groups. A subsequent report on survival by region and socioeconomic status (AIHW & AACR 2003) found that people living in rural and remote areas had lower survival compared with the Australian averages, especially for lung, cervical and prostate cancer and melanoma of the skin. The report also showed decreased survival for people living in lower compared with higher socioeconomic status areas, particularly for lung, breast and prostate cancer.

A national analysis of breast cancer survival between 1982 and 1994 was produced in 1998 (AIHW, AACR & NBCC 1998). Relative survival estimates for breast and ovarian cancer also appear in chapters of the breast and ovarian cancer overview reports (AIHW & NBCC 2006a, 2006b). More recently, a survival analysis report on breast cancer by age at diagnosis, tumour size, nodal status, socioeconomic status and region has been published (AIHW & NBCC 2007).

Details of these publications can be found in the References section of this report.

2 Survival by site, sex, age and time period

Introduction

This chapter presents survival statistics for the most common invasive cancers diagnosed in Australia in 2004, for all cancers combined and for additional National Health Priority Area cancers. It examines trends in survival across diagnosis periods ranging from 1982–1986 to 1998–2004 by cancer site, sex, age at diagnosis and survival time. In addition, relative survival statistics are analysed by cancer site, sex and diagnosis period for the most common cancers in children (aged 0–14 years) and older Australians (aged 65 years and over).

Main findings

Background

(Table 2.1)

- In 2004, there were 98,336 new cases of cancer (excluding non-melanocytic skin cancer) and 38,129 deaths from cancer.
- The five most common cancers diagnosed were prostate cancer (15,759 cases), colorectal cancer (12,977), breast cancer (12,235), melanoma of the skin (9,722) and lung cancer (9,096).
- The five most common cancer deaths were from lung cancer (7,259 deaths), colorectal cancer (4,068), cancer of unknown primary site (3,522), prostate cancer (2,792) and breast cancer (2,683).
- For males, prostate cancer was the most common cancer diagnosed (15,759 cases) and lung cancer was the most common cause of cancer death (4,733 deaths).
- For females, breast cancer was both the most common cancer diagnosed (12,126 cases) and the most common cause of cancer death (2,664 deaths).

Table 2.1: New cases and deaths, selected cancers, 2004

Cancer site/type (ICD-10 codes)	New cases			Deaths		
	Males	Females	Persons	Males	Females	Persons
All cancers (C00–C97 ^(a) , D45–D47 ^(b))	54,870	43,466	98,336	21,419	16,710	38,129
Head and neck (C01–C14, C30–C32)	1,830	687	2,517	660	218	878
Stomach (C16)	1,275	671	1,946	720	425	1,145
Colon (C18)	4,379	4,167	8,546	1,447	1,342	2,789
Rectum (C19–C20)	2,781	1,650	4,431	749	530	1,279
Colorectal (C18–C20)	7,160	5,817	12,977	2,196	1,872	4,068
Pancreas (C25)	1,003	1,072	2,075	1,013	985	1,998
Lung (C33–C34)	5,826	3,270	9,096	4,733	2,526	7,259
Melanoma of skin (C43)	5,503	4,219	9,722	815	385	1,200
Breast (C50)	109	12,126	12,235	19	2,664	2,683
Cervix (C53)	..	718	718	..	210	210
Uterus, body (C54)	..	1,718	1,718	..	202	202
Ovary (C56)	..	1,246	1,246	..	851	851
Gynaecological (C51–C58)	..	4,144	4,144	..	1,486	1,486
Prostate (C61)	15,759	..	15,759	2,792	..	2,792
Testis (C62)	675	..	675	14	..	14
Kidney (C64)	1,395	822	2,217	497	354	851
Bladder (C67)	1,642	558	2,200	589	314	903
Brain (C71)	799	570	1,369	637	443	1,080
Thyroid (C73)	373	1,128	1,501	42	51	93
Hodgkin lymphoma (C81)	244	233	477	45	26	71
Non-Hodgkin lymphoma (C82–C85, C96)	2,108	1,687	3,795	758	710	1,468
Leukaemia (C91–C95)	1,578	1,087	2,665	833	612	1,445
Unknown primary site (C26, C39, C76, C80) ^(c)	1,700	1,592	3,292	1,781	1,741	3,522

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

(c) For mortality, cancer of unknown primary site is coded C26, C39, C76–C80.

Sources: National Cancer Statistics Clearing House and National Mortality Database, AIHW.

Trends

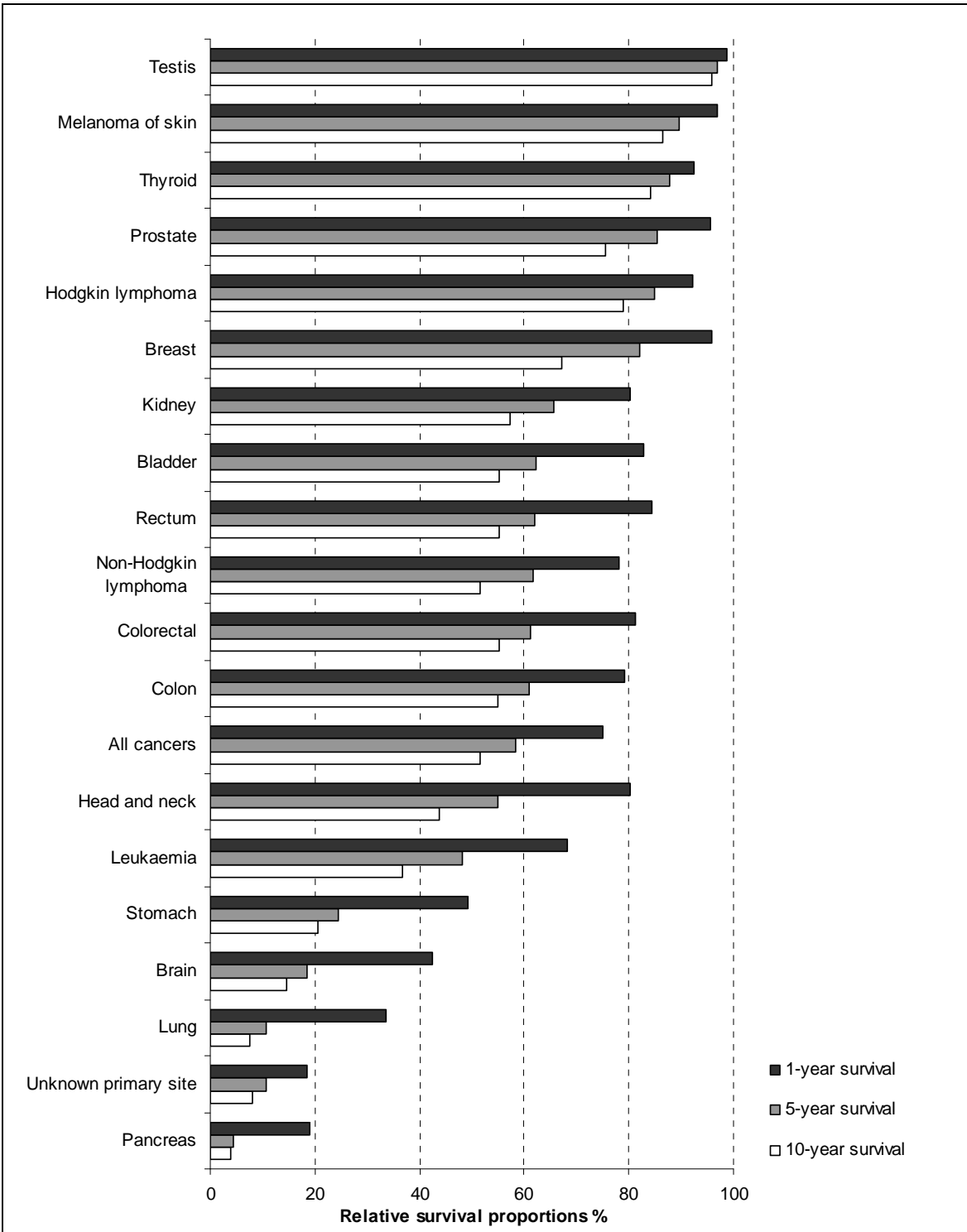
(Table 2.3)

- For both males and females, all-cancer 5-year relative survival was significantly higher for diagnoses made in 1998–2004 than in 1982–1986.
- The increase in survival over time was generally greater for males than for females. All-cancer 5-year relative survival for males increased from 41% in 1982–1986 to 58% in 1998–2004, compared with 53% and 64% for females.
- For males, the cancers that showed the greatest increase in 5-year relative survival were:
 - prostate cancer, which increased from 57% in 1982–1986 to 85% in 1998–2004
 - kidney cancer, which increased from 45% in 1982–1986 to 66% in 1998–2004
 - non-Hodgkin lymphoma, which increased from 46% in 1982–1986 to 62% in 1998–2004.
- However, prostate cancer for the majority of males is a relatively slow-growing cancer and its increase in 5-year relative survival might be a statistical artefact of the considerable increase in cases diagnosed, from 3,601 in 1982 to 15,759 in 2004, and in the incidence per 100,000 males, of 79.5 in 1982 to 163.4 in 2004 (AIHW 2008). Before the introduction of the prostate-specific antigen test in 1989, the majority of prostate cancers diagnosed were more advanced, while many others would have gone undetected and the male would have died of another medical condition without a diagnosis of prostate cancer.
- For females, the cancers that showed the greatest increase in 5-year relative survival were:
 - kidney cancer, which increased from 49% in 1982–1986 to 66% in 1998–2004
 - breast cancer, which increased from 72% in 1982–1986 to 88% in 1998–2004
 - non-Hodgkin lymphoma, which increased from 48% in 1982–1986 to 63% in 1998–2004.
- For both males and females, brain cancer showed no significant change in survival between 1982–1986 and 1998–2004.
- For both males and females, bladder cancer showed a significant decrease in 5-year relative survival from 1982–1986 to 1998–2004. For males, 5-year relative survival from bladder cancer was 69% for diagnoses in 1982–1986 and 62% for diagnoses in 1998–2004. For females, 5-year relative survival from bladder cancer was 65% for diagnoses in 1982–1986 and 55% for diagnoses in 1998–2004. However, this reduction in bladder cancer survival might be due to coding changes over time in Australia or changes in the age distribution at diagnosis.

Survival by selected cancer site

(Table 2.2, figures 2.1 and 2.2)

- Of the selected cancers in Table 2.2, the cancers with the highest 5-year relative survival in 1998–2004 were testicular cancer (97%), thyroid cancer (93%), melanoma of the skin (92%), breast cancer (88%) and prostate cancer (85%).
- Of the selected cancers in Table 2.2, the cancers with the lowest 5-year relative survival in 1998–2004 were pancreatic cancer (4.6%), cancer of unknown primary site (9.1%), lung cancer (12%), brain cancer (19%) and stomach cancer (25%).
- For males, 1-year relative survival was highest for testicular cancer (99%) and lowest for cancer of unknown primary site (19%). At both 5 and 10 years after diagnosis, relative survival was highest for testicular cancer (97% at 5 years, 96% at 10 years) and lowest for pancreatic cancer (4.5% at 5 years, 3.9% at 10 years).
- For females, 1-year relative survival was highest for melanoma of the skin (98%) and lowest for cancer of unknown primary site (16%). At both 5 and 10 years after diagnosis, relative survival was highest for thyroid cancer (95% at both 5 and 10 years) and lowest for pancreatic cancer (4.7% at 5 years, 3.6% at 10 years).

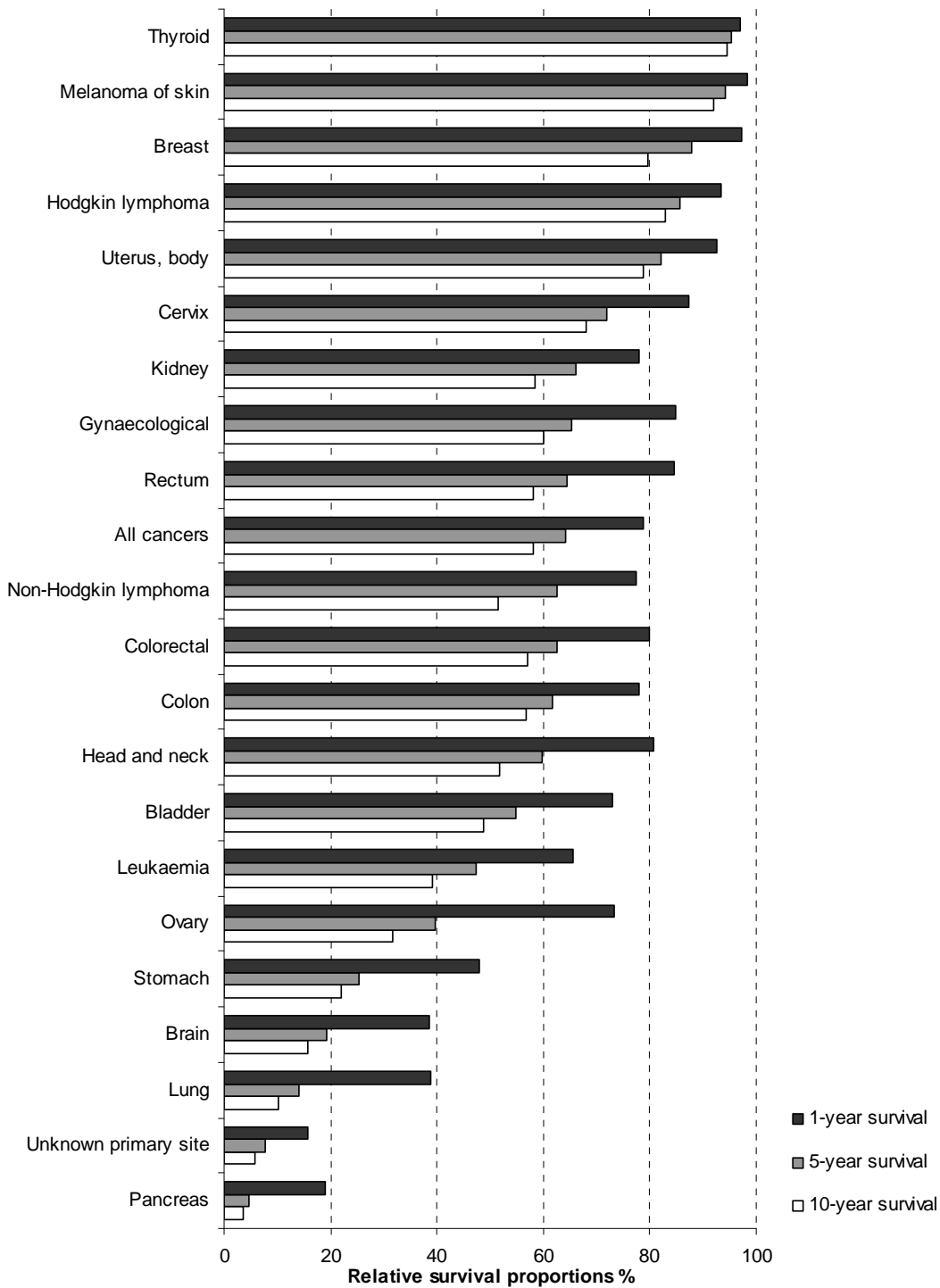


Notes

- 10-year relative survival proportions are based on 1996–2004 diagnoses.
- All cancers exclude non-melanocytic skin cancer (ICD-10 code C44).

Source: National Cancer Statistics Clearing House, AIHW.

Figure 2.1: Relative survival by cancer site, males, diagnoses in 1998–2004



Notes

1. 10-year relative survival proportions are based on 1996–2004 diagnoses.
2. All cancers exclude non-melanocytic skin cancer (ICD-10 code C44).

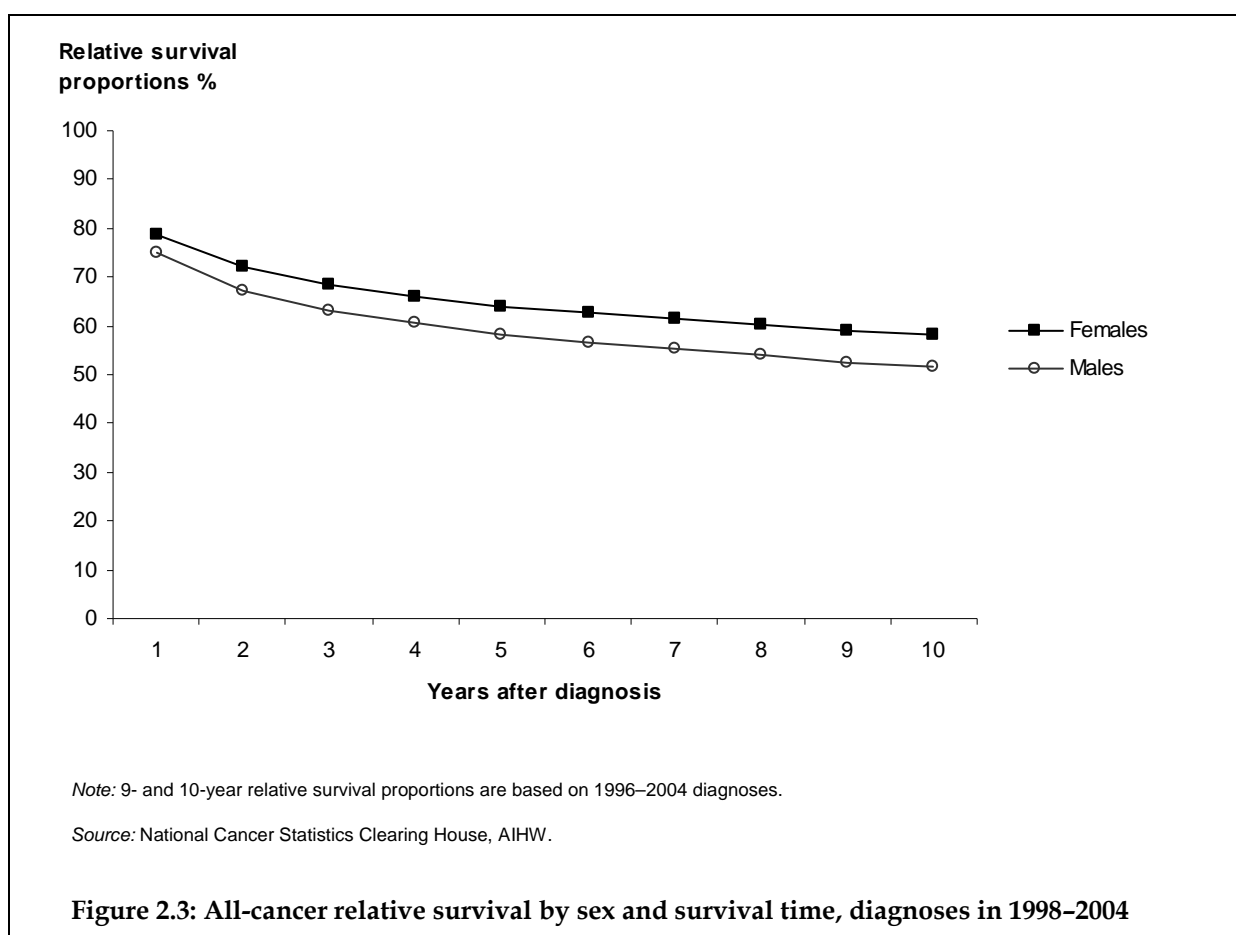
Source: National Cancer Statistics Clearing House, AIHW.

Figure 2.2: Relative survival by cancer site, females, diagnoses in 1998–2004

Survival by sex

(Tables 2.2 and 2.3, Figure 2.3)

- In general, relative survival was higher for females than for males. All-cancer 1-, 5- and 10-year relative survival was respectively 79%, 64% and 58% for females, compared with 75%, 58% and 52% for males for cancers diagnosed in 1998–2004.
- Five-year relative survival was significantly higher for females than for males for cancer of the rectum (but not colon), lung cancer, melanoma of the skin and thyroid cancer in 1998–2004. Cancers of the bladder and of unknown primary site had significantly higher survival for males than for females.



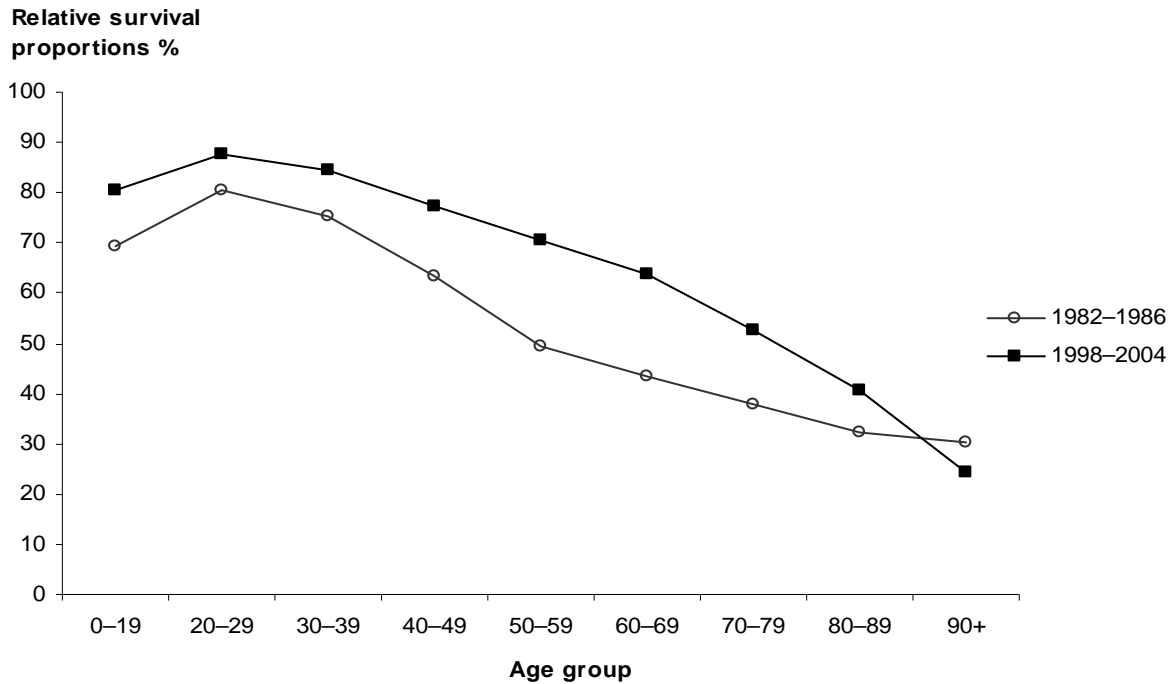
Survival by age at diagnosis

(Table 2.4, Figure 2.4)

- For diagnoses in 1998–2004, all-cancer 5-year survival was highest for the 20–29 year age group for both males (86%) and females (89%).
- For both males and females, a significant increase in all-cancer 5-year relative survival occurred for all age groups under 90 years between 1982–1986 and 1998–2004.
- Survival showed the greatest increase for the 50–59 and 60–69 year age groups. In particular, all-cancer 5-year relative survival showed the greatest increase for the 50–59 year age group between 1982–1986 and 1998–2004, from 42% to 65% for males and 58% to 76% for females. For

the 60–69 year age group, all-cancer 5-year relative survival increased between 1982–1986 and 1998–2004 from 39% to 62% for males and 50% to 66% for females

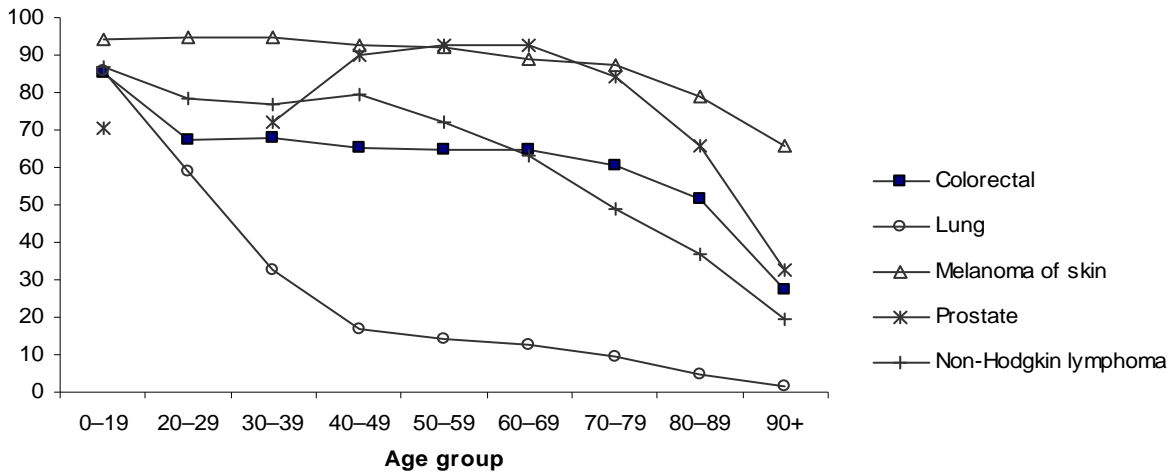
- For persons aged 90 years and over, there was a significant decrease in all-cancer 5-year relative survival from 30% in 1982–1986 to 25% in 1998–2004, although this drop was not statistically significant when males and females were analysed separately. A drop in this older open-ended category might have been affected by an increasing proportion of very old cases with raised levels of frailty and co-morbidity, with compromising effects on treatment and survival.



Source: National Cancer Statistics Clearing House, AIHW.

Figure 2.4: All-cancer 5-year relative survival by age for persons diagnosed in 1982–1986 and 1998–2004

Relative survival proportions %

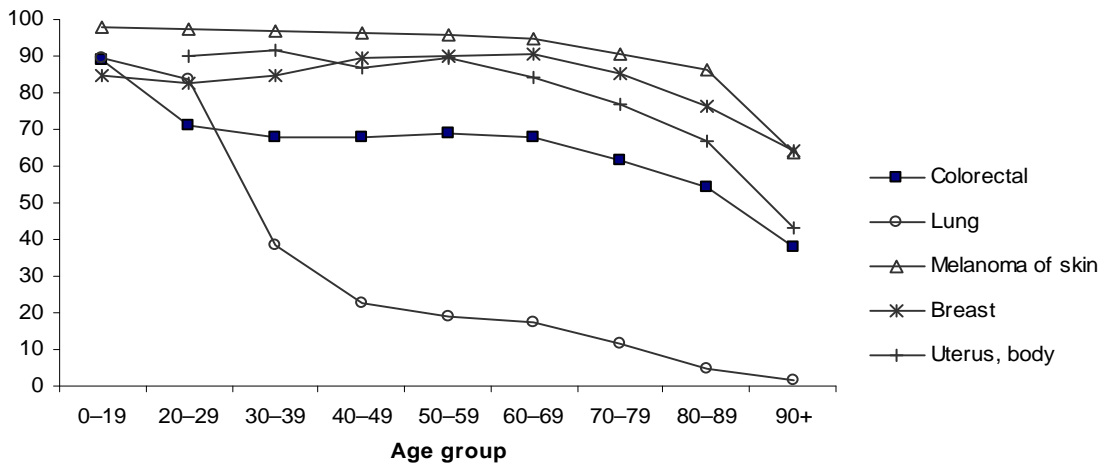


Note: Relative survival proportion for prostate cancer in the 20-29 year age group could not be calculated because this group contained no cases in the fifth year after diagnosis.

Source: National Cancer Statistics Clearing House, AIHW.

Figure 2.5: Five-year relative survival by age, most common cancers for males, diagnoses in 1998-2004

Relative survival proportions %



Note: Relative survival proportion for cancer of the uterus for the 0-19 year age group could not be calculated because this group contained no cases in the fifth year after diagnosis.

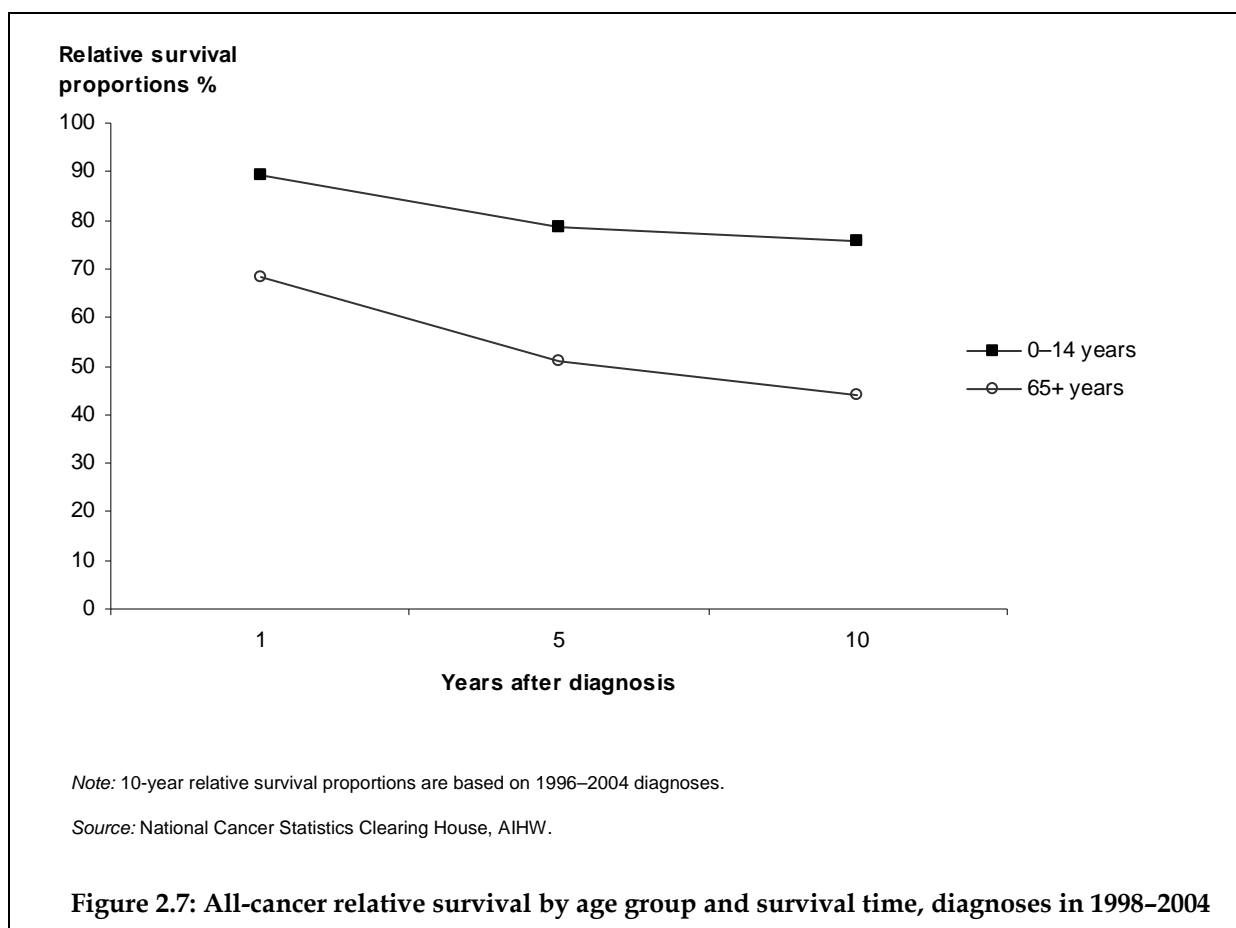
Source: National Cancer Statistics Clearing House, AIHW.

Figure 2.6: Five-year relative survival by age, most common cancers for females, diagnoses in 1998-2004

Cancer survival for children

(Table 2.8, Figure 2.7)

- Cancer survival for children aged 0–14 years was high, with an all-cancer 5-year relative survival of 79% for children diagnosed in 1998–2004. Relative survival for children at 1, 5 and 10 years after diagnosis was much higher than for Australians aged 65 and over.
- For both boys and girls aged 0–14 years, all-cancer 1-, 5- and 10-year relative survival increased significantly between 1982–1986 and 1998–2004. Five-year relative survival increased between these time periods from 66% to 78% for boys and from 67% to 80% for girls.
- Of the three most common childhood cancers, only leukaemia showed a significant increase in 5-year survival from 64% in 1982–1986 to 83% in 1998–2004.
- For children aged 0–14 years, survival from cancers of the brain and central nervous system and of bone and connective tissue showed no significant increase between 1982–1986 and 1998–2004.



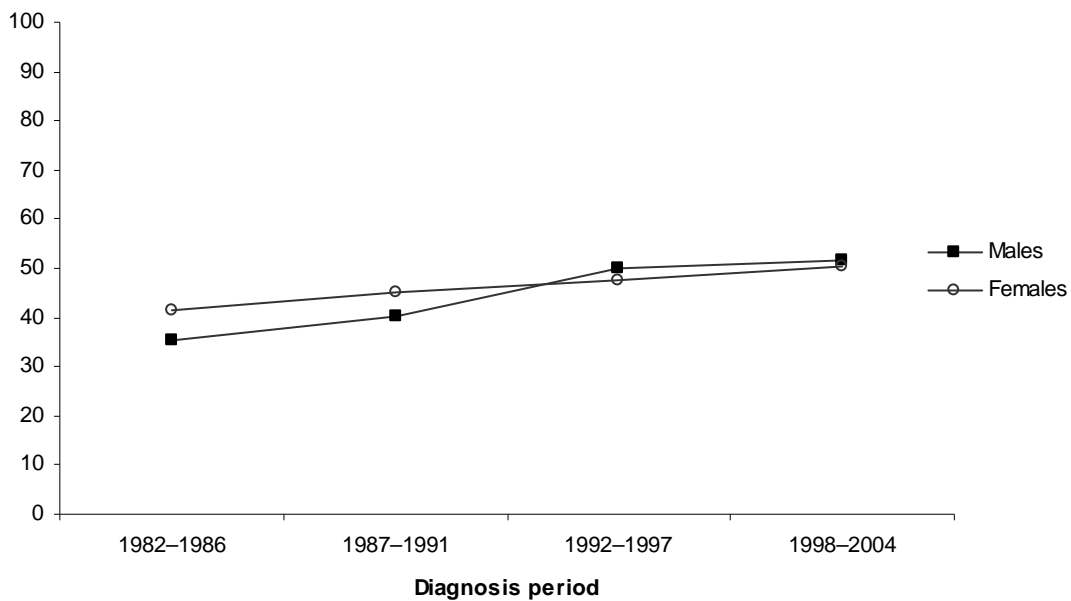
Cancer survival for older Australians

(Table 2.9, figures 2.7 and 2.8)

- Cancer survival for Australians aged 65 years and over was lower than for younger age groups but has been increasing significantly. All-cancer 5-year relative survival for persons aged 65 years and over was 38% in 1982–1986 and 51% in 1998–2004.

- All of the five most common cancers for older Australians (colorectal cancer, lung cancer, breast cancer for females, prostate cancer for males and melanoma of the skin) showed a significant increase in 1-, 5- and 10-year relative survival between 1982–1986 and 1998–2004.
- Although females had significantly higher 1- and 5-year all-cancer survival compared with males in 1982–1986 and 1987–1991, this was reversed in 1992–1997 and 1998–2004.
 - All-cancer 5-year relative survival for males aged 65 and over was 35% in 1982–1986, 40% in 1987–1991, 50% in 1992–1997 and 52% in 1998–2004.
 - All-cancer 5-year relative survival for females aged 65 and over was 41% in 1982–1986, 45% in 1987–1991, 48% in 1992–1997 and 50% in 1998–2004.

Relative survival proportions %



Source: National Cancer Statistics Clearing House, AIHW.

Figure 2.8: All-cancer 5-year relative survival by sex and diagnosis period for Australians aged 65 years and over

Table 2.2: One-, 5- and 10-year relative survival by cancer site, diagnoses in 1998–2004

Cancer site/type (ICD-10 codes)	1-year survival (%)			5-year survival (%)			10-year survival (%) ^(a)		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	74.9	78.7	76.6	58.4	64.1	61.0	51.6	58.1	54.6
Head and neck (C01–C14, C30–C32)	80.3	80.8	80.4	55.0	59.9	56.3	43.8	51.7	46.0
Stomach (C16)	49.2	48.0	48.8	24.4	25.3	24.7	20.5	22.0	21.1
Colon (C18)	79.1	78.0	78.6	60.9	61.6	61.3	54.9	56.7	55.8
Rectum (C19–C20)	84.5	84.5	84.5	61.9	64.5	62.9	55.2	58.0	56.3
Colorectal (C18–C20)	81.2	80.0	80.7	61.3	62.4	61.8	55.1	57.1	56.0
Pancreas (C25)	19.1	19.1	19.1	4.5	4.7	4.6	3.9	3.6	3.7
Lung (C33–C34)	33.6	38.8	35.4	10.7	14.0	11.8	7.6	10.1	8.4
Melanoma of skin (C43)	97.0	98.4	97.6	89.7	94.1	91.6	86.5	92.0	89.0
Breast (C50)	95.8	97.2	97.2	82.0	87.8	87.7	67.2	79.5	79.4
Cervix (C53)	..	87.2	..	..	71.8	..	..	68.0	..
Uterus, body (C54)	..	92.6	..	..	82.1	..	..	78.9	..
Ovary (C56)	..	73.2	..	..	39.8	..	..	31.7	..
Gynaecological (C51–C58)	..	84.8	..	..	65.3	..	..	60.0	..
Prostate (C61)	95.5	..	..	85.3	..	..	75.4	..	..
Testis (C62)	98.6	..	..	96.8	..	..	95.8	..	..
Kidney (C64)	80.2	77.9	79.3	65.6	66.0	65.8	57.2	58.3	57.6
Bladder (C67)	82.8	73.0	80.3	62.3	54.8	60.4	55.3	48.7	53.7
Brain (C71)	42.5	38.7	40.9	18.5	19.4	18.9	14.7	15.7	15.1
Thyroid (C73)	92.5	96.9	95.8	87.7	95.3	93.4	84.2	94.5	91.9
Hodgkin lymphoma (C81)	92.1	93.3	92.6	84.8	85.8	85.2	78.9	83.0	80.7
Non-Hodgkin lymphoma (C82–C85, C96)	78.1	77.5	77.9	61.6	62.6	62.1	51.6	51.6	51.6
Leukaemia (C91–C95)	68.2	65.7	67.1	48.2	47.3	47.8	36.8	39.2	37.9
Unknown primary site (C26, C39, C76, C80)	18.6	15.8	17.2	10.6	7.6	9.1	8.1	5.7	6.9

(a) 10-year relative survival proportions are based on 1996–2004 diagnoses.

(b) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(c) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table 2.3: Trends in 5-year relative survival by cancer site, diagnoses from 1982–1986 to 1998–2004

Cancer site/type (ICD-10 codes)	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	41.3	41.0–41.6	45.9	45.6–46.2	54.8	54.6–55.1	58.4	58.2–58.6
Stomach (C16)	16.2	15.2–17.3	18.9	17.9–20.0	20.5	19.5–21.5	24.4	23.3–25.4
Colon (C18)	48.3	47.2–49.4	53.2	52.2–54.1	57.0	56.1–57.8	60.9	60.2–61.7
Rectum (C19–C20)	46.8	45.4–48.2	50.1	48.8–51.3	56.5	55.5–57.5	61.9	61.0–62.8
Colorectal (C18–C20)	47.7	46.9–48.6	52.0	51.2–52.8	56.8	56.2–57.4	61.3	60.7–61.9
Pancreas (C25)	2.8	2.3–3.3	3.0	2.5–3.5	4.2	3.7–4.8	4.5	4.0–5.0
Lung (C33–C34)	7.9	7.5–8.2	9.1	8.7–9.4	9.7	9.3–10.0	10.7	10.3–11.0
Melanoma of skin (C43)	82.2	81.3–83.2	86.3	85.6–87.1	89.3	88.7–89.8	89.7	89.1–90.2
Prostate (C61)	57.4	56.4–58.4	63.2	62.4–64.0	81.7	81.2–82.1	85.3	84.9–85.7
Testis (C62)	90.8	89.2–92.2	95.0	93.8–96.1	95.3	94.4–96.1	96.8	96.0–97.4
Kidney (C64)	45.2	43.1–47.2	49.8	48.0–51.7	58.6	57.1–60.0	65.6	64.4–66.8
Bladder (C67)	69.1	67.7–70.4	69.1	67.7–70.5	65.2	63.9–66.4	62.3	61.1–63.5
Brain (C71)	20.8	19.3–22.4	19.7	18.3–21.2	18.7	17.5–19.9	18.5	17.5–19.6
Thyroid (C73)	79.1	74.9–82.8	78.3	74.5–81.7	85.3	82.7–87.6	87.7	85.8–89.5
Hodgkin lymphoma (C81)	72.0	68.8–75.0	76.8	73.8–79.6	81.5	79.0–83.8	84.8	82.7–86.7
Non-Hodgkin lymphoma (C82–C85, C96)	46.3	44.7–47.9	48.2	46.8–49.6	52.3	51.2–53.5	61.6	60.6–62.6
Leukaemia (C91–C95)	37.9	36.4–39.5	42.6	41.1–44.1	43.0	41.7–44.2	48.2	47.0–49.3
Unknown primary site (C26, C39, C76, C80)	6.4	5.9–7.0	6.9	6.4–7.5	6.7	6.3–7.1	10.6	10.1–11.2
Females								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	53.2	52.9–53.5	57.1	56.8–57.4	60.8	60.6–61.0	64.1	63.9–64.3
Stomach (C16)	18.2	16.8–19.6	18.9	17.5–20.4	22.3	20.9–23.7	25.3	23.9–26.7
Colon (C18)	49.5	48.4–50.5	52.9	51.9–53.8	56.5	55.7–57.3	61.6	60.8–62.3
Rectum (C19–C20)	50.4	48.9–52.0	54.0	52.5–55.5	59.4	58.2–60.6	64.5	63.4–65.6
Colorectal (C18–C20)	49.7	48.9–50.6	53.2	52.4–54.0	57.4	56.7–58.1	62.4	61.8–63.1
Pancreas (C25)	2.8	2.3–3.4	4.0	3.4–4.7	3.5	3.0–4.0	4.7	4.2–5.3
Lung (C33–C34)	10.5	9.8–11.3	10.8	10.2–11.5	12.6	12.0–13.2	14.0	13.4–14.5
Melanoma of skin (C43)	90.5	89.7–91.2	92.8	92.2–93.4	93.9	93.4–94.4	94.1	93.6–94.6
Breast (C50)	71.8	71.1–72.4	77.5	77.0–78.0	83.7	83.3–84.1	87.8	87.5–88.1
Cervix (C53)	68.3	66.9–69.7	71.2	69.9–72.5	73.6	72.4–74.8	71.8	70.4–73.1
Uterus, body (C54)	75.6	74.1–77.1	78.0	76.6–79.4	80.2	79.1–81.3	82.1	81.1–83.0
Ovary (C56)	32.7	31.3–34.2	35.7	34.3–37.1	37.9	36.6–39.1	39.8	38.6–41.0
Kidney (C64)	48.8	46.2–51.5	52.5	50.2–54.8	58.7	56.8–60.5	66.0	64.4–67.5
Bladder (C67)	65.0	62.8–67.1	61.9	59.7–64.1	55.8	53.7–57.9	54.8	52.9–56.7
Brain (C71)	19.9	18.2–21.6	20.4	18.8–22.0	18.3	17.0–19.7	19.4	18.1–20.6
Thyroid (C73)	85.3	83.1–87.2	89.9	88.2–91.5	94.3	93.3–95.3	95.3	94.5–96.0
Hodgkin lymphoma (C81)	71.3	67.5–74.8	77.5	74.1–80.6	83.6	81.0–86.0	85.8	83.5–87.8
Non-Hodgkin lymphoma (C82–C85, C96)	47.6	45.9–49.3	52.4	50.9–54.0	54.0	52.7–55.2	62.6	61.5–63.6
Leukaemia (C91–C95)	37.2	35.4–39.0	42.9	41.2–44.6	42.8	41.4–44.3	47.3	46.0–48.6
Unknown primary site (C26, C39, C76, C80)	5.6	5.1–6.2	5.9	5.4–6.4	5.5	5.1–6.0	7.6	7.1–8.0

(continued)

Table 2.3 (continued): Trends in 5-year relative survival by cancer site, diagnoses from 1982–1986 to 1998–2004

Cancer site/type (ICD-10 codes)	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Persons								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	46.9	46.7–47.1	51.2	51.0–51.4	57.5	57.4–57.7	61.0	60.9–61.2
Stomach (C16)	16.9	16.1–17.8	18.9	18.1–19.8	21.2	20.3–22.0	24.7	23.9–25.6
Colon (C18)	48.9	48.2–49.6	53.0	52.3–53.7	56.7	56.2–57.3	61.3	60.7–61.8
Rectum (C19–C20)	48.4	47.3–49.4	51.7	50.7–52.6	57.7	56.9–58.5	62.9	62.2–63.6
Colorectal (C18–C20)	48.7	48.1–49.3	52.6	52.0–53.1	57.1	56.6–57.5	61.8	61.4–62.3
Pancreas (C25)	2.8	2.4–3.2	3.5	3.1–3.9	3.8	3.5–4.2	4.6	4.2–5.0
Lung (C33–C34)	8.5	8.2–8.8	9.5	9.2–9.8	10.6	10.3–10.9	11.8	11.5–12.1
Melanoma of skin (C43)	86.5	85.8–87.1	89.4	88.9–89.9	91.4	91.0–91.8	91.6	91.3–92.0
Kidney (C64)	46.5	44.9–48.2	50.8	49.4–52.3	58.6	57.5–59.8	65.8	64.8–66.7
Bladder (C67)	68.0	66.8–69.2	67.3	66.1–68.4	62.9	61.8–63.9	60.4	59.4–61.4
Brain (C71)	20.4	19.3–21.6	20.0	19.0–21.1	18.6	17.7–19.5	18.9	18.1–19.7
Thyroid (C73)	83.6	81.7–85.4	86.8	85.2–88.3	92.1	91.1–93.0	93.4	92.7–94.1
Hodgkin lymphoma (C81)	71.7	69.3–74.0	77.1	74.9–79.2	82.5	80.7–84.2	85.2	83.7–86.6
Non-Hodgkin lymphoma (C82–C85, C96)	46.9	45.7–48.1	50.1	49.1–51.2	53.1	52.2–53.9	62.1	61.3–62.8
Leukaemia (C91–C95)	37.6	36.4–38.8	42.7	41.6–43.8	42.9	42.0–43.9	47.8	47.0–48.7
Unknown primary site (C26, C39, C76, C80)	6.0	5.7–6.4	6.5	6.1–6.8	6.1	5.8–6.4	9.1	8.8–9.5

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table 2.4: Trends in all-cancer 5-year relative survival by age, diagnoses from 1982–1986 to 1998–2004

Age	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males								
0–19	67.4	65.3–69.4	74.5	72.6–76.2	74.4	72.7–76.0	79.3	77.8–80.7
20–29	77.1	75.5–78.7	78.7	77.2–80.1	82.3	81.1–83.4	86.1	85.0–87.1
30–39	72.5	71.2–73.7	72.9	71.7–74.0	76.1	75.1–77.0	82.8	81.9–83.5
40–49	54.7	53.6–55.7	59.9	59.0–60.8	65.1	64.4–65.9	70.1	69.5–70.8
50–59	41.9	41.3–42.6	47.8	47.2–48.5	58.2	57.7–58.7	65.4	65.0–65.8
60–69	38.6	38.1–39.1	43.2	42.7–43.7	55.7	55.3–56.1	61.7	61.3–62.1
70–79	35.1	34.5–35.7	40.6	40.1–41.2	51.0	50.6–51.5	53.0	52.6–53.4
80–89	30.7	29.5–32.0	34.5	33.5–35.6	40.9	40.0–41.7	40.8	40.1–41.6
90 and over	28.2	23.1–34.0	26.1	21.6–31.0	25.5	22.6–28.7	21.7	19.3–24.3
All ages								
Crude	41.3	41.0–41.6	45.9	45.6–46.2	54.8	54.6–55.1	58.4	58.2–58.6
Age-adjusted ^(a)	40.1	39.7–40.4	44.8	44.5–45.1	53.9	53.7–54.2	57.9	57.7–58.1
Females								
0–19	71.9	69.6–74.0	76.0	74.0–77.9	77.6	75.8–79.2	81.8	80.2–83.2
20–29	83.4	82.0–84.7	85.7	84.5–86.9	86.9	85.8–87.9	89.1	88.1–90.0
30–39	76.8	75.8–77.7	79.6	78.8–80.4	82.7	82.0–83.4	85.6	85.0–86.2
40–49	69.0	68.2–69.9	74.0	73.3–74.7	78.6	78.1–79.1	81.8	81.4–82.2
50–59	57.8	57.1–58.5	63.4	62.7–64.0	70.6	70.1–71.1	75.6	75.2–76.0
60–69	50.1	49.5–50.7	54.8	54.3–55.4	60.4	59.9–60.9	66.4	66.0–66.9
70–79	41.5	40.8–42.2	45.5	44.9–46.2	49.3	48.8–49.8	52.3	51.8–52.7
80–89	33.5	32.4–34.6	36.3	35.3–37.3	37.6	36.9–38.4	40.2	39.5–40.9
90 and over	31.5	27.3–36.1	29.1	25.7–32.7	25.4	23.1–27.8	26.1	24.1–28.1
All ages								
Crude	53.2	52.9–53.5	57.1	56.8–57.4	60.8	60.6–61.0	64.1	63.9–64.3
Age-adjusted ^(a)	49.2	48.9–49.6	53.4	53.1–53.7	57.7	57.5–58.0	61.7	61.5–61.9
Persons								
0–19	69.3	67.8–70.8	75.2	73.8–76.5	75.8	74.6–77.0	80.4	79.4–81.4
20–29	80.5	79.4–81.5	82.3	81.4–83.2	84.6	83.8–85.3	87.6	86.9–88.3
30–39	75.2	74.4–75.9	77.0	76.3–77.6	80.0	79.5–80.6	84.5	84.0–84.9
40–49	63.3	62.7–64.0	68.4	67.9–69.0	73.5	73.0–73.9	77.4	77.0–77.7
50–59	49.5	49.0–50.0	55.4	54.9–55.9	64.4	64.0–64.8	70.5	70.2–70.8
60–69	43.5	43.1–43.9	48.0	47.7–48.4	57.5	57.2–57.8	63.6	63.3–63.9
70–79	37.8	37.3–38.2	42.7	42.3–43.1	50.4	50.1–50.7	52.7	52.4–53.0
80–89	32.2	31.4–33.0	35.4	34.7–36.2	39.4	38.8–40.0	40.6	40.1–41.1
90 and over	30.3	27.0–33.9	28.0	25.3–30.9	25.5	23.7–27.4	24.5	23.0–26.1
All ages								
Crude	46.9	46.7–47.1	51.2	51.0–51.4	57.5	57.4–57.7	61.0	60.9–61.2
Age-adjusted ^(a)	44.4	44.2–44.6	48.9	48.7–49.1	55.9	55.8–56.1	59.9	59.7–60.0

(a) Age-adjusted relative survival proportions are based on 5-year age groups and standardised to the 2004 Australian cancer incidence population.

Source: National Cancer Statistics Clearing House, AIHW.

Table 2.5: One-year relative survival by age, most common cancers, diagnoses in 1998–2004

Males		Colorectal (C18–C20)		Lung (C33–C34)		Melanoma of skin (C43)		Prostate (C61)		Non-Hodgkin lymphoma (C82–C85, C96)	
Age	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	
0–19	92.4	73.8–98.0	93.0	59.0–99.1	99.7	97.6–100.0	100.1	..	90.6	86.7–93.4	
20–29	88.5	82.3–92.7	80.2	63.4–89.9	98.0	97.0–98.6	100.1	..	86.9	82.7–90.1	
30–39	89.0	86.3–91.3	57.7	50.7–64.1	98.5	97.9–98.9	88.1	58.2–97.1	85.6	82.8–88.0	
40–49	87.6	86.1–88.9	43.7	40.9–46.4	97.8	97.3–98.2	97.9	96.7–98.6	89.6	87.9–91.1	
50–59	87.3	86.5–88.1	41.8	40.4–43.2	97.7	97.2–98.0	98.8	98.5–99.0	87.1	85.7–88.4	
60–69	85.3	84.6–85.9	38.0	37.1–38.9	96.8	96.3–97.3	98.7	98.4–98.8	82.6	81.1–83.9	
70–79	79.4	78.7–80.1	31.8	31.1–32.6	96.4	95.8–97.0	95.8	95.5–96.1	70.5	68.8–72.0	
80–89	68.2	66.9–69.4	21.0	20.0–22.0	95.0	93.7–96.2	86.7	85.9–87.5	56.1	53.6–58.6	
90 and over	50.8	46.8–54.9	7.9	6.2–9.8	87.9	81.7–93.4	61.7	58.6–64.7	40.8	33.3–48.4	
All ages	81.2	80.9–81.6	33.6	33.1–34.0	97.0	96.8–97.2	95.5	95.3–95.7	78.1	77.4–78.9	

Females		Colorectal (C18–C20)		Lung (C33–C34)		Melanoma of skin (C43)		Breast (C50)		Uterus, body (C54)	
Age	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	
0–19	94.6	80.2–98.6	100.0	..	99.4	97.5–99.9	100.0	..	100.0	..	
20–29	91.6	85.3–95.3	87.7	66.1–95.9	99.4	98.8–99.7	98.6	96.9–99.4	96.6	78.1–99.5	
30–39	90.3	87.8–92.4	60.6	53.0–67.4	99.1	98.7–99.4	98.5	98.1–98.8	97.2	93.9–98.8	
40–49	87.9	86.5–89.2	54.2	51.2–57.2	98.9	98.6–99.2	98.8	98.6–98.9	95.8	94.3–96.9	
50–59	87.9	86.9–88.8	50.0	48.2–51.8	98.9	98.6–99.2	98.6	98.4–98.8	96.4	95.7–97.1	
60–69	86.0	85.3–86.8	45.3	43.9–46.6	98.2	97.6–98.6	98.1	97.8–98.3	94.4	93.4–95.2	
70–79	79.2	78.4–79.9	35.7	34.7–36.8	97.7	97.0–98.3	95.8	95.4–96.2	90.8	89.4–92.0	
80–89	70.0	68.9–71.0	20.7	19.5–22.0	97.3	96.0–98.4	90.8	89.8–91.7	82.0	79.3–84.5	
90 and over	47.1	44.4–49.8	8.1	6.1–10.5	90.1	84.8–94.9	77.8	74.3–81.1	57.1	47.7–66.1	
All ages	80.0	79.5–80.4	38.8	38.1–39.4	98.4	98.2–98.6	97.2	97.1–97.4	92.6	92.1–93.2	

Persons		Colorectal (C18–C20)		Lung (C33–C34)		Melanoma of skin (C43)		Non-Hodgkin lymphoma (C82–C85, C96)		Unknown primary site (C26, C39, C76, C80)	
Age	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	
0–19	93.7	84.2–97.6	95.9	73.9–99.5	99.5	98.5–99.9	89.9	86.6–92.4	83.1	70.3–90.7	
20–29	89.9	85.8–92.9	83.3	71.2–90.6	98.7	98.3–99.1	87.9	84.7–90.5	56.5	45.2–66.3	
30–39	89.7	87.9–91.3	59.1	54.0–63.8	98.8	98.5–99.1	88.1	86.1–89.8	45.2	39.9–50.4	
40–49	87.7	86.7–88.7	48.6	46.5–50.6	98.4	98.1–98.6	90.3	89.1–91.4	43.4	40.5–46.2	
50–59	87.6	87.0–88.1	45.0	43.9–46.0	98.2	97.9–98.4	88.5	87.5–89.5	35.2	33.4–36.9	
60–69	85.6	85.1–86.0	40.3	39.6–41.1	97.3	97.0–97.7	83.3	82.3–84.4	24.3	23.1–25.4	
70–79	79.3	78.8–79.8	33.1	32.5–33.7	96.9	96.4–97.3	71.5	70.4–72.6	13.3	12.7–13.9	
80–89	69.2	68.4–70.0	20.9	20.1–21.7	96.0	95.0–96.8	55.8	54.1–57.4	6.4	6.0–6.8	
90 and over	48.3	46.0–50.5	8.0	6.7–9.4	89.1	85.1–92.8	36.2	31.9–40.6	2.4	2.0–2.9	
All ages	80.7	80.4–80.9	35.4	35.0–35.8	97.6	97.4–97.8	77.9	77.3–78.4	17.2	16.8–17.7	

Note: Confidence intervals were wider for younger age groups because of the small number of cancer cases diagnosed at these ages. Further, confidence intervals for some age groups could not be calculated because no deaths occurred in the first year after diagnosis for these groups.

Source: National Cancer Statistics Clearing House, AIHW.

Table 2.6: Five-year relative survival by age, most common cancers, diagnoses in 1998–2004

Males	Colorectal (C18–C20)		Lung (C33–C34)		Melanoma of skin (C43)		Prostate (C61)		Non-Hodgkin lymphoma (C82–C85, C96)	
	Age	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%
0–19	85.1	65.4–94.2	85.8	54.4–96.4	94.2	90.3–96.6	70.6	3.2–96.7	86.9	82.3–90.3
20–29	67.2	58.5–74.5	58.7	38.8–74.2	95.0	93.6–96.2	..	..	78.3	73.2–82.5
30–39	68.1	64.0–71.9	32.8	26.3–39.4	94.7	93.7–95.6	72.0	41.1–88.8	77.1	73.6–80.2
40–49	65.5	63.3–67.5	16.6	14.5–18.8	92.5	91.6–93.3	89.8	87.3–91.9	79.4	77.1–81.6
50–59	64.5	63.3–65.7	14.3	13.3–15.3	91.9	91.1–92.7	92.8	92.1–93.4	72.3	70.1–74.3
60–69	64.8	63.8–65.8	12.5	11.8–13.2	88.9	87.8–89.9	92.6	92.0–93.1	63.0	60.9–65.0
70–79	60.4	59.4–61.5	9.7	9.1–10.2	87.4	85.9–88.7	84.3	83.6–85.1	49.2	47.0–51.4
80–89	51.6	49.5–53.7	4.7	4.0–5.4	79.1	75.6–82.5	66.0	64.3–67.7	36.9	33.3–40.7
90 and over	27.5	20.5–35.7	1.8	0.6–4.4	66.0	50.3–83.5	32.8	27.1–39.1	19.6	8.8–36.7
All ages	61.3	60.7–61.9	10.7	10.3–11.0	89.7	89.1–90.2	85.3	84.9–85.7	61.6	60.6–62.6

Females	Colorectal (C18–C20)		Lung (C33–C34)		Melanoma of skin (C43)		Breast (C50)		Uterus, body (C54)	
	Age	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%
0–19	88.9	73.2–95.7	89.7	48.7–98.5	97.7	95.0–99.0	85.0	35.5–97.6	..	..
20–29	70.9	61.4–78.5	83.6	61.6–93.7	97.6	96.7–98.3	82.4	77.9–86.1	89.8	71.4–96.7
30–39	67.9	63.9–71.5	38.4	31.0–45.6	97.1	96.4–97.7	84.8	83.5–85.9	91.8	86.8–95.0
40–49	67.8	65.7–69.8	22.7	20.1–25.3	96.2	95.5–96.8	89.7	89.2–90.3	87.0	84.5–89.1
50–59	69.0	67.6–70.4	19.1	17.6–20.6	95.6	94.8–96.3	90.2	89.8–90.7	89.3	87.9–90.5
60–69	67.7	66.6–68.8	17.3	16.2–18.5	94.7	93.6–95.6	90.6	90.0–91.2	84.0	82.3–85.5
70–79	61.7	60.6–62.8	11.8	10.9–12.6	90.5	89.0–92.0	85.3	84.4–86.2	76.6	74.3–78.9
80–89	54.3	52.6–56.0	4.6	3.8–5.5	86.1	82.7–89.5	76.4	74.4–78.5	66.7	61.8–71.4
90 and over	38.1	33.0–43.7	1.7	0.5–4.8	63.9	50.8–78.1	64.2	56.1–72.7	43.4	27.1–63.5
All ages	62.4	61.8–63.1	14.0	13.4–14.5	94.1	93.6–94.6	87.8	87.5–88.1	82.1	81.1–83.0

Persons	Colorectal (C18–C20)		Lung (C33–C34)		Melanoma of skin (C43)		Non-Hodgkin lymphoma (C82–C85, C96)		Unknown primary site (C26, C39, C76, C80)	
	Age	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%
0–19	87.3	76.3–93.5	87.4	66.3–95.8	96.0	93.9–97.5	84.4	80.5–87.6	71.2	57.0–81.5
20–29	68.9	62.6–74.3	69.3	54.6–80.0	96.5	95.7–97.1	80.5	76.6–83.8	38.2	28.0–48.3
30–39	68.0	65.2–70.7	35.4	30.5–40.3	96.1	95.5–96.6	79.9	77.3–82.2	31.7	26.7–36.8
40–49	66.6	65.1–68.0	19.4	17.7–21.1	94.3	93.8–94.9	80.8	79.0–82.4	25.6	23.0–28.3
50–59	66.4	65.4–67.3	16.1	15.3–17.0	93.4	92.9–94.0	74.5	72.9–75.9	18.7	17.2–20.3
60–69	66.0	65.2–66.7	14.0	13.4–14.6	91.1	90.3–91.8	65.8	64.3–67.3	13.0	12.0–13.9
70–79	61.0	60.3–61.8	10.4	9.9–10.8	88.5	87.5–89.6	51.3	49.8–52.9	6.6	6.1–7.1
80–89	53.2	51.9–54.5	4.6	4.1–5.2	82.2	79.8–84.7	37.3	34.9–39.7	3.1	2.7–3.5
90 and over	35.1	30.9–39.7	1.8	0.8–3.5	64.6	54.4–75.5	20.6	14.2–28.6	0.5	0.2–1.1
All ages	61.8	61.4–62.3	11.8	11.5–12.1	91.6	91.3–92.0	62.1	61.3–62.8	9.1	8.8–9.5

Note: Confidence intervals were wider for younger age groups because of the small number of cancer cases diagnosed at these ages. Further, relative survival proportions for some age groups could not be calculated because these groups contained no cases in the fifth year after diagnosis.

Source: National Cancer Statistics Clearing House, AIHW.

Table 2.7: Trends in all-cancer relative survival by sex and survival time, diagnoses from 1982–1986 to 1998–2004

Survival time (years)	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males								
1	62.1	61.8–62.4	66.2	65.9–66.4	72.0	71.9–72.2	74.9	74.7–75.0
2	52.0	51.7–52.3	56.6	56.3–56.9	64.0	63.8–64.2	67.2	67.1–67.4
3	46.9	46.6–47.2	51.6	51.3–51.9	59.8	59.6–60.0	63.2	63.0–63.3
4	43.6	43.3–43.9	48.4	48.1–48.6	56.9	56.7–57.2	60.5	60.3–60.7
5	41.3	41.0–41.6	45.9	45.6–46.2	54.8	54.6–55.1	58.4	58.2–58.6
6	39.5	39.1–39.8	44.1	43.8–44.4	53.1	52.9–53.4	56.7	56.4–56.9
7	38.1	37.7–38.4	42.5	42.2–42.8	51.7	51.4–51.9	55.4	55.1–55.6
8	36.9	36.6–37.2	41.3	41.0–41.6	50.5	50.2–50.7	54.2	54.0–54.5
9 ^(a)	35.9	35.6–36.3	40.3	40.0–40.6	49.4	49.2–49.7	52.5	52.2–52.7
10 ^(a)	35.1	34.7–35.4	39.4	39.1–39.7	48.4	48.1–48.7	51.6	51.3–51.8
Females								
1	72.1	71.9–72.4	74.5	74.3–74.8	76.4	76.2–76.6	78.7	78.5–78.8
2	63.6	63.3–63.9	66.7	66.5–67.0	69.3	69.1–69.6	72.1	71.9–72.3
3	58.7	58.4–59.0	62.3	62.0–62.5	65.4	65.2–65.6	68.4	68.3–68.6
4	55.5	55.2–55.8	59.2	59.0–59.5	62.8	62.5–63.0	66.0	65.8–66.2
5	53.2	52.9–53.5	57.1	56.8–57.4	60.8	60.6–61.0	64.1	63.9–64.3
6	51.4	51.1–51.7	55.3	55.0–55.6	59.2	59.0–59.5	62.6	62.4–62.9
7	50.0	49.7–50.3	53.9	53.6–54.2	58.0	57.8–58.3	61.5	61.2–61.7
8	48.8	48.5–49.1	52.7	52.4–53.0	57.0	56.7–57.2	60.4	60.1–60.7
9 ^(a)	47.8	47.4–48.1	51.7	51.4–52.1	56.0	55.8–56.3	58.9	58.6–59.1
10 ^(a)	46.9	46.5–47.2	50.9	50.6–51.3	55.2	55.0–55.5	58.1	57.9–58.4
Persons								
1	66.8	66.6–67.0	70.1	69.9–70.2	74.0	73.9–74.1	76.6	76.5–76.7
2	57.5	57.3–57.7	61.3	61.2–61.5	66.4	66.3–66.6	69.5	69.3–69.6
3	52.5	52.2–52.7	56.6	56.4–56.8	62.3	62.2–62.5	65.6	65.5–65.7
4	49.2	49.0–49.4	53.5	53.3–53.7	59.6	59.4–59.7	63.0	62.9–63.2
5	46.9	46.7–47.1	51.2	51.0–51.4	57.5	57.4–57.7	61.0	60.9–61.2
6	45.1	44.9–45.3	49.4	49.2–49.6	55.9	55.7–56.1	59.4	59.3–59.6
7	43.7	43.5–43.9	47.9	47.7–48.1	54.6	54.4–54.7	58.2	58.0–58.4
8	42.5	42.3–42.8	46.7	46.4–46.9	53.4	53.3–53.6	57.1	56.9–57.3
9 ^(a)	41.5	41.3–41.8	45.7	45.5–45.9	52.4	52.2–52.6	55.5	55.3–55.6
10 ^(a)	40.7	40.4–40.9	44.8	44.6–45.1	51.5	51.3–51.7	54.6	54.4–54.8

(a) 9- and 10-year relative survival proportions for the most recent period are based on 1996–2004 diagnoses.

Source: National Cancer Statistics Clearing House, AIHW.

Table 2.8: Trends in cancer relative survival of children, diagnoses from 1982–1986 to 1998–2004

Cancer site/type (ICD-10 codes)	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males aged 0–14 years								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))								
1-year survival	83.8	81.8–85.7	87.7	85.8–89.3	87.7	86.2–89.2	89.2	87.8–90.4
5-year survival	65.8	63.3–68.3	73.1	70.7–75.4	72.1	70.0–74.1	77.6	75.7–79.4
10-year survival ^(c)	61.6	59.0–64.2	70.5	68.0–72.8	69.2	67.1–71.3	74.4	72.5–76.2
Bone and connective tissue (C40–C41, C47–C49)								
1-year survival	85.5	78.7–90.3	89.0	82.4–93.2	91.8	87.1–94.9	92.6	88.3–95.4
5-year survival	59.9	51.6–67.3	71.2	62.8–78.0	72.3	65.6–77.9	70.1	63.3–75.9
10-year survival ^(c)	58.1	49.7–65.6	66.3	57.7–73.6	70.5	63.6–76.3	66.4	59.9–72.2
Brain and central nervous system (C70–C72)								
1-year survival	78.6	73.2–83.0	76.5	70.3–81.5	74.3	69.1–78.8	72.7	67.7–77.1
5-year survival	59.8	53.8–65.4	57.3	50.5–63.5	58.5	52.8–63.8	55.9	50.4–61.0
10-year survival ^(c)	54.1	48.0–59.8	54.7	47.9–61.0	53.4	47.6–58.8	53.2	47.9–58.2
Leukaemia (C91–C95)								
1-year survival	85.6	82.1–88.4	90.4	87.5–92.7	89.3	86.5–91.5	91.5	89.4–93.3
5-year survival	63.0	58.5–67.1	72.4	68.3–76.1	69.1	65.2–72.7	80.4	77.3–83.1
10-year survival ^(c)	57.0	52.5–61.3	68.8	64.6–72.7	65.2	61.2–69.0	75.1	71.6–78.3
Females aged 0–14 years								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))								
1-year survival	84.3	82.0–86.4	86.5	84.4–88.4	87.8	86.0–89.3	89.9	88.4–91.2
5-year survival	67.4	64.4–70.2	72.2	69.5–74.7	74.5	72.2–76.7	79.5	77.5–81.4
10-year survival ^(c)	63.8	60.8–66.7	69.1	66.3–71.7	72.1	69.7–74.3	77.5	75.6–79.3
Bone and connective tissue (C40–C41, C47–C49)								
1-year survival	86.9	79.5–91.8	93.7	87.1–97.0	91.9	86.5–95.2	90.2	85.4–93.5
5-year survival	66.3	57.2–73.9	70.8	61.3–78.5	70.9	63.4–77.1	69.7	62.6–75.7
10-year survival ^(c)	60.8	51.6–68.8	67.2	57.5–75.2	67.3	59.6–73.8	68.1	61.4–73.9
Brain and central nervous system (C70–C72)								
1-year survival	70.7	63.9–76.4	76.9	70.8–82.0	69.0	62.9–74.4	72.1	66.7–76.8
5-year survival	54.5	47.4–61.1	63.2	56.4–69.2	54.0	47.6–60.0	56.5	50.5–62.0
10-year survival ^(c)	51.1	44.1–57.8	60.1	53.3–66.2	50.9	44.5–56.9	52.9	47.2–58.2
Leukaemia (C91–C95)								
1-year survival	87.4	83.4–90.5	88.1	84.5–90.9	90.2	87.2–92.5	93.5	91.4–95.2
5-year survival	65.9	60.6–70.6	70.5	65.7–74.7	74.9	70.9–78.5	85.2	82.1–87.9
10-year survival ^(c)	61.3	56.0–66.2	66.4	61.5–70.9	71.9	67.8–75.6	82.5	79.5–85.1

(continued)

Table 2.8 (continued): Trends in cancer relative survival of children, diagnoses from 1982–1986 to 1998–2004

Cancer site/type (ICD-10 codes)	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Persons aged 0–14 years								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))								
1-year survival	84.1	82.5–85.5	87.2	85.8–88.4	87.8	86.6–88.8	89.5	88.5–90.4
5-year survival	66.5	64.6–68.4	72.7	70.9–74.4	73.2	71.6–74.7	78.5	77.1–79.8
10-year survival ^(c)	62.6	60.6–64.5	69.8	68.0–71.6	70.5	68.9–72.0	75.8	74.4–77.1
Bone and connective tissue (C40–C41, C47–C49)								
1-year survival	86.2	81.4–89.8	91.1	86.8–94.1	91.9	88.5–94.3	91.4	88.4–93.7
5-year survival	62.9	56.8–68.3	71.1	65.0–76.3	71.6	66.7–75.9	69.9	65.1–74.1
10-year survival ^(c)	59.3	53.2–64.9	66.7	60.4–72.3	69.0	64.0–73.5	67.2	62.6–71.3
Brain and central nervous system (C70–C72)								
1-year survival	75.1	71.0–78.8	76.7	72.5–80.4	71.9	68.0–75.5	72.4	68.8–75.7
5-year survival	57.5	52.9–61.8	60.2	55.5–64.6	56.5	52.3–60.5	56.2	52.1–60.0
10-year survival ^(c)	52.8	48.2–57.2	57.4	52.6–61.8	52.2	48.0–56.3	53.1	49.2–56.7
Leukaemia (C91–C95)								
1-year survival	86.4	83.8–88.5	89.4	87.2–91.3	89.7	87.7–91.3	92.4	90.9–93.7
5-year survival	64.2	60.8–67.4	71.6	68.5–74.4	71.8	69.0–74.4	82.6	80.4–84.5
10-year survival ^(c)	58.8	55.4–62.1	67.8	64.6–70.7	68.3	65.5–71.0	78.6	76.3–80.7

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

(c) 10-year relative survival proportions for the most recent period are based on 1996–2004 diagnoses.

Source: National Cancer Statistics Clearing House, AIHW.

Table 2.9: Trends in cancer relative survival of older Australians, diagnoses from 1982–1986 to 1998–2004

Cancer site/type (ICD-10 codes)	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males aged 65 years and over								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))								
1-year survival	56.5	56.1–56.9	61.1	60.8–61.5	68.0	67.8–68.2	69.4	69.2–69.6
5-year survival	35.2	34.8–35.7	40.1	39.7–40.5	50.1	49.8–50.4	51.8	51.5–52.1
10-year survival ^(c)	28.3	27.7–28.8	32.3	31.9–32.8	42.5	42.1–42.8	43.8	43.4–44.3
Colorectal (C18–C20)								
1-year survival	68.4	67.4–69.3	71.9	71.1–72.7	75.1	74.5–75.8	78.0	77.5–78.5
5-year survival	45.3	44.1–46.5	50.3	49.2–51.4	54.4	53.5–55.3	59.2	58.4–60.0
10-year survival ^(c)	41.6	40.0–43.2	44.6	43.1–46.0	47.9	46.7–49.0	52.8	51.5–54.1
Lung (C33–C34)								
1-year survival	24.4	23.7–25.1	26.7	26.0–27.3	28.6	28.0–29.2	30.3	29.8–30.8
5-year survival	5.3	4.9–5.7	6.9	6.5–7.4	7.8	7.5–8.2	9.1	8.7–9.5
10-year survival ^(c)	3.8	3.4–4.2	4.5	4.1–4.9	5.1	4.7–5.5	5.8	5.3–6.3
Prostate (C61)								
1-year survival	85.2	84.5–85.8	89.2	88.7–89.7	93.8	93.5–94.1	94.1	93.8–94.3
5-year survival	56.6	55.5–57.7	62.8	61.8–63.7	79.6	79.1–80.2	82.1	81.5–82.7
10-year survival ^(c)	39.4	38.0–40.7	47.0	45.8–48.2	68.5	67.7–69.3	70.5	69.4–71.6
Females aged 65 years and over								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))								
1-year survival	60.4	60.0–60.8	63.3	62.9–63.6	64.7	64.4–64.9	67.0	66.8–67.3
5-year survival	41.3	40.8–41.7	45.1	44.6–45.5	47.7	47.4–48.1	50.3	50.0–50.7
10-year survival ^(c)	35.2	34.7–35.8	38.7	38.2–39.3	41.9	41.5–42.3	44.1	43.6–44.6
Colorectal (C18–C20)								
1-year survival	67.1	66.1–68.0	70.4	69.6–71.2	73.1	72.4–73.7	76.1	75.5–76.6
5-year survival	46.7	45.6–47.9	50.3	49.3–51.4	54.7	53.8–55.6	59.3	58.5–60.1
10-year survival ^(c)	44.3	42.8–45.7	46.3	45.0–47.6	51.1	50.0–52.2	54.8	53.5–56.0
Lung (C33–C34)								
1-year survival	25.5	24.2–26.8	27.4	26.3–28.6	29.6	28.7–30.5	33.0	32.2–33.8
5-year survival	7.2	6.4–8.1	7.4	6.7–8.1	9.3	8.7–9.9	10.6	10.1–11.2
10-year survival ^(c)	4.8	4.1–5.6	4.7	4.1–5.4	5.9	5.4–6.5	6.9	6.2–7.6
Breast (C50)								
1-year survival	90.6	90.0–91.3	92.6	92.1–93.1	93.6	93.2–94.0	94.8	94.5–95.1
5-year survival	70.1	69.0–71.3	75.8	74.8–76.8	80.9	80.2–81.7	84.4	83.7–85.1
10-year survival ^(c)	56.5	55.0–58.1	64.7	63.4–66.1	72.6	71.5–73.6	75.2	73.9–76.4

(continued)

Table 2.9 (continued): Trends in cancer relative survival of older Australians, diagnoses from 1982–1986 to 1998–2004

Cancer site/type (ICD-10 codes)	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Persons aged 65 years and over								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))								
1-year survival	58.2	57.9–58.5	62.0	61.8–62.3	66.7	66.5–66.8	68.4	68.3–68.6
5-year survival	37.9	37.6–38.2	42.3	42.0–42.6	49.1	48.9–49.4	51.2	51.0–51.4
10-year survival ^(c)	31.4	31.0–31.8	35.2	34.8–35.5	42.3	42.0–42.6	44.0	43.6–44.3
Colorectal (C18–C20)								
1-year survival	67.7	67.0–68.3	71.2	70.6–71.8	74.2	73.7–74.6	77.1	76.7–77.5
5-year survival	46.1	45.2–46.9	50.3	49.6–51.1	54.6	53.9–55.2	59.3	58.7–59.8
10-year survival ^(c)	43.0	42.0–44.1	45.5	44.5–46.4	49.5	48.7–50.3	53.8	52.8–54.7
Lung (C33–C34)								
1-year survival	24.7	24.1–25.3	26.9	26.3–27.4	28.9	28.4–29.4	31.2	30.8–31.6
5-year survival	5.7	5.4–6.1	7.1	6.7–7.4	8.3	8.0–8.6	9.6	9.3–9.9
10-year survival ^(c)	4.0	3.7–4.4	4.5	4.2–4.9	5.3	5.0–5.6	6.2	5.8–6.6
Melanoma of skin (C43)								
1-year survival	92.2	91.3–93.1	95.3	94.7–95.9	96.3	95.8–96.7	96.5	96.2–96.9
5-year survival	80.0	78.3–81.7	82.7	81.4–83.9	87.1	86.1–88.0	87.4	86.5–88.2
10-year survival ^(c)	76.4	74.0–78.8	79.0	77.1–80.8	81.9	80.6–83.3	83.3	81.7–84.9

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

(c) 10-year relative survival proportions for the most recent period are based on 1996–2004 diagnoses.

Source: National Cancer Statistics Clearing House, AIHW.

3 Survival by region

Introduction

Previous studies have shown that survival tends to be lower for people living in remote and rural areas compared with people living in metropolitan areas, especially for lung, cervical and prostate cancer (AIHW & AACR 2003; Jong et al. 2002; Jong et al. 2004).

Cancer survival outcomes might vary across regions because of differences in the age at diagnosis, extent of the disease at diagnosis and cancer morphologies and sites associated with different geographic areas. The effects of these covariates on survival are modelled and further examined in Victorian and NSW cancer survival reports (Cancer Council Victoria Epidemiology Centre 2007; Tracey, Barraclough et al. 2007; Yu et al. 2006).

In addition, differences in relative survival across regions might also be influenced by the population composition in these regions. At the 2001 Census, 26% of Aboriginal and Torres Strait Islander peoples lived in Remote and Very Remote areas, compared with 2% of non-Indigenous Australians (ABS 2003). Given the higher proportion of Indigenous populations in these regions, cancer relative survival in Remote and Very Remote areas compared with Major Cities is also strongly affected by the health status of Indigenous Australians.

This chapter presents 1- and 5-year relative survival by geographic region for the major cancers diagnosed in 2004.

Methodology

This report uses a geographic classification known as the Australian Standard Geographical Classification (ASGC) Remoteness Area, which groups geographic areas into five classes: Major Cities (MC), Inner Regional (IR), Outer Regional (OR), Remote (R) and Very Remote (VR). Because of the low populations in the latter two classes, R and VR areas were combined for all analyses in this report. These geographic classes are based on census collection districts, which aggregate into statistical local areas (SLAs) and are defined using the Accessibility/Remoteness Index for Australia (ARIA). ARIA is a measure of the remoteness of a location from the services provided by large towns or cities.

The smallest geographic unit available for this study was the postcode at diagnosis.

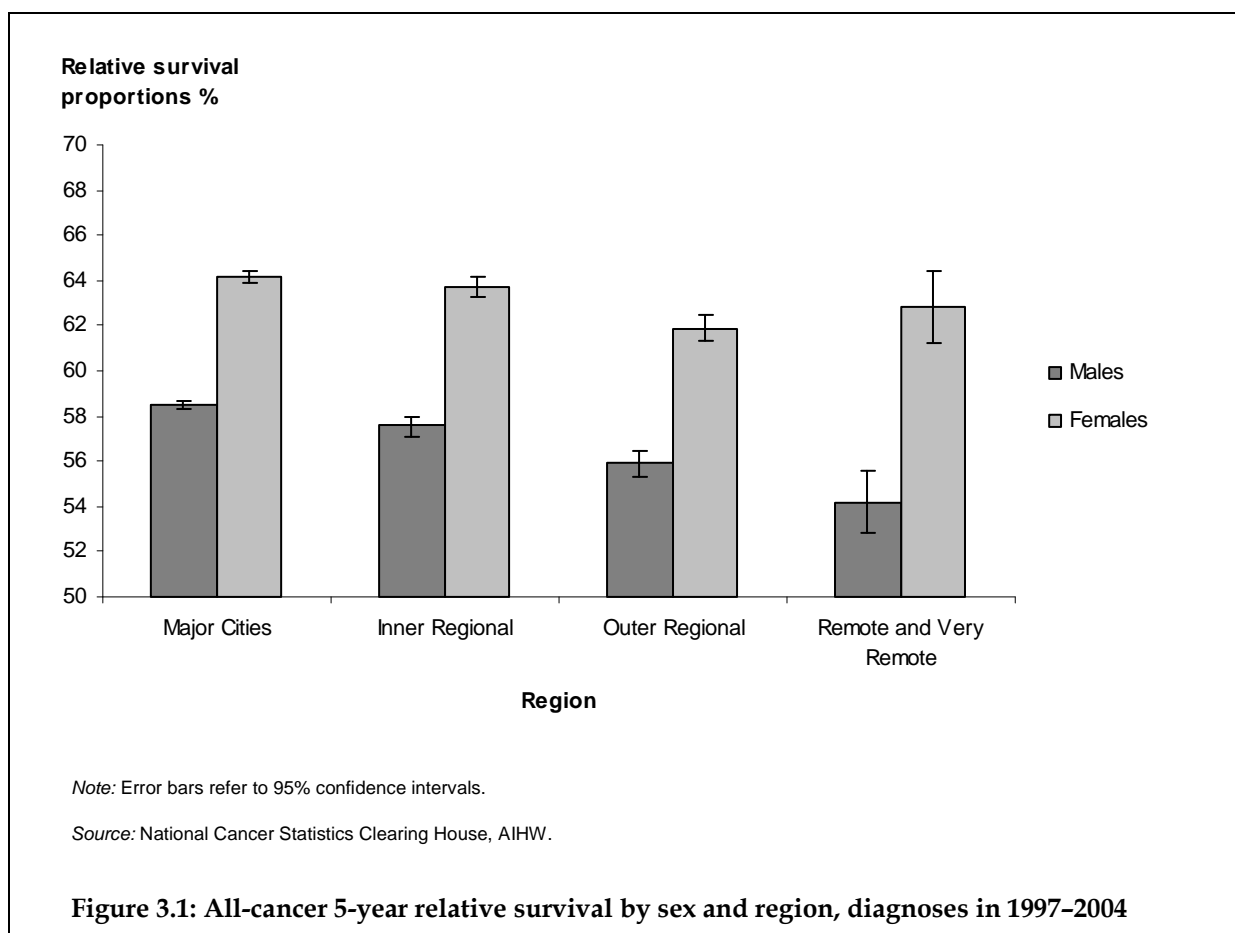
A concordance between SLAs and postcodes was used to obtain the ASGC Remoteness Area for postcodes.

In order to calculate relative survival for each region, life tables were required for each remoteness category. Derivation of these region-specific life tables is explained in detail in Appendix A. The time period used for reporting in this chapter is 1997–2004, which was selected based on the available information for constructing the life tables used in survival analysis.

Main findings

(Figure 3.1)

- For all persons, all-cancer 1- and 5-year relative survival decreased with increasing remoteness and showed significant differences between MC, IR and OR areas for cancers diagnosed in 1997–2004.
- One- and 5-year relative survival for all persons was lower in R/VR areas (73% at 1 year, 58% at 5 years) compared with OR (75% at 1 year, 59% at 5 years) areas, although this difference was not significant at 5 years after diagnosis.
- In general, males showed greater variation than females in all-cancer relative survival between MC and other regions.
 - For males, all-cancer 5-year relative survival was significantly higher in MC (59%) compared with IR (58%), OR (56%) and R/VR (54%) areas.
 - For females, all-cancer 5-year relative survival was significantly higher in MC (64%) compared with OR areas (62%), but not IR (64%) or R/VR (63%) areas.



One-year survival

(Tables 3.1, 3.3–3.5)

- All-cancer 1-year relative survival for persons decreased with increasing remoteness and showed significant differences between MC (77%), IR (76%), OR (75%) and R/VR (73%) areas for cancers diagnosed in 1997–2004.
- In IR and OR areas compared with MC, the cancer that had the lowest 1-year relative survival was stomach cancer for both males (43% in IR areas and 44% in OR areas, 51% in MC) and females (44% in IR areas and 43% in OR areas, 50% in MC).
- Only bladder cancer for females had significantly higher 1-year relative survival in IR areas (77%) compared with MC (72%), although this finding might be due to coding differences.
- In R/VR areas compared with MC, the cancers that had the lowest 1-year relative survival were:
 - thyroid cancer (79% in R/VR areas and 94% in MC) for males
 - non-Hodgkin lymphoma for females (68% in R/VR areas and 78% in MC).

Five-year survival

(Tables 3.2–3.5)

- All-cancer 5-year relative survival for persons was significantly higher in MC (61%) compared with IR (60%), OR (59%) and R/VR (58%) areas for cancers diagnosed in 1997–2004.
- In IR and OR areas compared with MC, the cancer that had the lowest 5-year relative survival was stomach cancer for both males (19% in both IR and OR areas, 26% in MC) and females (22% in IR areas and 17% in OR areas, 27% in MC).
- In R/VR areas compared with MC, the only cancer that had significantly lower 5-year relative survival outcomes was thyroid cancer for males (62% in R/VR areas and 89% in MC). For females, none of the selected cancers had significantly different 5-year relative survival proportions between MC and R/VR areas.

Table 3.1: One-year relative survival by region, diagnoses in 1997–2004

Cancer site/type (ICD-10 codes)	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	75.0	74.8–75.1	74.3	74.0–74.6	73.5	73.0–73.9	69.7	68.6–70.9
Stomach (C16)	51.4	50.1–52.6	42.9	40.8–45.1	44.1	40.9–47.3	39.1	31.2–46.8
Colorectal (C18–C20)	81.6	81.2–82.1	80.3	79.6–81.1	79.5	78.4–80.6	78.1	75.0–80.8
Pancreas (C25)	20.7	19.6–21.8	15.8	14.3–17.5	16.7	14.3–19.2	13.4	8.9–18.7
Lung (C33–C34)	34.9	34.3–35.4	32.4	31.5–33.3	29.8	28.5–31.1	26.3	23.6–29.2
Melanoma of skin (C43)	97.2	96.9–97.4	96.7	96.2–97.1	96.6	95.8–97.2	97.6	95.7–98.9
Prostate (C61)	95.6	95.3–95.8	95.0	94.6–95.3	95.6	95.0–96.1	94.6	92.9–96.0
Testis (C62)	98.4	97.9–98.8	98.6	97.6–99.3	99.0	97.3–99.7	99.1	92.2–100.1
Kidney (C64)	80.3	79.2–81.2	80.2	78.5–81.9	78.6	75.9–81.1	78.4	70.5–84.5
Bladder (C67)	82.7	81.7–83.5	82.7	81.2–84.1	84.4	82.2–86.5	82.7	76.0–88.0
Brain (C71)	42.3	40.7–43.8	39.5	37.0–42.0	42.8	38.7–46.8	43.5	34.2–52.5
Thyroid (C73)	93.5	92.1–94.7	92.0	88.9–94.4	90.1	85.1–93.6	78.5	63.7–88.0
Hodgkin lymphoma (C81)	92.1	90.5–93.5	92.2	88.7–94.8	91.0	85.3–94.8	90.8	73.5–97.4
Non-Hodgkin lymphoma (C82–C85, C96)	78.0	77.1–78.8	77.4	75.9–78.9	75.9	73.4–78.2	78.0	71.6–83.3
Leukaemia (C91–C95)	67.8	66.7–68.8	67.3	65.5–69.1	67.8	65.1–70.4	71.8	64.6–77.9
Unknown primary site (C26, C39, C76, C80)	17.9	17.2–18.6	19.0	17.9–20.2	15.6	14.2–17.0	18.9	15.4–22.7
Females								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	78.8	78.6–78.9	78.3	77.9–78.6	77.3	76.8–77.8	77.4	76.1–78.6
Stomach (C16)	49.6	48.0–51.1	44.4	41.4–47.3	43.1	38.5–47.7	39.0	25.9–52.0
Colorectal (C18–C20)	80.4	80.0–80.9	78.6	77.7–79.4	77.8	76.4–79.1	79.7	75.6–83.2
Pancreas (C25)	19.1	18.1–20.2	16.1	14.5–17.8	18.5	16.0–21.2	18.9	12.1–27.0
Lung (C33–C34)	39.6	38.8–40.4	37.8	36.5–39.1	34.3	32.3–36.2	31.1	26.4–36.0
Melanoma of skin (C43)	98.3	98.0–98.5	98.7	98.3–99.1	98.3	97.7–98.9	99.3	97.7–100.2
Breast (C50)	97.2	97.0–97.3	97.1	96.8–97.4	96.8	96.4–97.3	96.7	95.3–97.7
Cervix (C53)	87.6	86.5–88.6	87.6	85.5–89.4	84.7	81.7–87.4	80.6	72.7–86.6
Uterus, body (C54)	92.8	92.2–93.4	92.8	91.6–93.8	90.7	88.7–92.4	90.4	85.2–94.0
Ovary (C56)	74.0	72.8–75.1	71.5	69.4–73.5	68.6	65.3–71.6	73.7	65.8–80.2
Kidney (C64)	79.1	77.8–80.4	74.7	72.2–77.0	75.5	71.6–79.0	82.5	70.6–90.1
Bladder (C67)	71.6	69.9–73.2	76.7	73.8–79.4	70.6	66.0–74.7	71.0	57.0–81.6
Brain (C71)	38.8	37.1–40.5	35.0	32.1–37.9	38.5	34.0–43.1	39.7	28.3–50.9
Thyroid (C73)	97.1	96.5–97.6	96.3	95.0–97.3	95.9	93.7–97.4	98.6	93.3–100.0
Hodgkin lymphoma (C81)	93.4	91.7–94.8	93.5	89.9–95.9	93.0	86.9–96.5	95.1	67.4–99.9
Non-Hodgkin lymphoma (C82–C85, C96)	77.7	76.8–78.6	76.6	74.9–78.2	75.0	72.2–77.5	68.0	59.4–75.3
Leukaemia (C91–C95)	65.7	64.4–66.9	64.9	62.6–67.0	67.4	63.9–70.6	63.4	54.0–71.4
Unknown primary site (C26, C39, C76, C80)	15.2	14.6–15.9	15.7	14.7–16.8	16.0	14.4–17.8	11.5	8.8–14.7

(continued)

Table 3.1 (continued): One-year relative survival by region, diagnoses in 1997–2004

Cancer site/type (ICD-10 codes)	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Persons								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	76.7	76.6–76.9	76.1	75.9–76.3	75.1	74.8–75.4	72.9	72.0–73.7
Stomach (C16)	50.7	49.7–51.7	43.4	41.7–45.1	43.8	41.2–46.4	39.0	32.3–45.8
Colorectal (C18–C20)	81.1	80.7–81.4	79.5	79.0–80.1	78.8	77.9–79.6	78.6	76.2–80.8
Pancreas (C25)	19.9	19.2–20.7	16.0	14.9–17.2	17.6	15.8–19.4	15.6	11.7–20.1
Lung (C33–C34)	36.5	36.1–37.0	34.2	33.4–34.9	31.2	30.1–32.3	27.6	25.2–30.1
Melanoma of skin (C43)	97.6	97.4–97.8	97.6	97.2–97.9	97.3	96.8–97.8	98.4	97.2–99.2
Kidney (C64)	79.8	79.0–80.6	78.2	76.8–79.6	77.5	75.3–79.6	79.6	73.4–84.7
Bladder (C67)	79.7	78.9–80.5	81.3	79.9–82.5	80.9	78.9–82.8	80.0	74.1–84.9
Brain (C71)	40.8	39.7–41.9	37.7	35.8–39.6	41.1	38.1–44.1	42.0	34.8–49.1
Thyroid (C73)	96.2	95.7–96.7	95.2	93.9–96.2	94.3	92.3–95.8	92.8	87.4–96.1
Hodgkin lymphoma (C81)	92.7	91.5–93.7	92.8	90.4–94.7	91.9	88.0–94.7	92.4	80.3–97.5
Non-Hodgkin lymphoma (C82–C85, C96)	77.8	77.2–78.4	77.1	75.9–78.2	75.5	73.6–77.2	74.1	69.0–78.5
Leukaemia (C91–C95)	66.9	66.1–67.7	66.3	64.9–67.7	67.7	65.6–69.7	68.6	62.9–73.6
Unknown primary site (C26, C39, C76, C80)	16.5	16.1–17.0	17.5	16.7–18.3	15.8	14.7–16.9	15.5	13.2–18.0

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table 3.2: Five-year relative survival by region, diagnoses in 1997–2004

Cancer site/type (ICD-10 codes)	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	58.5	58.3–58.7	57.6	57.1–58.0	55.9	55.3–56.5	54.2	52.8–55.6
Stomach (C16)	26.1	24.9–27.3	18.5	16.7–20.5	18.7	15.9–21.6	20.0	13.4–27.7
Colorectal (C18–C20)	61.7	61.0–62.4	60.3	59.2–61.4	58.0	56.4–59.6	58.3	54.1–62.3
Pancreas (C25)	5.2	4.6–5.9	3.0	2.2–4.0	4.0	2.8–5.6	4.7	2.1–8.9
Lung (C33–C34)	11.2	10.8–11.7	10.2	9.6–10.9	7.8	7.0–8.7	9.0	7.1–11.1
Melanoma of skin (C43)	89.9	89.3–90.5	89.4	88.4–90.3	88.7	87.2–90.1	91.2	87.5–94.3
Prostate (C61)	85.9	85.4–86.4	82.8	82.0–83.6	82.5	81.2–83.7	82.5	79.1–85.6
Testis (C62)	96.8	95.9–97.4	96.8	95.2–98.1	95.2	92.2–97.3	95.6	87.8–99.1
Kidney (C64)	66.2	64.8–67.6	63.4	60.9–65.9	63.7	60.0–67.2	59.3	49.5–68.2
Bladder (C67)	62.3	60.9–63.7	63.2	60.9–65.4	62.1	58.6–65.6	58.2	49.1–66.8
Brain (C71)	18.4	17.2–19.7	15.8	13.9–17.9	21.5	18.1–25.1	25.1	17.2–33.8
Thyroid (C73)	89.2	87.1–91.1	85.7	81.1–89.6	85.7	78.9–91.0	62.4	43.5–77.4
Hodgkin lymphoma (C81)	84.7	82.4–86.8	84.5	79.5–88.5	81.9	74.1–87.9	93.1	75.3–99.8
Non-Hodgkin lymphoma (C82–C85, C96)	61.7	60.5–62.8	60.1	58.0–62.1	55.2	52.0–58.4	60.5	52.3–68.0
Leukaemia (C91–C95)	47.4	46.0–48.7	47.3	45.0–49.5	46.8	43.5–50.1	55.1	46.4–63.2
Unknown primary site (C26, C39, C76, C80)	9.8	9.2–10.5	10.7	9.7–11.8	9.4	8.1–10.8	12.8	9.6–16.5
Females								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	64.2	63.9–64.4	63.7	63.3–64.2	61.9	61.3–62.5	62.8	61.2–64.4
Stomach (C16)	27.3	25.8–28.9	21.8	19.2–24.6	16.7	13.0–20.8	17.0	7.7–29.7
Colorectal (C18–C20)	62.9	62.2–63.6	60.6	59.4–61.8	59.2	57.3–61.0	58.1	52.6–63.4
Pancreas (C25)	5.0	4.4–5.7	4.1	3.2–5.2	3.7	2.5–5.2	5.3	1.8–11.7
Lung (C33–C34)	14.6	14.0–15.2	13.4	12.4–14.5	10.5	9.2–12.0	12.3	8.9–16.4
Melanoma of skin (C43)	93.8	93.2–94.3	94.2	93.3–95.1	94.5	93.2–95.8	96.8	93.6–99.2
Breast (C50)	87.7	87.3–88.1	87.6	86.9–88.2	85.3	84.3–86.4	85.0	82.3–87.4
Cervix (C53)	73.1	71.5–74.6	70.0	67.0–72.8	67.4	63.3–71.1	66.7	57.6–74.4
Uterus, body (C54)	82.4	81.3–83.5	81.2	79.1–83.1	80.6	77.6–83.5	77.5	69.6–84.1
Ovary (C56)	40.8	39.4–42.2	38.1	35.6–40.5	36.0	32.4–39.7	37.6	28.9–46.4
Kidney (C64)	67.1	65.3–68.8	61.9	58.7–64.9	62.9	58.1–67.5	68.4	54.0–79.8
Bladder (C67)	53.0	50.8–55.2	57.9	54.1–61.7	52.1	46.4–57.6	55.2	39.6–69.2
Brain (C71)	19.0	17.6–20.5	18.5	16.1–21.1	21.0	17.1–25.1	20.3	11.8–30.5
Thyroid (C73)	95.4	94.6–96.2	94.9	93.1–96.4	92.4	89.2–94.9	99.0	91.8–101.4
Hodgkin lymphoma (C81)	86.3	83.8–88.5	85.6	80.7–89.5	84.5	75.7–90.7	88.5	53.5–99.8
Non-Hodgkin lymphoma (C82–C85, C96)	62.1	60.8–63.3	61.4	59.2–63.6	59.0	55.5–62.3	52.7	42.9–61.8
Leukaemia (C91–C95)	46.7	45.2–48.2	46.1	43.5–48.7	49.4	45.4–53.3	49.6	39.5–59.2
Unknown primary site (C26, C39, C76, C80)	6.9	6.4–7.4	8.2	7.3–9.2	7.6	6.2–9.1	7.0	4.8–9.8

(continued)

Table 3.2 (continued): Five-year relative survival by region, diagnoses in 1997–2004

Cancer site/type (ICD-10 codes)	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Persons								
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	61.2	61.0–61.3	60.3	60.0–60.6	58.5	58.0–58.9	57.8	56.7–58.8
Stomach (C16)	26.6	25.6–27.5	19.7	18.1–21.3	18.0	15.8–20.3	19.4	13.8–25.9
Colorectal (C18–C20)	62.3	61.8–62.7	60.4	59.6–61.3	58.5	57.3–59.7	58.2	54.9–61.5
Pancreas (C25)	5.1	4.7–5.6	3.6	3.0–4.3	3.8	3.0–4.9	5.0	2.7–8.3
Lung (C33–C34)	12.4	12.1–12.8	11.3	10.7–11.8	8.7	8.0–9.4	9.9	8.2–11.7
Melanoma of skin (C43)	91.6	91.2–92.0	91.5	90.9–92.2	91.3	90.2–92.3	93.7	91.3–95.8
Kidney (C64)	66.5	65.4–67.6	62.9	60.9–64.8	63.4	60.5–66.3	62.2	54.2–69.5
Bladder (C67)	59.8	58.6–61.0	61.9	59.9–63.9	59.6	56.6–62.5	57.6	49.7–65.1
Brain (C71)	18.7	17.8–19.7	16.9	15.3–18.5	21.4	18.8–24.1	23.3	17.3–30.0
Thyroid (C73)	93.9	93.1–94.7	92.5	90.7–94.0	90.6	87.7–93.0	88.7	81.1–93.9
Hodgkin lymphoma (C81)	85.4	83.8–87.0	85.0	81.7–87.9	83.1	77.5–87.6	91.9	78.1–98.4
Non-Hodgkin lymphoma (C82–C85, C96)	61.9	61.0–62.7	60.7	59.2–62.2	57.0	54.6–59.3	57.4	51.1–63.3
Leukaemia (C91–C95)	47.1	46.1–48.1	46.8	45.1–48.5	47.9	45.3–50.4	53.0	46.5–59.3
Unknown primary site (C26, C39, C76, C80)	8.3	7.9–8.7	9.5	8.8–10.3	8.6	7.6–9.6	10.1	8.0–12.4

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table 3.3: Significant differences in relative survival between Major Cities and Inner Regional areas

Cancer site/type (ICD-10 codes)	Significant percentage point difference			
	1-year survival		5-year survival	
	Males	Females	Males	Females
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	0.7	—	0.9	—
Stomach (C16)	8.5	5.2	7.6	5.5
Colorectal (C18–C20)	1.3	1.8	—	2.3
Pancreas (C25)	4.9	3.0	2.2	—
Lung (C33–C34)	2.5	—	—	—
Melanoma of skin (C43)	—	—	—	—
Breast (C50)	..	—	..	—
Cervix (C53)	..	—	..	—
Uterus, body (C54)	..	—	..	—
Ovary (C56)	..	—	..	—
Prostate (C61)	—	..	3.1	..
Testis (C62)	—	..	—	..
Kidney (C64)	—	4.4	—	5.2
Bladder (C67)	—	–5.1	—	—
Brain (C71)	—	—	—	—
Thyroid (C73)	—	—	—	—
Hodgkin lymphoma (C81)	—	—	—	—
Non-Hodgkin lymphoma (C82–C85, C96)	—	—	—	—
Leukaemia (C91–C95)	—	—	—	—
Unknown primary site (C26, C39, C76, C80)	—	—	—	—

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

Table 3.4: Significant differences in relative survival between Major Cities and Outer Regional areas

Cancer site/type (ICD-10 codes)	Significant percentage point difference			
	1-year survival		5-year survival	
	Males	Females	Males	Females
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	1.5	1.5	2.6	2.3
Stomach (C16)	7.3	6.5	7.4	10.6
Colorectal (C18–C20)	2.1	2.6	3.7	3.7
Pancreas (C25)	4.0	—	—	—
Lung (C33–C34)	5.1	5.3	3.4	4.1
Melanoma of skin (C43)	—	—	—	—
Breast (C50)	..	—	..	2.4
Cervix (C53)	..	—	..	5.7
Uterus, body (C54)	..	—	..	—
Ovary (C56)	..	5.4	..	—
Prostate (C61)	—	..	3.4	..
Testis (C62)	—	..	—	..
Kidney (C64)	—	—	—	—
Bladder (C67)	—	—	—	—
Brain (C71)	—	—	—	—
Thyroid (C73)	—	—	—	—
Hodgkin lymphoma (C81)	—	—	—	—
Non-Hodgkin lymphoma (C82–C85, C96)	—	—	6.5	—
Leukaemia (C91–C95)	—	—	—	—
Unknown primary site (C26, C39, C76, C80)	2.3	—	—	—

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

Table 3.5: Significant differences in relative survival between Major Cities and Remote and Very Remote areas

Cancer site/type (ICD-10 codes)	Significant percentage point difference			
	1-year survival		5-year survival	
	Males	Females	Males	Females
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	5.3	—	4.3	—
Stomach (C16)	12.3	—	—	—
Colorectal (C18–C20)	3.5	—	—	—
Pancreas (C25)	7.3	—	—	—
Lung (C33–C34)	8.6	8.5	—	—
Melanoma of skin (C43)	—	—	—	—
Breast (C50)	..	—	..	—
Cervix (C53)	..	—	..	—
Uterus, body (C54)	..	—	..	—
Ovary (C56)	..	—	..	—
Prostate (C61)	—	..	—	..
Testis (C62)	—	..	—	..
Kidney (C64)	—	—	—	—
Bladder (C67)	—	—	—	—
Brain (C71)	—	—	—	—
Thyroid (C73)	15.0	—	26.8	—
Hodgkin lymphoma (C81)	—	—	—	—
Non-Hodgkin lymphoma (C82–C85, C96)	—	9.7	—	—
Leukaemia (C91–C95)	—	—	—	—
Unknown primary site (C26, C39, C76, C80)	—	—	—	—

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

4 Survival by socioeconomic status

Introduction

For each cancer case diagnosed between 2000 and 2004, the statistical local area (SLA) or postcode of residence at diagnosis was assigned an Index of Relative Socioeconomic Disadvantage (IRSD). The IRSD is one of the Socioeconomic Indexes For Areas (SEIFA) developed by the ABS to categorise geographic areas according to their social and economic characteristics. It is based on factors such as average household income, education levels and unemployment.

Areas classified by the ABS as having high socioeconomic status are predominantly located in cities, have good access to health services and have populations with generally above-average education and income. These factors are expected to be associated with relatively earlier detection and treatment of cancer, and therefore increased relative survival.

In contrast, poor access to health services and lower levels of education and income in areas with low socioeconomic status might contribute to later cancer detection, less than adequate treatment and support services, leading to lower cancer survival. Previously, an analysis of 1992–1997 cancer cases found decreased relative survival in low socioeconomic status areas compared with the Australian average, especially for breast and prostate cancer (AIHW & AACR 2003).

In addition, cancer survival outcomes might vary across socioeconomic status levels because of differences in the age at diagnosis, extent of the disease at diagnosis and cancer morphologies and sites associated with various socioeconomic status levels. The effects of these covariates on survival are modelled and further examined in the Victorian and NSW cancer survival reports (Cancer Council Victoria Epidemiology Centre 2007; Tracey, Barraclough et al. 2007; Yu et al. 2006).

This chapter presents 1- and 5-year relative survival by socioeconomic status quintile for the major cancers diagnosed in 2004. In order to calculate relative survival for each socioeconomic status quintile, life tables were required for each quintile. Derivation of these quintile-specific life tables is explained in detail in Appendix A. The time period used for reporting in this chapter is 2000–2004, which was selected based on the available information for constructing the life tables used in survival analysis.

Interpretation of socioeconomic status categories

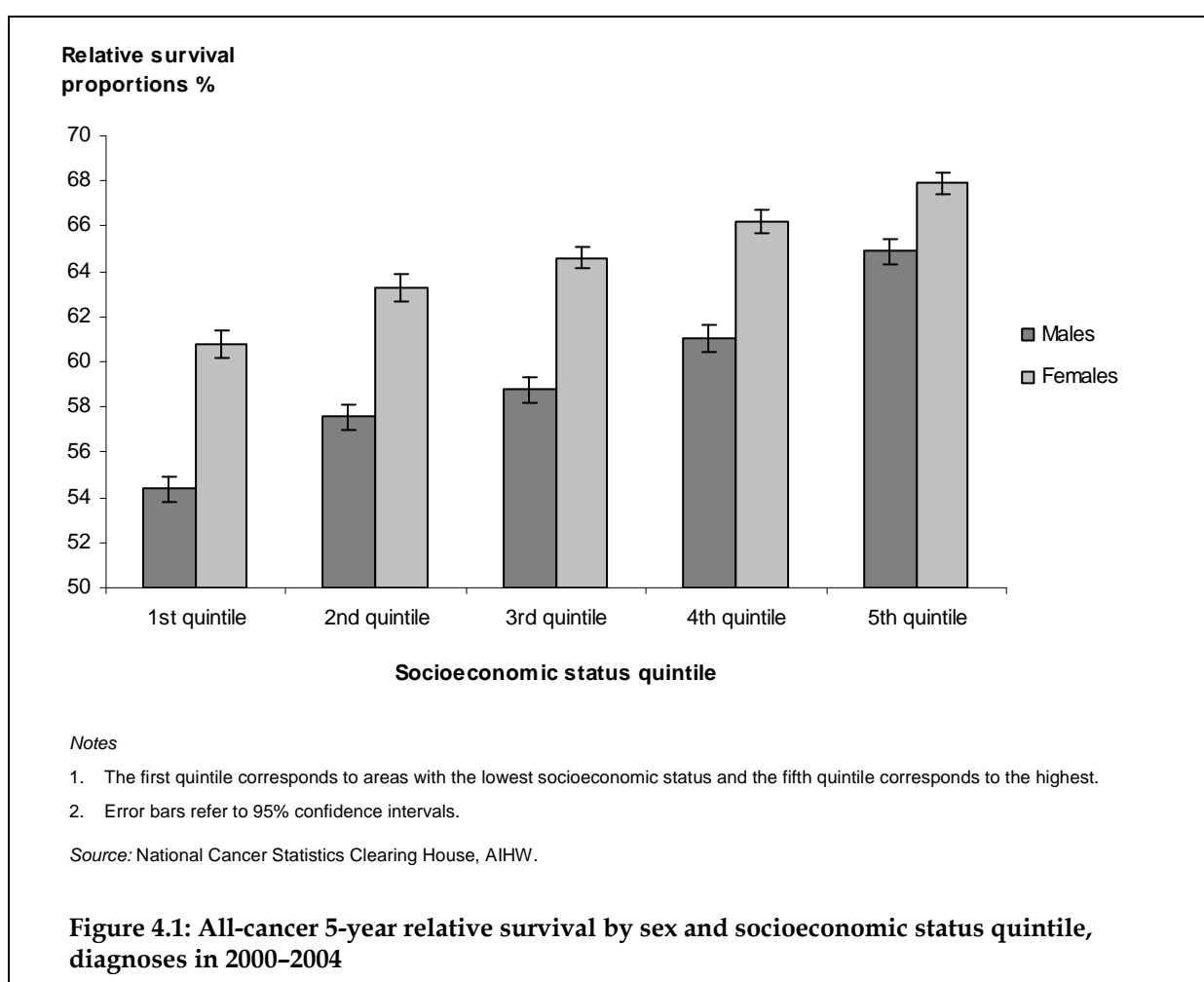
In this report, the first socioeconomic status quintile corresponds to SLAs containing the 20% of the population with the highest level of disadvantage according to the IRSD and the fifth quintile corresponds to the 20% of areas with least disadvantage.

It is important to note that the IRSD relates to the average disadvantage of all people living in a geographic area. Hence any variability between groups based on the IRSD will be smaller than if the variability had been measured between individuals.

Main findings

(Figure 4.1)

- For all persons, all-cancer 1- and 5-year relative survival increased with socioeconomic advantage and showed significant differences between the socioeconomic status area quintiles for cancers diagnosed in 2000–2004.
- In general, males showed greater variation in all-cancer relative survival between socioeconomic status quintiles than females.
 - For males, all-cancer 5-year relative survival was 54% in the lowest socioeconomic status quintile and 65% in the highest socioeconomic status quintile.
 - For females, all-cancer 5-year relative survival was 61% in the lowest socioeconomic status quintile and 68% in the highest socioeconomic status quintile.



One-year survival

(Tables 4.1 and 4.3)

- For all persons, all-cancer 1-year relative survival increased with socioeconomic advantage and showed significant differences between the first (74%), second (76%), third (77%), fourth (79%) and fifth (80%) socioeconomic status quintiles.

- For males, the cancers that had the greatest difference in 1-year relative survival between the lowest and the highest socioeconomic status area quintiles were:
 - pancreatic cancer (15% in the first quintile and 24% in the fifth quintile)
 - brain cancer (39% in the first quintile and 47% in the fifth quintile)
 - leukaemia (66% in the first quintile and 72% in the fifth quintile).
- For females, the cancers that had the greatest difference in 1-year relative survival between the lowest and the highest socioeconomic status quintiles were:
 - brain cancer (35% in the first quintile and 46% in the fifth quintile)
 - colorectal cancer (77% in the first quintile and 83% in the fifth quintile)
 - non-Hodgkin lymphoma (76% in the first quintile and 81% in the fifth quintile).

Five-year survival

(Tables 4.2 and 4.3)

- For all persons, all-cancer 5-year relative survival increased with socioeconomic advantage and showed significant differences between the first (57%), second (60%), third (61%), fourth (63%) and fifth (66%) socioeconomic status quintiles.
- For males, the cancers that had a significant increase in 5-year relative survival between the lowest and the highest socioeconomic status quintiles were:
 - non-Hodgkin lymphoma (59% in the first quintile and 67% in the fifth quintile)
 - colorectal cancer (61% in the first quintile and 66% in the fifth quintile)
 - prostate cancer (85% in the first quintile and 90% in the fifth quintile).
- For females, the cancers that had the greatest difference in 5-year relative survival between the lowest and the highest socioeconomic status quintiles were:
 - cervical cancer (65% in the first quintile and 78% in the fifth quintile)
 - colorectal cancer (59% in the first quintile and 67% in the fifth quintile)
 - breast cancer (86% in the first quintile and 90% in the fifth quintile).

Table 4.1: One-year relative survival by socioeconomic status quintile^(a), diagnoses in 2000–2004

Cancer site/type (ICD-10 codes)	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males										
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	71.7	71.3–72.1	74.1	73.7–74.5	75.3	74.9–75.7	76.9	76.5–77.3	79.8	79.4–80.1
Stomach (C16)	47.9	45.3–50.5	45.4	42.6–48.1	50.1	47.2–52.9	51.1	48.2–54.0	53.5	50.5–56.5
Colorectal (C18–C20)	81.1	80.1–82.1	80.6	79.6–81.5	81.5	80.5–82.5	81.3	80.2–82.3	84.7	83.7–85.6
Pancreas (C25)	14.9	13.0–16.9	17.1	15.0–19.4	19.5	17.3–21.9	21.4	18.9–24.0	24.3	21.7–27.0
Lung (C33–C34)	32.8	31.7–33.9	32.0	30.8–33.1	33.1	31.9–34.3	35.7	34.3–37.0	36.2	34.7–37.6
Melanoma of skin (C43)	96.5	95.7–97.2	96.7	96.0–97.3	96.8	96.1–97.4	97.6	97.0–98.2	97.9	97.4–98.4
Prostate (C61)	95.2	94.6–95.7	95.3	94.8–95.8	95.8	95.3–96.2	95.9	95.4–96.4	96.6	96.2–97.0
Testis (C62)	97.5	95.7–98.6	99.4	98.2–99.9	97.8	96.2–98.8	98.5	97.2–99.3	98.9	97.7–99.5
Kidney (C64)	80.9	78.6–83.0	78.4	76.0–80.6	81.3	79.0–83.5	81.4	79.0–83.6	84.5	82.3–86.5
Bladder (C67)	81.0	78.9–82.9	82.4	80.4–84.2	83.4	81.3–85.4	84.0	81.8–86.0	81.9	79.5–84.0
Brain (C71)	39.2	35.8–42.6	43.9	40.4–47.4	40.2	36.7–43.6	42.1	38.6–45.6	46.7	43.2–50.1
Thyroid (C73)	92.8	89.2–95.4	92.4	88.5–95.2	91.1	87.2–94.1	93.9	90.4–96.3	93.1	89.7–95.5
Hodgkin lymphoma (C81)	93.3	88.8–96.1	90.9	86.3–94.1	91.1	86.7–94.3	92.4	88.2–95.2	92.6	88.4–95.4
Non-Hodgkin lymphoma (C82–C85, C96)	76.6	74.6–78.6	78.2	76.3–80.1	77.7	75.8–79.6	80.8	78.9–82.6	81.0	79.2–82.7
Leukaemia (C91–C95)	65.9	63.4–68.3	69.3	67.0–71.5	68.7	66.3–71.0	70.2	67.6–72.6	71.7	69.2–73.9
Unknown primary site (C26, C39, C76, C80)	17.6	16.2–19.0	19.6	18.2–21.1	20.5	18.9–22.1	21.5	19.7–23.3	22.6	20.7–24.5
Females										
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	76.1	75.7–76.5	77.8	77.4–78.2	78.7	78.3–79.1	80.4	79.9–80.8	81.2	80.8–81.6
Stomach (C16)	45.6	42.0–49.1	49.6	45.9–53.3	47.1	43.4–50.8	47.8	43.9–51.7	51.4	47.5–55.1
Colorectal (C18–C20)	76.9	75.7–78.1	79.5	78.4–80.6	80.4	79.3–81.5	81.7	80.5–82.7	83.0	81.9–84.0
Pancreas (C25)	19.4	17.2–21.8	18.5	16.2–20.8	18.7	16.4–21.1	20.5	18.0–23.1	23.4	20.9–26.1
Lung (C33–C34)	37.3	35.7–38.9	36.8	35.2–38.4	37.9	36.2–39.6	40.8	39.0–42.6	41.3	39.4–43.1
Melanoma of skin (C43)	98.3	97.6–98.9	98.1	97.5–98.6	98.4	97.8–98.8	98.8	98.2–99.3	98.8	98.3–99.3
Breast (C50)	96.6	96.2–97.0	97.0	96.6–97.4	97.1	96.7–97.5	97.6	97.2–97.9	97.7	97.3–98.0
Cervix (C53)	84.0	81.3–86.4	87.3	84.6–89.5	86.4	83.5–88.9	88.3	85.6–90.6	88.8	85.9–91.1
Uterus, body (C54)	92.4	90.8–93.7	92.2	90.6–93.5	93.4	91.9–94.7	92.2	90.5–93.6	93.1	91.6–94.3
Ovary (C56)	71.8	69.0–74.4	69.6	66.9–72.2	74.9	72.1–77.4	74.7	72.0–77.2	73.9	71.4–76.3
Kidney (C64)	78.8	75.7–81.6	76.3	73.2–79.1	74.5	71.1–77.6	81.4	78.2–84.2	80.9	77.8–83.6
Bladder (C67)	70.5	66.4–74.2	74.5	70.8–77.8	72.6	68.5–76.4	74.3	70.2–78.1	70.2	66.0–74.0
Brain (C71)	34.7	30.8–38.5	37.0	33.2–40.8	41.0	37.1–44.9	39.9	36.1–43.8	46.4	42.5–50.3
Thyroid (C73)	96.2	94.7–97.3	97.0	95.5–98.0	96.7	95.3–97.8	97.6	96.3–98.6	97.0	95.8–98.0
Hodgkin lymphoma (C81)	92.5	87.7–95.6	94.1	89.7–96.8	93.2	88.3–96.2	93.0	88.3–95.9	93.0	88.5–95.9
Non-Hodgkin lymphoma (C82–C85, C96)	75.5	73.2–77.7	76.2	74.1–78.3	79.7	77.5–81.8	80.0	77.9–82.0	80.5	78.5–82.3
Leukaemia (C91–C95)	64.5	61.5–67.4	64.9	62.0–67.6	65.6	62.6–68.5	69.2	66.2–72.0	65.5	62.7–68.2
Unknown primary site (C26, C39, C76, C80)	17.4	15.9–18.9	16.3	14.9–17.7	16.0	14.6–17.5	16.7	15.1–18.3	18.3	16.7–20.0

(continued)

Table 4.1 (continued): One-year relative survival by socioeconomic status quintile^(a), diagnoses in 2000–2004

Cancer site/type (ICD-10 codes)	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
	Persons									
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	73.6	73.3–73.9	75.8	75.5–76.0	76.8	76.6–77.1	78.5	78.2–78.8	80.4	80.2–80.7
Stomach (C16)	47.1	45.0–49.2	46.8	44.6–49.0	49.0	46.7–51.3	49.9	47.6–52.3	52.7	50.3–55.0
Colorectal (C18–C20)	79.3	78.5–80.1	80.1	79.4–80.8	81.0	80.3–81.7	81.5	80.7–82.2	83.9	83.1–84.5
Pancreas (C25)	17.0	15.6–18.5	17.8	16.2–19.4	19.1	17.5–20.7	20.9	19.2–22.8	23.9	22.0–25.8
Lung (C33–C34)	34.3	33.4–35.2	33.6	32.7–34.5	34.8	33.8–35.8	37.6	36.5–38.6	38.2	37.1–39.4
Melanoma of skin (C43)	97.3	96.8–97.8	97.3	96.9–97.7	97.5	97.0–97.9	98.1	97.7–98.5	98.3	97.9–98.7
Kidney (C64)	80.2	78.3–81.9	77.6	75.7–79.3	78.9	77.0–80.7	81.4	79.5–83.1	83.2	81.4–84.8
Bladder (C67)	78.5	76.6–80.2	80.3	78.5–81.9	80.8	78.9–82.5	81.5	79.6–83.3	78.6	76.6–80.5
Brain (C71)	37.3	34.8–39.9	41.0	38.4–43.5	40.5	37.9–43.1	41.2	38.6–43.8	46.6	44.0–49.2
Thyroid (C73)	95.4	94.0–96.5	95.8	94.4–96.9	95.4	94.0–96.5	96.7	95.4–97.7	96.1	94.9–97.1
Hodgkin lymphoma (C81)	92.9	89.8–95.1	92.4	89.4–94.6	92.0	88.9–94.3	92.7	89.7–94.8	92.8	89.9–94.9
Non-Hodgkin lymphoma (C82–C85, C96)	76.1	74.6–77.6	77.3	75.9–78.7	78.6	77.1–80.0	80.4	79.0–81.8	80.8	79.5–82.0
Leukaemia (C91–C95)	65.3	63.4–67.2	67.6	65.8–69.3	67.5	65.6–69.3	69.8	67.8–71.6	69.1	67.2–70.8
Unknown primary site (C26, C39, C76, C80)	17.5	16.5–18.5	18.0	17.0–19.1	18.4	17.3–19.5	19.1	17.9–20.4	20.4	19.1–21.6

(a) The first quintile corresponds to areas with the lowest socioeconomic status and the fifth quintile corresponds to the highest.

(b) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(c) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table 4.2: Five-year relative survival by socioeconomic status quintile^(a), diagnoses in 2000–2004

Cancer site/type (ICD-10 codes)	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males										
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	54.4	53.8–54.9	57.6	57.0–58.1	58.8	58.2–59.3	61.0	60.4–61.6	64.9	64.3–65.4
Stomach (C16)	23.8	21.2–26.4	21.9	19.3–24.8	26.0	23.1–28.9	26.4	23.5–29.4	29.0	25.9–32.3
Colorectal (C18–C20)	60.6	59.0–62.2	61.0	59.5–62.5	60.5	58.9–62.0	61.8	60.2–63.4	66.0	64.4–67.5
Pancreas (C25)	2.9	1.9–4.2	3.6	2.5–5.0	4.6	3.4–6.1	5.0	3.6–6.7	5.4	3.9–7.2
Lung (C33–C34)	10.4	9.6–11.3	10.0	9.2–10.9	9.8	8.9–10.8	11.1	10.1–12.2	12.1	11.0–13.3
Melanoma of skin (C43)	88.7	87.0–90.3	89.3	87.9–90.6	89.2	87.8–90.6	90.2	88.8–91.6	90.9	89.5–92.2
Prostate (C61)	84.6	83.3–85.8	85.1	83.9–86.2	85.5	84.3–86.6	86.9	85.8–88.0	89.8	88.8–90.8
Testis (C62)	94.9	92.2–96.9	96.7	94.2–98.4	95.2	92.8–97.0	97.0	95.0–98.4	97.7	95.7–99.0
Kidney (C64)	65.9	62.5–69.1	64.2	60.9–67.4	67.5	64.1–70.7	66.8	63.3–70.2	70.3	67.0–73.5
Bladder (C67)	59.6	56.4–62.7	60.8	57.7–63.9	63.1	59.7–66.5	64.0	60.6–67.3	61.9	58.2–65.5
Brain (C71)	18.4	15.6–21.5	19.7	16.8–22.8	17.0	14.2–19.9	17.4	14.6–20.5	20.2	17.4–23.3
Thyroid (C73)	88.0	82.6–92.2	87.4	81.4–92.1	84.7	78.4–89.9	90.5	85.7–94.3	89.3	84.4–93.1
Hodgkin lymphoma (C81)	84.0	77.1–89.3	86.1	80.1–90.7	83.0	77.1–87.7	85.4	79.9–89.7	86.2	80.4–90.6
Non-Hodgkin lymphoma (C82–C85, C96)	59.0	56.1–61.8	61.2	58.4–63.9	62.5	59.8–65.2	66.5	63.8–69.2	66.6	64.0–69.1
Leukaemia (C91–C95)	46.5	43.4–49.6	48.5	45.6–51.4	46.7	43.7–49.8	51.9	48.6–55.1	50.2	47.1–53.3
Unknown primary site (C26, C39, C76, C80)	9.9	8.7–11.2	10.9	9.5–12.4	10.8	9.3–12.4	13.8	12.1–15.7	12.8	11.0–14.7
Females										
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	60.8	60.2–61.4	63.3	62.8–63.9	64.6	64.0–65.1	66.2	65.6–66.7	67.9	67.3–68.4
Stomach (C16)	24.7	21.2–28.3	23.4	19.7–27.3	22.8	19.3–26.5	26.5	22.5–30.6	29.1	25.3–33.1
Colorectal (C18–C20)	59.2	57.5–61.0	62.6	60.9–64.2	64.3	62.6–65.9	64.0	62.3–65.7	66.9	65.3–68.5
Pancreas (C25)	5.7	4.3–7.5	3.7	2.6–5.2	3.9	2.7–5.5	6.3	4.7–8.2	5.5	4.0–7.3
Lung (C33–C34)	12.7	11.5–14.0	13.6	12.3–15.0	13.9	12.5–15.3	14.2	12.7–15.8	16.3	14.7–17.9
Melanoma of skin (C43)	93.3	91.8–94.6	94.1	92.8–95.3	94.0	92.7–95.2	94.8	93.5–96.0	95.1	93.8–96.3
Breast (C50)	86.1	85.1–87.0	87.4	86.5–88.3	88.2	87.4–89.1	88.9	88.0–89.7	90.0	89.2–90.7
Cervix (C53)	64.8	60.9–68.4	71.3	67.5–74.8	72.9	68.9–76.6	73.3	69.1–77.0	78.3	74.2–82.0
Uterus, body (C54)	82.1	79.5–84.6	80.7	77.9–83.3	80.7	77.9–83.3	83.0	80.2–85.5	84.4	81.9–86.7
Ovary (C56)	37.9	34.5–41.4	34.1	30.8–37.5	41.8	38.3–45.2	43.7	40.3–47.1	40.6	37.4–43.7
Kidney (C64)	66.8	62.7–70.8	64.0	59.9–67.8	66.5	62.3–70.5	68.4	64.1–72.5	69.4	65.2–73.3
Bladder (C67)	52.3	47.1–57.4	57.1	52.2–61.8	56.7	51.4–61.9	54.5	49.0–59.8	50.6	45.2–55.9
Brain (C71)	19.7	16.4–23.1	16.5	13.5–19.8	20.3	17.0–23.8	18.8	15.5–22.3	23.0	19.6–26.6
Thyroid (C73)	94.0	91.7–95.9	94.9	92.6–96.7	95.8	93.8–97.5	95.7	93.3–97.5	95.8	93.8–97.3
Hodgkin lymphoma (C81)	85.6	79.0–90.5	80.4	72.2–86.7	85.9	78.7–91.1	84.7	77.9–89.7	88.1	82.4–92.2
Non-Hodgkin lymphoma (C82–C85, C96)	60.3	57.2–63.4	62.7	59.7–65.5	63.4	60.3–66.3	65.7	62.7–68.6	65.9	63.1–68.6
Leukaemia (C91–C95)	45.6	42.0–49.2	48.4	44.9–51.8	48.4	44.7–52.0	52.5	48.8–56.1	48.5	45.0–52.0
Unknown primary site (C26, C39, C76, C80)	9.1	7.9–10.5	8.2	7.0–9.5	7.5	6.3–8.8	8.3	7.0–9.8	8.4	7.0–9.9

(continued)

Table 4.2 (continued): Five-year relative survival by socioeconomic status quintile^(a), diagnoses in 2000–2004

Cancer site/type (ICD-10 codes)	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Persons										
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	57.3	56.9–57.7	60.1	59.8–60.5	61.4	61.0–61.8	63.4	63.0–63.8	66.3	65.9–66.7
Stomach (C16)	24.1	22.0–26.2	22.4	20.2–24.7	24.8	22.6–27.1	26.4	24.1–28.9	29.1	26.6–31.6
Colorectal (C18–C20)	60.0	58.9–61.2	61.7	60.6–62.8	62.2	61.0–63.3	62.8	61.7–64.0	66.4	65.3–67.5
Pancreas (C25)	4.2	3.3–5.3	3.7	2.8–4.6	4.3	3.4–5.4	5.7	4.6–6.9	5.4	4.3–6.7
Lung (C33–C34)	11.2	10.5–11.9	11.2	10.5–12.0	11.2	10.5–12.1	12.3	11.4–13.2	13.8	12.8–14.8
Melanoma of skin (C43)	90.7	89.6–91.8	91.4	90.5–92.3	91.3	90.3–92.2	92.2	91.2–93.2	92.7	91.7–93.6
Kidney (C64)	66.3	63.6–68.8	64.2	61.6–66.6	67.2	64.6–69.7	67.4	64.7–70.0	70.1	67.4–72.5
Bladder (C67)	57.9	55.2–60.5	59.8	57.2–62.4	61.6	58.7–64.4	61.5	58.7–64.4	58.7	55.6–61.7
Brain (C71)	19.0	16.8–21.3	18.3	16.2–20.6	18.4	16.2–20.7	18.0	15.9–20.3	21.4	19.2–23.7
Thyroid (C73)	92.5	90.4–94.4	93.1	90.9–94.9	93.2	91.0–95.0	94.3	92.2–96.1	94.3	92.4–95.8
Hodgkin lymphoma (C81)	84.8	80.2–88.5	83.7	79.0–87.6	84.2	79.9–87.9	85.1	81.0–88.5	87.1	83.1–90.2
Non-Hodgkin lymphoma (C82–C85, C96)	59.6	57.4–61.7	61.9	59.9–63.9	62.9	60.8–64.9	66.2	64.1–68.1	66.2	64.4–68.1
Leukaemia (C91–C95)	46.2	43.8–48.5	48.5	46.3–50.7	47.4	45.1–49.8	52.2	49.7–54.6	49.5	47.2–51.8
Unknown primary site (C26, C39, C76, C80)	9.5	8.6–10.5	9.6	8.7–10.6	9.2	8.2–10.2	11.1	9.9–12.2	10.4	9.3–11.6

(a) The first quintile corresponds to areas with the lowest socioeconomic status and the fifth quintile corresponds to the highest.

(b) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(c) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table 4.3: Significant differences in relative survival between the highest and lowest socioeconomic status quintiles

Cancer site/type (ICD-10 codes)	Significant percentage point difference			
	1-year survival		5-year survival	
	Males	Females	Males	Females
All cancers (C00–C96 ^(a) , D45–D47 ^(b))	8.1	5.1	10.5	7.1
Stomach (C16)	—	—	—	—
Colorectal (C18–C20)	3.6	6.1	5.4	7.7
Pancreas (C25)	9.4	—	—	—
Lung (C33–C34)	3.4	4.0	—	3.6
Melanoma of skin (C43)	1.4	—	—	—
Breast (C50)	..	1.1	..	3.9
Cervix (C53)	..	—	..	13.5
Uterus, body (C54)	..	—	..	—
Ovary (C56)	..	—	..	—
Prostate (C61)	1.4	..	5.2	..
Testis (C62)	—	..	—	..
Kidney (C64)	—	—	—	—
Bladder (C67)	—	—	—	—
Brain (C71)	7.5	11.7	—	—
Thyroid (C73)	—	—	—	—
Hodgkin lymphoma (C81)	—	—	—	—
Non-Hodgkin lymphoma (C82–C85, C96)	4.4	5.0	7.6	—
Leukaemia (C91–C95)	5.8	—	—	—
Unknown primary site (C26, C39, C76, C80)	5.0	—	—	—

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(b) Only includes D47.1 and D47.3.

5 Relative survival using the period method

Introduction

Relative survival proportions have traditionally been calculated using the ‘cohort method’ and this was preferred by Cancer Australia for this report because it uses more cases than the alternative ‘period method’ and therefore produces more precise estimates with narrower confidence intervals.

In the cohort method a group of patients diagnosed with cancer during a certain period is followed over time to estimate the proportion surviving for a given time (e.g. 1, 5 or 10 years). For example, the four cohorts used in Chapter 2 were defined as all persons diagnosed with cancer in 1982–1986, 1987–1991, 1992–1997 and 1998–2004. Because survival from most cancers is increasing over time, the cohort method might underestimate the likely survival for people currently being diagnosed with cancer and treated. In order to increase the recency of survival estimates, Brenner and Gefeller (1996) introduced the period method of survival analysis. The difference between the two methods is illustrated below using the case of 5-year survival.

Whereas the cohort method requires the selection of a cohort – 1998–2004 in this example – the period method requires the selection of a ‘left-truncation date’: for this example and this chapter the left-truncation date chosen was 1 January 2002. Both methods had follow-up to the end of 2006. The probability of surviving 5 years (or more) is given by:

$$\Pr(5) = \Pr(1) \times \Pr(2 | 1) \times \Pr(3 | 2) \times \Pr(4 | 3) \times \Pr(5 | 4)$$

where $\Pr(N)$ is the probability of surviving N years and $\Pr(N | N-1)$ is the probability of surviving N years given that the person has already survived $N-1$ years. The difference between the two methods lies in which unit records contribute to the quantities on the right hand side of the equation. In the cohort method all records defined by the cohort are used, i.e. all persons diagnosed in 1998–2004. In the period method the records used are those of persons who were:

- diagnosed on or since the left-truncation date, i.e. in 2002–2004, or
- diagnosed before the left-truncation date and had not died before that date, i.e. diagnosed before 2002 and were still alive at the beginning of 2002.

The difference in which records are used is illustrated in Table 5.1.

Table 5.1: Illustration of the different records used in the cohort^(a) and period^(b) methods

Year of diagnosis	Year of follow-up									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1997	1st	1st/2nd	2nd/3rd	3rd/4th	4th/5th	5th				
1998		1st	1st/2nd	2nd/3rd	3rd/4th	4th/5th	5th			
1999			1st	1st/2nd	2nd/3rd	3rd/4th	4th/5th	5th		
2000				1st	1st/2nd	2nd/3rd	3rd/4th	4th/5th	5th	
2001					1st	1st/2nd	2nd/3rd	3rd/4th	4th/5th	5th
2002						1st	1st/2nd	2nd/3rd	3rd/4th	4th/5th
2003							1st	1st/2nd	2nd/3rd	3rd/4th
2004								1st	1st/2nd	2nd/3rd

(a) The records used in the cohort method are enclosed by solid grey lines.

(b) The records used in the period method are enclosed by dashed black lines.

Table 5.1 illustrates why the period method might give more recent estimates of 5-year survival. Whereas the cohort method calculates Pr(1) by using all records from 1998–2004, the period method uses records only from 2002–2004. If Pr(1) has been increasing (or decreasing) over the period 1998–2004 then the period method will provide a more recent estimate. The trade-off, though, is that the period method uses fewer records for its calculations and so the confidence intervals around its point estimate will be wider. Entirely analogous comments apply to the calculation of Pr(2 | 1), Pr(3 | 2) and so on, all of which contribute to Pr(5).

This chapter presents a comparison of the two methods by calculating the relative survival estimates in Table 2.2 using the period method with a left-truncation date of 1 January 2002.

Main findings

(Tables 5.2 and 5.3)

- In general, relative survival proportions estimated by the period method were slightly higher than those produced by the cohort method.
 - Using the period method, relative survival from all cancers diagnosed with a left-truncation date of 1 January 2002 was 78% in the first year after diagnosis, 63% in the fifth year and 56% in tenth year.
 - These survival proportions were slightly higher than the corresponding proportions estimated by the cohort method (77% at 1 year after diagnosis, 61% at 5 years and 55% at 10 years).
- However, both the period and cohort methods produced similar estimates with respect to the cancers with highest and lowest relative survival, especially at the fifth and tenth year after diagnosis.
 - Using the period method, 1-year relative survival for males was highest for breast cancer (99%) and testicular cancer (98%) and lowest for pancreatic cancer (20%). This differs from the estimates produced using the cohort method, in which testicular cancer (99%) had the highest 1-year survival and cancer of unknown primary site had the lowest 1-year survival (19%).
 - Using the period method, relative survival for males at both 5 and 10 years after diagnosis was highest for testicular cancer (97% at 5 years, 96% at 10 years) and lowest for pancreatic

cancer (4.6% at 5 years, 3.8% at 10 years). When rounded to the nearest whole percentage, these relative survival estimates are the same as those produced by the cohort method.

- Using the period method, 1-year relative survival for females was highest for melanoma of the skin (99%) and lowest for cancer of unknown primary site (19%). At 5 and 10 years after diagnosis, relative survival was highest for thyroid cancer (96% at 5 years, 95% at 10 years) and lowest for pancreatic cancer (5.5% at 5 years, 4.2% at 10 years). Although these relative survival estimates are slightly higher than those produced by the cohort method, the cancers with the highest and lowest relative survival estimated by the two methods are the same.

Table 5.2: One-year, 5-year and 10-year relative survival by cancer site using the period method^(a)

Cancer site/type (ICD-10 codes)	1-year survival (%)			5-year survival (%)			10-year survival (%)		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	76.7	79.7	78.1	60.2	65.2	62.5	53.5	59.4	56.3
Head and neck (C01–C14, C30–C32)	81.2	80.9	81.1	55.7	60.2	56.9	43.8	50.5	45.7
Stomach (C16)	49.4	48.0	48.9	24.8	25.3	25.0	21.5	22.2	21.8
Colon (C18)	81.4	79.8	80.7	63.1	63.3	63.2	57.3	59.1	58.2
Rectum (C19–C20)	85.5	85.9	85.6	63.1	65.5	64.0	56.1	60.1	57.7
Colorectal (C18–C20)	83.0	81.6	82.4	63.1	63.9	63.5	56.8	59.4	58.0
Pancreas (C25)	20.1	20.6	20.4	4.6	5.5	5.0	3.8	4.2	4.0
Lung (C33–C34)	34.4	39.8	36.3	11.0	14.5	12.2	7.8	10.4	8.7
Melanoma of skin (C43)	97.1	98.6	97.7	89.5	94.2	91.5	85.9	91.9	88.5
Breast (C50)	98.5	97.3	97.3	83.5	88.1	88.0	73.1	80.4	80.3
Cervix (C53)	..	87.4	..	..	72.4	..	..	68.0	..
Uterus, body (C54)	..	92.8	..	..	82.4	..	..	78.7	..
Ovary (C56)	..	74.6	..	..	41.0	..	..	32.9	..
Gynaecological (C51–C58)	..	85.5	..	..	66.3	..	..	60.7	..
Prostate (C61)	96.1	..	..	86.4	..	..	76.9	..	..
Testis (C62)	98.4	..	..	96.7	..	..	96.1	..	..
Kidney (C64)	82.0	79.5	81.1	67.7	67.7	67.7	60.0	60.9	60.4
Bladder (C67)	82.4	72.1	79.8	62.1	53.5	59.9	55.0	47.5	53.1
Brain (C71)	43.9	41.5	42.9	19.4	20.9	20.0	15.3	17.1	16.1
Thyroid (C73)	93.2	97.2	96.2	88.0	95.8	93.9	84.6	94.8	92.3
Hodgkin lymphoma (C81)	91.4	93.4	92.3	83.9	85.9	84.8	79.3	83.1	81.0
Non-Hodgkin lymphoma (C82–C85, C96)	80.1	79.7	79.9	63.9	64.7	64.2	54.5	54.4	54.5
Leukaemia (C91–C95)	70.8	68.1	69.7	49.9	49.8	49.9	38.6	41.2	39.7
Unknown primary site (C26, C39, C76, C80)	23.0	18.5	20.8	13.3	9.2	11.2	11.3	7.5	9.4

(a) Left-truncation date of 1 January 2002.

(b) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(c) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table 5.3: Five-year relative survival using the period^(a) and cohort^(b) methods

Cancer site/type (ICD-10 codes)	5-year survival (period method)			5-year survival (cohort method)			Percentage point difference		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
All cancers (C00–C96 ^(c) , D45–D47 ^(d))	60.2	65.2	62.5	58.4	64.1	61.0	1.8	1.1	1.5
Head and neck (C01–C14, C30–C32)	55.7	60.2	56.9	55.0	59.9	56.3	0.7	0.3	0.6
Stomach (C16)	24.8	25.3	25.0	24.4	25.3	24.7	0.4	0.0	0.3
Colon (C18)	63.1	63.3	63.2	60.9	61.6	61.3	2.2	1.7	1.9
Rectum (C19–C20)	63.1	65.5	64.0	61.9	64.5	62.9	1.2	1.0	1.1
Colorectal (C18–C20)	63.1	63.9	63.5	61.3	62.4	61.8	1.8	1.5	1.7
Pancreas (C25)	4.6	5.5	5.0	4.5	4.7	4.6	0.1	0.8	0.4
Lung (C33–C34)	11.0	14.5	12.2	10.7	14.0	11.8	0.3	0.5	0.4
Melanoma of skin (C43)	89.5	94.2	91.5	89.7	94.1	91.6	–0.2	0.1	–0.1
Breast (C50)	83.5	88.1	88.0	82.0	87.8	87.7	1.5	0.3	0.3
Cervix (C53)	..	72.4	..	..	71.8	..	..	0.6	..
Uterus, body (C54)	..	82.4	..	..	82.1	..	..	0.3	..
Ovary (C56)	..	41.0	..	..	39.8	..	..	1.2	..
Gynaecological (C51–C58)	..	66.3	..	..	65.3	..	..	1.0	..
Prostate (C61)	86.4	..	..	85.3	..	..	1.1	..	..
Testis (C62)	96.7	..	..	96.8	..	..	–0.1	..	..
Kidney (C64)	67.7	67.7	67.7	65.6	66.0	65.8	2.1	1.7	1.9
Bladder (C67)	62.1	53.5	59.9	62.3	54.8	60.4	–0.2	–1.3	–0.5
Brain (C71)	19.4	20.9	20.0	18.5	19.4	18.9	0.9	1.5	1.1
Thyroid (C73)	88.0	95.8	93.9	87.7	95.3	93.4	0.3	0.5	0.5
Hodgkin lymphoma (C81)	83.9	85.9	84.8	84.8	85.8	85.2	–0.9	0.1	–0.4
Non-Hodgkin lymphoma (C82–C85, C96)	63.9	64.7	64.2	61.6	62.6	62.1	2.3	2.1	2.1
Leukaemia (C91–C95)	49.9	49.8	49.9	48.2	47.3	47.8	1.7	2.5	2.1
Unknown primary site (C26, C39, C76, C80)	13.3	9.2	11.2	10.6	7.6	9.1	2.7	1.6	2.1

(a) Left-truncation date of 1 January 2002.

(b) Cohort of records diagnosed in 1998–2004.

(c) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(d) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

6 Age-adjusted relative survival

Introduction

In previous chapters, crude relative survival proportions were used to compare different population groups. However, the differences in relative survival between these population groups might also be affected by their differing age structures. For example, a greater proportion of cancer cases were diagnosed in older age groups during the period 1998–2004 (average age at diagnosis of 65 years) than in 1982–1986 (average age at diagnosis of 63 years). Across regions, proportionally more cancer cases were diagnosed in older age groups in Major Cities (MC; average age at diagnosis of 65 years) compared with Remote (R) and Very Remote (VR) areas (average age at diagnosis of 61 years). Across socioeconomic status area quintiles, however, there was little difference in the age distribution, with the average age at diagnosis about 65 years for all five quintiles.

To compare survival across different populations without the influence of differing age structures, relative survival proportions were age-adjusted to the 2004 Australian all-cancer incidence population using the direct standardisation method (see Appendix B). This chapter presents a comparison of crude and age-adjusted relative survival for all cancers combined, by time period of diagnosis, region and socioeconomic status.

Table 6.1: All-cancer incidence^(a) by age and diagnosis period, 1982–1986 to 1998–2004

Age	1982–1986		1987–1991		1992–1997		1998–2004	
	No.	% of total	No.	% of total	No.	% of total	No.	% of total
0–4	1,150	0.5	1,181	0.4	1,583	0.3	1,876	0.3
5–9	612	0.2	629	0.2	813	0.2	989	0.2
10–14	663	0.3	698	0.2	929	0.2	1,134	0.2
15–19	1,293	0.5	1,537	0.5	1,821	0.4	2,204	0.4
20–24	2,260	0.9	2,405	0.8	3,218	0.7	3,613	0.6
25–29	3,517	1.4	4,288	1.4	5,369	1.2	6,099	1.0
30–34	5,311	2.2	6,343	2.1	8,343	1.8	9,720	1.6
35–39	7,392	3.0	8,871	3.0	11,827	2.6	14,543	2.3
40–44	9,201	3.7	12,642	4.3	16,967	3.7	22,290	3.6
45–49	12,096	4.9	15,013	5.0	24,431	5.4	32,218	5.2
50–54	17,002	6.9	18,891	6.4	30,139	6.6	46,493	7.5
55–59	25,421	10.4	25,680	8.6	37,292	8.2	58,446	9.4
60–64	32,599	13.3	37,423	12.6	49,987	11.0	67,120	10.8
65–69	34,813	14.2	43,523	14.6	67,133	14.7	78,120	12.6
70–74	35,690	14.5	42,344	14.2	70,706	15.5	87,965	14.2
75–79	28,083	11.4	37,240	12.5	57,572	12.6	84,062	13.6
80–84	17,420	7.1	23,612	7.9	40,192	8.8	58,137	9.4
85 and over	10,948	4.5	15,018	5.1	26,849	5.9	44,146	7.1
Total	245,471	100.0	297,338	100.0	455,171	100.0	619,175	100.0
Average age	62.7		63.4		64.4		65.0	

(a) Numbers refer to the number of cancers, not the number of persons, diagnosed during 1982–2004.

Source: National Cancer Statistics Clearing House, AIHW.

Table 6.2: All-cancer incidence^(a) by age and region, 1997–2004

Age	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	No.	% of total	No.	% of total	No.	% of total	No.	% of total
0–4	1,424	0.3	432	0.3	225	0.3	53	0.5
5–9	706	0.2	256	0.2	117	0.2	29	0.3
10–14	839	0.2	287	0.2	128	0.2	30	0.3
15–19	1,647	0.4	572	0.4	232	0.3	43	0.4
20–24	2,969	0.6	760	0.5	366	0.5	79	0.7
25–29	5,014	1.1	1,270	0.8	634	0.9	131	1.2
30–34	7,699	1.7	2,046	1.3	1,032	1.5	247	2.2
35–39	11,149	2.4	3,362	2.1	1,673	2.4	362	3.3
40–44	16,675	3.6	5,325	3.3	2,533	3.7	588	5.3
45–49	24,345	5.3	7,738	4.9	3,619	5.2	794	7.2
50–54	34,761	7.6	11,083	7.0	5,215	7.5	1,021	9.3
55–59	42,381	9.3	14,423	9.1	6,859	9.9	1,310	11.9
60–64	47,713	10.4	18,030	11.3	8,120	11.7	1,382	12.6
65–69	55,895	12.2	21,849	13.7	9,660	13.9	1,460	13.3
70–74	64,203	14.0	24,219	15.2	10,151	14.6	1,338	12.2
75–79	62,285	13.6	21,959	13.8	8,784	12.7	1,060	9.6
80–84	43,935	9.6	14,791	9.3	5,781	8.3	620	5.6
85 and over	33,705	7.4	10,671	6.7	4,249	6.1	457	4.2
Total	457,345	100.0	159,073	100.0	69,378	100.0	11,004	100.0
Average age	64.9		65.5		64.5		60.9	

(a) Numbers refer to the number of cancers, not the number of persons, diagnosed during 1997–2004.

Source: National Cancer Statistics Clearing House, AIHW.

Table 6.3: All-cancer incidence^(a) by age and socioeconomic status^(b), 2000–2004

Age	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	No.	% of total	No.	% of total	No.	% of total	No.	% of total	No.	% of total
0–4	280	0.3	272	0.3	249	0.3	285	0.3	262	0.3
5–9	152	0.2	165	0.2	136	0.2	133	0.2	114	0.1
10–14	159	0.2	180	0.2	167	0.2	167	0.2	142	0.2
15–19	289	0.3	335	0.3	308	0.3	323	0.4	327	0.4
20–24	478	0.5	488	0.5	574	0.6	500	0.6	569	0.6
25–29	793	0.9	871	0.9	849	0.9	865	1.0	913	1.0
30–34	1,225	1.4	1,323	1.4	1,393	1.5	1,445	1.7	1,562	1.7
35–39	1,934	2.2	2,143	2.2	1,991	2.2	2,117	2.5	2,117	2.3
40–44	2,970	3.3	3,332	3.5	3,253	3.6	3,274	3.9	3,336	3.6
45–49	4,386	4.9	4,730	4.9	4,666	5.2	4,683	5.5	5,068	5.4
50–54	6,472	7.3	6,807	7.1	6,729	7.4	6,622	7.8	7,383	7.9
55–59	8,469	9.5	9,136	9.5	8,779	9.7	8,146	9.6	9,491	10.2
60–64	10,116	11.4	10,751	11.2	10,047	11.1	8,967	10.6	9,910	10.6
65–69	11,971	13.5	12,666	13.2	11,271	12.5	10,161	12.0	10,493	11.3
70–74	13,141	14.8	14,317	14.9	12,503	13.8	11,395	13.4	11,597	12.4
75–79	12,364	13.9	13,241	13.7	12,334	13.6	11,452	13.5	12,255	13.1
80–84	8,066	9.1	9,107	9.5	8,686	9.6	8,109	9.6	9,551	10.2
85 and over	5,693	6.4	6,437	6.7	6,455	7.1	6,252	7.4	8,114	8.7
Total	88,958	100.0	96,301	100.0	90,390	100.0	84,896	100.0	93,204	100.0
Average age	65.1		65.3		65.1		64.7		65.2	

(a) Numbers refer to the number of cancers, not the number of persons, diagnosed during 2000–2004.

(b) Quintiles are numbered from most disadvantaged (1st quintile) to least disadvantaged (5th quintile).

Source: National Cancer Statistics Clearing House, AIHW.

Main findings

Age-adjusted survival by time period

(Table 6.4)

The trends in relative survival across time periods were the same using age-adjusted and crude relative survival.

- Age-adjusted relative survival was slightly lower than crude relative survival for all time periods. This is because survival was age-adjusted to the 2004 Australian cancer incidence population, which has a greater proportion of people in older age groups, and because survival is lower with older age.
- Both methods showed that survival was higher for more recent diagnoses and that there were significant differences between all four time periods. For example, 5-year age-adjusted relative survival was significantly higher for cancers diagnosed in 1998–2004 (58% for males and 62% for females) compared with cancers diagnosed in 1982–1986 (40% for males and 49% for females).

Table 6.4: Crude and age-adjusted^(a) all-cancer 5-year relative survival by time period, diagnoses from 1982–1986 to 1998–2004

Method	1982–1986		1987–1991		1992–1997		1998–2004	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males								
Crude	41.3	41.0–41.6	45.9	45.6–46.2	54.8	54.6–55.1	58.4	58.2–58.6
Age-adjusted	40.1	39.7–40.4	44.8	44.5–45.1	53.9	53.7–54.2	57.9	57.7–58.1
Females								
Crude	53.2	52.9–53.5	57.1	56.8–57.4	60.8	60.6–61.0	64.1	63.9–64.3
Age-adjusted	49.2	48.9–49.6	53.4	53.1–53.7	57.7	57.5–58.0	61.7	61.5–61.9
Persons								
Crude	46.9	46.7–47.1	51.2	51.0–51.4	57.5	57.4–57.7	61.0	60.9–61.2
Age-adjusted	44.4	44.2–44.6	48.9	48.7–49.1	55.9	55.8–56.1	59.9	59.7–60.0

(a) Age-adjusted relative survival proportions are based on 5-year age groups and standardised to the 2004 Australian cancer incidence population.

Source: National Cancer Statistics Clearing House, AIHW.

Age-adjusted survival by region

(Table 6.5)

Compared with crude relative survival, age adjustment produced stronger differences in the estimates when analysed by region, especially for R/VR areas.

- Age-adjusted relative survival was lower than crude survival for all regions and the difference was greatest for R/VR areas. This was largely due to the younger average age at diagnosis for cancer cases in these regions (61 years compared with 65–66 years in all other regions).
- For males, 5-year crude relative survival was significantly higher in MC (59%) compared with all other regions, while age-adjusted survival was significantly higher in MC (58%) than in Outer Regional (OR; 55%) and R/VR (51%) areas, but not Inner Regional (IR; 57%) areas.
- For females, 5-year crude relative survival was significantly higher in MC (64%) compared with OR areas (62%) only, while age-adjusted survival was significantly higher in MC (62%) than in OR (59%) and R/VR (55%) areas, but not IR areas (62%).

Table 6.5: Crude and age-adjusted^(a) all-cancer 5-year relative survival by region, diagnoses in 1997–2004

Method	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males								
Crude	58.5	58.3–58.7	57.6	57.1–58.0	55.9	55.3–56.5	54.2	52.8–55.6
Age-adjusted	58.0	57.8–58.3	57.3	56.9–57.8	55.1	54.5–55.7	51.4	49.8–53.0
Females								
Crude	64.2	63.9–64.4	63.7	63.3–64.2	61.9	61.3–62.5	62.8	61.2–64.4
Age-adjusted	61.8	61.5–62.0	61.7	61.2–62.1	58.5	57.9–59.2	55.4	53.6–57.3
Persons								
Crude	61.2	61.0–61.3	60.3	60.0–60.6	58.5	58.0–58.9	57.8	56.7–58.8
Age-adjusted	60.0	59.8–60.2	59.5	59.2–59.8	56.8	56.3–57.2	53.2	52.0–54.4

(a) Age-adjusted relative survival proportions are based on 5-year age groups and standardised to the 2004 Australian cancer incidence population.

Source: National Cancer Statistics Clearing House, AIHW.

Age-adjusted survival by socioeconomic status

(Table 6.6)

There was very little difference between age-adjusted and crude relative survival for socioeconomic status area quintiles.

- Age-adjusted relative survival was slightly lower than crude relative survival for all socioeconomic status area quintiles.
- The findings of relative survival by quintile were similar using both methods, although the differences in survival between the second and third quintiles were smaller when age-adjusted. For both males and females, 5-year crude relative survival increased with increasing socioeconomic advantage and showed significant differences between all quintiles. Five-year age-adjusted survival also increased with increasing socioeconomic advantage but was not significantly different between the second (57% for males, 61% for females) and third (58% for males, 62% for females) quintiles.

Table 6.6: Crude and age-adjusted^(a) all-cancer 5-year relative survival by socioeconomic status^(b), diagnoses in 2000–2004

Method	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Males										
Crude	54.4	53.8–54.9	57.6	57.0–58.1	58.8	58.2–59.3	61.0	60.4–61.6	64.9	64.3–65.4
Age-adjusted	54.1	53.5–54.6	57.3	56.7–57.9	58.3	57.7–58.9	60.5	59.9–61.1	64.7	64.1–65.2
Females										
Crude	60.8	60.2–61.4	63.3	62.8–63.9	64.6	64.0–65.1	66.2	65.6–66.7	67.9	67.3–68.4
Age-adjusted	58.4	57.8–59.0	61.1	60.5–61.7	62.1	61.6–62.7	63.6	63.0–64.2	66.1	65.6–66.7
Persons										
Crude	57.3	56.9–57.7	60.1	59.8–60.5	61.4	61.0–61.8	63.4	63.0–63.8	66.3	65.9–66.7
Age-adjusted	56.2	55.8–56.7	59.2	58.8–59.6	60.3	59.9–60.7	62.1	61.7–62.6	65.6	65.2–66.0

(a) Age-adjusted relative survival proportions are based on 5-year age groups and standardised to the 2004 Australian cancer incidence population.

(b) The first quintile corresponds to areas with the lowest socioeconomic status and the fifth quintile corresponds to the highest.

Source: National Cancer Statistics Clearing House, AIHW.

Conclusions

Age adjustment had little effect on relative survival comparisons across time periods, regions and socioeconomic status area quintiles, although the lower relative survival for Remote and Very Remote regions became more pronounced after age adjustment.

Recent international research has highlighted some problems with the calculation and interpretation of age-adjusted relative survival (Brenner & Hakulinen 2003; Brenner et al. 2004). For example, when numbers are small, the sparseness of data in certain age and population groups might prevent the calculation of age-specific survival. Also, the calculation of age-adjusted relative survival might produce estimates that differ from crude relative survival estimates, even if they are adjusted to the original age distribution of the study population. In light of these and related findings, and given the minor influence of age adjustment on relative survival comparisons observed across population groups, no further age adjustment was undertaken for this report.

7 Prevalence

Limited-duration prevalence

This chapter includes prevalence estimates at 1, 3, 5, 10, 20 and 23 years following diagnosis. These are known as limited-duration prevalence estimates or *N-year prevalence*. *N-year prevalence* on a given day, where *N* is any number 1, 2, 3, etc., is defined as the number of people alive at the end of that day who have been diagnosed with cancer at any point in the past *N* years. The two most commonly used values of *N* are 1 and 5:

- 1-year prevalence is the number of living people who have been diagnosed in the past year.
- 5-year prevalence is the number of living people who have been diagnosed in the past 5 years. This includes the people defined by the 1-year prevalence.

In contrast to limited-duration prevalence, complete prevalence is defined as the number of people alive on a certain day who have ever been diagnosed with cancer, regardless of how long ago the diagnosis occurred. Complete prevalence was not calculated for this report because choice of the parameters in the software is subjective and because of the difficulties in interpretation sometimes associated with the method arising from inclusion or exclusion of 'survivors'. On balance, because of the time span of data available for this report, 23-year prevalence was deemed a sufficient approximation for complete prevalence.

This chapter presents *N*-year prevalence as at the end of 2004 for the major cancers by various values of *N*, geographic region and socioeconomic status.

Background

(Table 7.1)

This report is based on all cancers (excluding non-melanocytic skin cancer) diagnosed between 1 January 1982 and 31 December 2004, a period of 23 years. Over that period, cancer registries identified that 1,530,442 persons were diagnosed with at least one cancer and the ABS determined that 875,465 of these persons had died from any cause, not necessarily from cancer.

Table 7.1: Total number of new cases^(a) and subsequent deaths^(b), selected cancers, Australia, 1982–2004

Cancer site/type (ICD-10 codes)	New cases ^(a)			Subsequent deaths ^(b)		
	Males	Females	Persons	Males	Females	Persons
All cancers (C00–C97 ^(c) , D45–D47 ^(d))	823,624	706,818	1,530,442	507,339	368,126	875,465
Head and neck (C01–C14, C30–C32)	37,464	12,813	50,277	24,411	7,528	31,939
Stomach (C16)	27,724	15,265	42,989	23,211	12,597	35,808
Colon (C18)	76,267	74,703	150,970	46,609	44,412	91,021
Rectum (C19–C20)	47,266	31,065	78,331	28,078	17,552	45,630
Colorectal (C18–C20)	121,731	104,622	226,353	73,647	61,336	134,983
Pancreas (C25)	18,520	17,548	36,068	17,442	16,418	33,860
Lung (C33–C34)	119,701	50,225	169,926	109,220	43,408	152,628
Melanoma of skin (C43)	85,607	70,782	156,389	25,660	14,547	40,207
Breast (C50)	1,629	201,335	202,964	793	71,897	72,690
Cervix (C53)	..	21,603	21,603	..	8,695	8,695
Uterus, body (C54)	..	28,332	28,332	..	10,612	10,612
Ovary (C56)	..	23,610	23,610	..	15,973	15,973
Gynaecological (C51–C58)	..	80,344	80,344	..	39,014	39,014
Prostate (C61)	196,219	..	196,219	97,734	..	97,734
Testis (C62)	11,054	..	11,054	985	..	985
Kidney (C64)	21,321	12,460	33,781	11,847	6,574	18,421
Bladder (C67)	37,337	12,852	50,189	23,352	8,170	31,522
Brain (C71)	14,834	11,114	25,948	12,076	9,009	21,085
Thyroid (C73)	4,552	12,969	17,521	1,226	1,721	2,947
Hodgkin lymphoma (C81)	4,769	3,725	8,494	1,476	989	2,465
Non-Hodgkin lymphoma (C82–C85, C96)	33,605	28,096	61,701	19,750	16,251	36,001
Leukaemia (C91–C95)	28,101	20,330	48,431	19,249	13,817	33,066
Unknown primary site (C26, C39, C76, C80)	34,067	31,702	65,769	30,691	29,012	59,703

(a) Numbers refer to the number of persons, not the number of cancers, diagnosed in 1982–2004.

(b) Number of deaths, from any cause, up to end of 2004 among those diagnosed with cancer in 1982–2004.

(c) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(d) Only includes D47.1 and D47.3.

Sources: National Cancer Statistics Clearing House and National Mortality Database, AIHW.

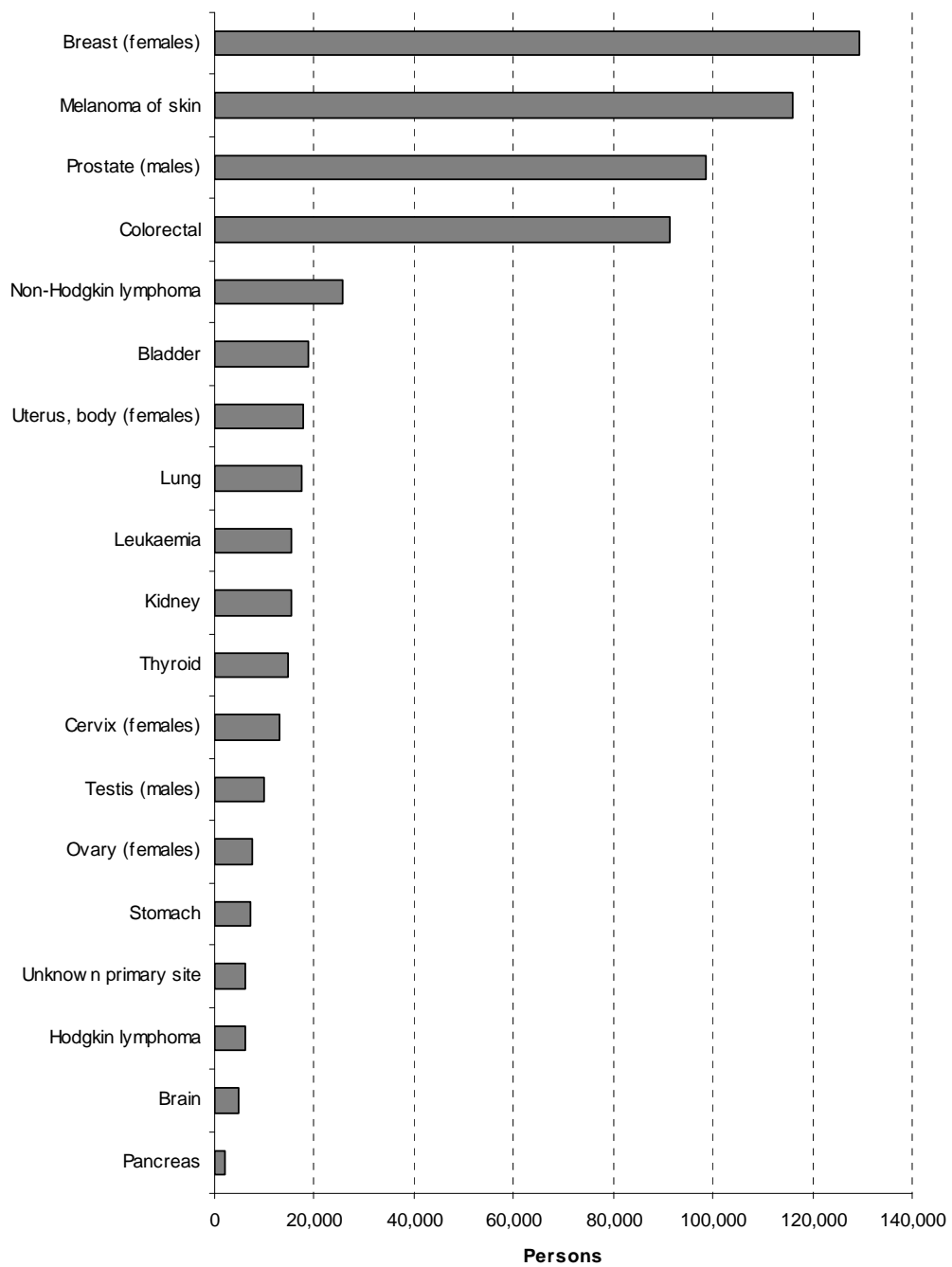
Main findings

(Tables 7.2–7.4, Figure 7.1)

- At the end of 2004, 1-year prevalence was 81,225 persons (0.4% of the Australian population), 5-year prevalence was 297,142 persons (1.5%).
- At the end of 2004, 23-year prevalence was 654,977 persons, which represented 3.2% of the Australian population (3.1% of males and 3.3% of females). This proportion is similar to that in New South Wales, where 3.3% of the state's population were diagnosed with at least one cancer between 1980 and 2004 (Tracey, Baker et al. 2007). In Queensland at the end of 2002, 3.8% of the population were diagnosed with cancer in their lifetime and were still alive, although this figure was calculated from prevalent cancer cases rather than persons and adjusted for complete prevalence (Youliden & Baade 2005).
- For persons aged 50 years and over, 9.0% of the population (9.3% of males and 8.7% of females) at the end of 2004 were diagnosed with cancer during the last 23 years and were still alive. This proportion increased for persons aged 65 years and over, where 14% of the

population (17% of males and 12% of females) had been diagnosed with cancer in the last 23 years and were still alive.

- Males made up 55% of the 1-year prevalence, 52% of the 5-year prevalence and 48% of the 23-year prevalence. The reason for the initially higher percentage is that males have higher incidence than females. The reason for the decline over time is that males have lower survival than females.
- For males, the three most prevalent types of cancer were prostate cancer (5-year prevalence of 53,296 males), melanoma of the skin (5-year prevalence of 23,514 males) and colorectal cancer (5-year prevalence of 23,148 males), but their relative percentages varied over time. Prostate cancer was always the most prevalent, representing 34% of all prevalent cases at 1 year and 5 years but dropping to 31% at 23 years. Colorectal cancer represented about 14%–15% of all prevalent cases throughout the period. Melanoma represented 12% of cases at 1 year, 15% at 5 years and 19% at 23 years. The reason for the increasing percentage of melanoma is that it is more commonly diagnosed in younger people than the other two cancers and survival is comparatively high.
- For females, the three most prevalent types of cancer were breast cancer (5-year prevalence of 53,051 females), colorectal cancer (5-year prevalence of 18,940 females) and melanoma of the skin (5-year prevalence of 18,697 females). With high survival and incidence, breast cancer was always the most prevalent, representing 32% of all prevalent cases at 1 year, rising to 37% at 5 years and 38% at 23 years. Colorectal cancer represented about 13%–14% of cases throughout the period. Melanoma showed the same trend as it did for males, rising steadily from 11% of cases at 1 year to 17% at 23 years.



Note: Numbers refer to the number of persons, not the number of cancers, prevalent at the end of 2004.

Source: National Cancer Statistics Clearing House, AIHW.

Figure 7.1: Twenty three-year prevalence at the end of 2004

Table 7.2: All-cancer 23-year prevalent cases^(a) and total population by age and sex, as at end of 2004

Age group	Prevalent cases			Total population			% of total population		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
0-4	318	285	603	657,307	623,309	1,280,616	0.0	0.0	0.0
5-9	785	638	1,423	686,044	651,650	1,337,694	0.1	0.1	0.1
10-14	923	788	1,711	717,389	679,771	1,397,160	0.1	0.1	0.1
15-19	1,430	1,141	2,571	707,716	674,916	1,382,632	0.2	0.2	0.2
20-24	2,229	1,909	4,138	720,550	692,657	1,413,207	0.3	0.3	0.3
25-29	3,122	2,978	6,100	690,544	682,557	1,373,101	0.5	0.4	0.4
30-34	5,224	5,748	10,972	757,308	767,929	1,525,237	0.7	0.7	0.7
35-39	7,056	9,251	16,307	734,417	743,059	1,477,476	1.0	1.2	1.1
40-44	10,210	15,567	25,777	768,257	778,448	1,546,705	1.3	2.0	1.7
45-49	13,146	23,041	36,187	722,356	731,631	1,453,987	1.8	3.1	2.5
50-54	18,359	31,002	49,361	663,518	668,512	1,332,030	2.8	4.6	3.7
55-59	27,882	39,180	67,062	613,399	605,404	1,218,803	4.5	6.5	5.5
60-64	33,417	37,932	71,349	464,313	458,898	923,211	7.2	8.3	7.7
65-69	40,492	37,370	77,862	370,206	379,780	749,986	10.9	9.8	10.4
70-74	45,407	35,978	81,385	300,303	325,454	625,757	15.1	11.1	13.0
75-79	47,698	37,066	84,764	246,923	299,091	546,014	19.3	12.4	15.5
80-84	35,363	30,941	66,304	155,646	231,627	387,273	22.7	13.4	17.1
85 and over	23,224	27,877	51,101	93,178	201,171	294,349	24.9	13.9	17.4
Total	316,285	338,692	654,977	10,069,374	10,195,864	20,265,238	3.1	3.3	3.2

(a) Numbers refer to the number of persons, not the number of cancers, prevalent at the end of 2004.

Source: National Cancer Statistics Clearing House, AIHW.

Table 7.3: All-cancer 23-year prevalent cases^(a) by age and sex, as at end of 2004

Age group	% of total population		
	Males	Females	Persons
All	3.1	3.3	3.2
5 and over	3.4	3.5	3.4
10 and over	3.6	3.8	3.7
15 and over	3.9	4.1	4.0
20 and over	4.3	4.4	4.4
25 and over	4.7	4.9	4.8
30 and over	5.2	5.3	5.3
35 and over	5.9	6.0	5.9
40 and over	6.7	6.8	6.7
45 and over	7.9	7.7	7.8
50 and over	9.3	8.7	9.0
55 and over	11.3	9.8	10.5
60 and over	13.8	10.9	12.3
65 and over	16.5	11.8	13.9
70 and over	19.1	12.5	15.3
75 and over	21.4	13.1	16.5
80 and over	23.5	13.6	17.2
85 and over	24.9	13.9	17.4

(a) Numbers refer to the number of persons, not the number of cancers, prevalent at the end of 2004.

Source: National Cancer Statistics Clearing House, AIHW.

Table 7.4: Limited-duration prevalence^(a) as at end of 2004

Cancer site/type (ICD-10 codes)	Duration					
	1-year	3-year	5-year	10-year	20-year	23-year
	Males					
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	44,894	108,446	155,589	238,493	307,608	316,285
Stomach (C16)	858	1,688	2,276	3,270	4,328	4,513
Colorectal (C18–C20)	6,188	15,626	23,148	35,474	46,677	48,084
Pancreas (C25)	442	649	752	922	1,053	1,078
Lung (C33–C34)	3,229	5,435	6,642	8,544	10,200	10,481
Melanoma of skin (C43)	5,354	15,342	23,514	39,819	57,537	59,947
Prostate (C61)	15,046	37,114	53,296	82,667	97,946	98,485
Testis (C62)	666	1,900	3,049	5,642	9,301	10,069
Kidney (C64)	1,206	3,089	4,639	7,243	9,233	9,474
Bladder (C67)	1,409	3,715	5,594	8,951	13,235	13,985
Brain (C71)	526	974	1,274	1,820	2,597	2,758
Thyroid (C73)	348	917	1,397	2,308	3,170	3,326
Hodgkin lymphoma (C81)	227	665	1,046	1,864	3,027	3,293
Non-Hodgkin lymphoma (C82–C85, C96)	1,816	4,658	6,834	10,416	13,483	13,855
Leukaemia (C91–C95)	1,219	3,036	4,357	6,478	8,549	8,852
Unknown primary site (C26, C39, C76, C80)	774	1,464	1,861	2,488	3,258	3,376
	Females					
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	36,331	94,021	141,553	230,245	323,923	338,692
Stomach (C16)	440	889	1,252	1,885	2,520	2,668
Colorectal (C18–C20)	4,969	12,678	18,940	29,929	41,511	43,286
Pancreas (C25)	484	696	814	958	1,103	1,130
Lung (C33–C34)	1,978	3,540	4,413	5,657	6,690	6,817
Melanoma of skin (C43)	4,151	11,879	18,697	33,303	52,658	56,235
Breast (C50)	11,764	33,615	53,051	89,777	124,897	129,438
Cervix (C53)	660	1,767	2,810	5,701	11,619	12,908
Uterus, body (C54)	1,630	4,386	6,665	11,244	16,749	17,720
Ovary (C56)	1,024	2,382	3,288	4,997	7,179	7,637
Kidney (C64)	680	1,738	2,677	4,286	5,713	5,886
Bladder (C67)	430	1,140	1,715	2,785	4,346	4,682
Brain (C71)	359	700	940	1,350	1,976	2,105
Thyroid (C73)	1,092	2,961	4,502	7,529	10,678	11,248
Hodgkin lymphoma (C81)	221	573	884	1,597	2,533	2,736
Non-Hodgkin lymphoma (C82–C85, C96)	1,423	3,760	5,632	8,837	11,471	11,845
Leukaemia (C91–C95)	777	2,057	3,007	4,663	6,269	6,513
Unknown primary site (C26, C39, C76, C80)	632	1,192	1,511	1,943	2,576	2,690

(continued)

Table 7.4 (continued): Limited-duration prevalence^(a) as at end of 2004

Cancer site/type (ICD-10 codes)	Duration					
	1-year	3-year	5-year	10-year	20-year	23-year
	Persons					
All cancers (C00–C96 ^(b) , D45–D47 ^(c))	81,225	202,467	297,142	468,738	631,531	654,977
Stomach (C16)	1,298	2,577	3,528	5,155	6,848	7,181
Colorectal (C18–C20)	11,157	28,304	42,088	65,403	88,188	91,370
Pancreas (C25)	926	1,345	1,566	1,880	2,156	2,208
Lung (C33–C34)	5,207	8,975	11,055	14,201	16,890	17,298
Melanoma of skin (C43)	9,505	27,221	42,211	73,122	110,195	116,182
Kidney (C64)	1,886	4,827	7,316	11,529	14,946	15,360
Bladder (C67)	1,839	4,855	7,309	11,736	17,581	18,667
Brain (C71)	885	1,674	2,214	3,170	4,573	4,863
Thyroid (C73)	1,440	3,878	5,899	9,837	13,848	14,574
Hodgkin lymphoma (C81)	448	1,238	1,930	3,461	5,560	6,029
Non-Hodgkin lymphoma (C82–C85, C96)	3,239	8,418	12,466	19,253	24,954	25,700
Leukaemia (C91–C95)	1,996	5,093	7,364	11,141	14,818	15,365
Unknown primary site (C26, C39, C76, C80)	1,406	2,656	3,372	4,431	5,834	6,066

(a) Numbers refer to the number of persons, not the number of cancers, prevalent at the end of 2004.

(b) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(c) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Five-year prevalence by region and socioeconomic status

Tables 7.5 and 7.6 show the 5-year prevalence (as at the end of 2004) by geographic region and socioeconomic status, respectively. The tables give 5-year prevalence in terms of actual numbers and as age-standardised ratios. Note that prevalence is a direct product of incidence and survival. Possible explanations for why the prevalence in one subpopulation is higher than in another include:

- both incidence and survival are higher
- the incidence is higher and the survival is the same
- the incidence is higher and the survival is lower, but the effect of the former is greater than the effect of the latter
- the incidence is the same but the survival is higher
- the incidence is lower and the survival is higher, but the effect of the former is weaker than the effect of the latter.

Given these explanations, tables 3.2 and 4.2, which show 5-year cancer relative survival by region and socioeconomic status respectively, and tables C1 and C2 in Appendix C, which show 5-year cancer incidence by region and socioeconomic status respectively, are particularly useful for interpreting the prevalence statistics in the next section. Table C3 also aids in interpretation as it shows the distribution of 5-year incidence numbers cross-tabulated by region and socioeconomic status quintiles. For example, 95% of new cancer cases in 2000–2004 from the highest socioeconomic status quintile were also in Major Cities (MC) where access to cancer services is highest. On the other hand, only 57% of new cancer cases from the lowest socioeconomic status

quintile were in MC; 26% were in Inner Regional (IR) areas, 14% in Outer Regional (OR) areas and 2% in Remote (R) and Very Remote (VR) areas. More than two-thirds of incident cases diagnosed in R/VR areas were living in the lowest two quintiles of socioeconomic advantage.

It is also worth noting that care should be taken when interpreting prevalence statistics across geographic region and socioeconomic status, since these are based on areas where a person lived at the time of diagnosis but not necessarily where he or she was residing in 2004.

Main findings

Prevalence by region

(Tables 3.2, 7.5 and C1)

- The all-cancer 5-year prevalence was highest for persons living in MC (1,425 persons per 100,000), followed by IR areas (1,422) and OR areas (1,303), and it was lowest in R/VR areas (1,102). These prevalence estimates reflect the decline in survival with increasing remoteness: 5-year relative survival was 61% for persons living in MC, 60% in IR areas, 59% in OR areas and 58% in R/VR areas in 1997–2004.
- For males, the cancers with the highest prevalence across all four regions were prostate cancer, colorectal cancer and melanoma of the skin.
- The prevalence for melanoma was higher for males in IR areas (266 males per 100,000 males) compared with MC (231). This reflects the fact that the 5-year relative survival from melanoma was not significantly different between IR areas (89%) and MC (90%) in 1997–2004. However, melanoma had a higher incidence in IR areas (65 males per 100,000 males) compared with MC (56) in 2000–2004.
- For females, the cancers with the highest prevalence across all four regions were breast cancer, colorectal cancer and melanoma of the skin, although the prevalence was not always highest in MC.
- For females, melanoma prevalence was highest in IR areas (203 females per 100,000 females) followed by OR areas (187), MC (160) and R/VR areas (158). This is largely due to the fact that 5-year survival for females with melanoma was not significantly different between regions (all ranging between 94% and 97%) in 1997–2004. Further, there was a higher melanoma incidence in IR (46 females per 100,000 females) and OR areas (41) compared with MC (36) in 2000–2004.

Prevalence by socioeconomic status

(Tables 4.2, 7.6 and C2)

- The all-cancer 5-year prevalence was lowest for persons living in areas belonging to the first socioeconomic status quintile (1,332 persons per 100,000), followed by the third quintile (1,363), fourth quintile (1,372), second quintile (1,441) and highest in the fifth quintile (1,555).
- This pattern is largely consistent with all-cancer 5-year relative survival in 2000–2004, where survival was lowest for persons living in areas belonging to the first quintile of socioeconomic status (57%) and highest for persons living in areas of the fifth quintile (66%). The relatively high prevalence for persons living in areas belonging to the second quintile of socioeconomic status is accounted for by the fact that the incidence in the second quintile (465 persons per 100,000) was the highest of all the quintiles for cancers diagnosed in 2000–2004.

- For males, the prevalence was highest for prostate cancer, colorectal cancer and melanoma of the skin across all socioeconomic status quintiles. The prevalence for prostate cancer and melanoma was highest for males living in areas belonging to the fifth quintile of socioeconomic status (661 males per 100,000 males for prostate cancer and 279 for melanoma) and lowest for males living in areas of the first quintile (491 for prostate cancer and 193 for melanoma). This is because both cancers had higher incidence and 5-year relative survival for males living in areas of the fifth quintile compared with the first quintile.
- Consistent with colorectal cancer incidence, the prevalence of colorectal cancer for males showed little variation across the first four socioeconomic status quintiles (ranging from 232 males per 100,000 males in the fourth quintile to 240 in the second quintile). However, the prevalence for colorectal cancer was highest for males living in areas belonging to the fifth socioeconomic status quintile (257 males per 100,000 males), and this is because 5-year survival from colorectal cancer for males was significantly higher for males living in areas belonging to the fifth socioeconomic status quintile compared with all other quintiles.
- For females, the prevalence was highest for breast cancer, colorectal cancer and melanoma of the skin across all socioeconomic status quintiles. For all three cancers, the prevalence was lowest for females living in areas belonging to the first socioeconomic status quintile (437 females per 100,000 females for breast cancer, 151 for colorectal cancer and 146 for melanoma), as was the incidence and 5-year relative survival. For the three cancers, the prevalence was highest for females living in areas belonging to the second and fifth quintiles. This is because 5-year relative survival was highest for females living in areas belonging to the fifth socioeconomic status quintile while the incidence for these cancers was highest in the second and fifth quintiles.

Table 7.5: Five-year prevalence^(a) by region as at end of 2004

Cancer site/type (ICD-10 codes)	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	Number	Ratio ^(b)	Number	Ratio ^(b)	Number	Ratio ^(b)	Number	Ratio ^(b)
Males								
All cancers (C00–C96 ^(c) , D45–D47 ^(d))	99,992	1,602.7	36,563	1,601.5	16,073	1,473.0	2,571	1,214.4
Stomach (C16)	1,601	26.0	458	19.7	184	16.9	30	16.7
Colorectal (C18–C20)	14,851	241.1	5,457	237.2	2,403	218.9	382	187.4
Pancreas (C25)	528	8.5	143	6.2	65	5.7	12	5.5
Lung (C33–C34)	4,390	71.0	1,505	65.0	608	55.0	121	60.3
Melanoma of skin (C43)	14,657	231.2	5,957	265.6	2,466	226.5	383	166.9
Prostate (C61)	33,972	552.9	12,721	547.7	5,662	519.5	814	419.8
Testis (C62)	2,149	31.7	586	30.3	267	27.1	45	16.4
Kidney (C64)	3,073	48.4	1,026	44.0	464	41.4	64	28.2
Bladder (C67)	3,504	58.4	1,389	61.7	622	59.0	72	38.5
Brain (C71)	821	12.4	289	13.2	137	12.9	23	8.6
Thyroid (C73)	966	14.6	276	12.5	127	11.5	24	9.9
Hodgkin lymphoma (C81)	741	11.0	200	9.8	88	8.6	16	6.1
Non-Hodgkin lymphoma (C82–C85, C96)	4,734	74.5	1,426	62.8	570	51.1	91	38.5
Leukaemia (C91–C95)	2,764	43.8	1,030	45.7	470	43.5	77	34.0
Unknown primary site (C26, C39, C76, C80)	1,138	18.5	465	20.7	214	19.4	40	18.2
Females								
All cancers (C00–C96 ^(c) , D45–D47 ^(d))	94,415	1,307.6	31,829	1,284.8	12,956	1,163.6	2,018	995.9
Stomach (C16)	937	12.6	229	8.8	73	6.3	12	6.0
Colorectal (C18–C20)	12,510	166.5	4,423	168.4	1,764	152.3	211	113.7
Pancreas (C25)	569	7.7	168	6.5	69	6.1	7	3.7
Lung (C33–C34)	2,945	40.5	1,004	39.2	388	34.2	60	31.3
Melanoma of skin (C43)	11,495	160.1	4,808	203.3	2,016	187.4	330	158.1
Breast (C50)	35,891	503.4	11,644	470.0	4,660	415.6	743	359.3
Cervix (C53)	1,900	27.2	556	25.0	290	28.3	51	23.0
Uterus, body (C54)	4,427	61.2	1,480	58.1	630	55.3	114	57.3
Ovary (C56)	2,287	32.1	661	26.6	278	25.0	57	27.6
Kidney (C64)	1,806	25.2	570	22.9	264	23.6	29	14.4
Bladder (C67)	1,093	14.1	430	16.2	168	14.7	22	12.0
Brain (C71)	638	9.3	207	9.6	78	7.5	13	5.9
Thyroid (C73)	3,258	47.0	809	36.3	352	34.3	74	33.1
Hodgkin lymphoma (C81)	634	9.2	159	7.8	80	8.2	11	5.2
Non-Hodgkin lymphoma (C82–C85, C96)	3,933	54.1	1,195	47.2	451	40.3	49	25.4
Leukaemia (C91–C95)	2,000	28.0	672	27.4	285	25.8	38	18.0
Unknown primary site (C26, C39, C76, C80)	969	13.0	360	13.9	152	13.2	27	14.4

(continued)

Table 7.5 (continued): Five-year prevalence^(a) by region as at end of 2004

Cancer site/type (ICD-10 codes)	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	Number	Ratio ^(b)	Number	Ratio ^(b)	Number	Ratio ^(b)	Number	Ratio ^(b)
	Persons							
All cancers (C00–C96 ^(c) , D45–D47 ^(d))	194,407	1,425.0	68,392	1,421.7	29,029	1,303.4	4,589	1,102.1
Stomach (C16)	2,538	18.6	687	13.9	257	11.5	42	11.1
Colorectal (C18–C20)	27,361	200.1	9,880	200.6	4,167	185.0	593	152.5
Pancreas (C25)	1,097	8.0	311	6.3	134	6.0	19	4.6
Lung (C33–C34)	7,335	54.0	2,509	50.9	996	44.0	181	46.1
Melanoma of skin (C43)	26,152	191.1	10,765	231.3	4,482	205.6	713	161.8
Kidney (C64)	4,879	35.9	1,596	33.0	728	32.4	93	21.5
Bladder (C67)	4,597	33.5	1,819	36.8	790	35.6	94	25.3
Brain (C71)	1,459	10.8	496	11.4	215	10.2	36	7.4
Thyroid (C73)	4,224	31.0	1,085	24.5	479	22.7	98	20.4
Hodgkin lymphoma (C81)	1,375	10.1	359	8.8	168	8.4	27	5.7
Non-Hodgkin lymphoma (C82–C85, C96)	8,667	63.6	2,621	54.6	1,021	45.7	140	32.9
Leukaemia (C91–C95)	4,764	35.3	1,702	36.0	755	34.3	115	26.2
Unknown primary site (C26, C39, C76, C80)	2,107	15.4	825	17.0	366	16.2	67	16.3

(a) Numbers refer to the number of persons, not the number of cancers, prevalent at the end of 2004.

(b) Ratios are age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000.

(c) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(d) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table 7.6: Five-year prevalence^(a) by socioeconomic status^(b) as at end of 2004

Cancer site/type (ICD-10 codes)	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	Number	Ratio ^(c)	Number	Ratio ^(c)	Number	Ratio ^(c)	Number	Ratio ^(c)	Number	Ratio ^(c)
Males										
All cancers (C00–C96 ^(d) , D45–D47 ^(e))	29,107	1,508.4	32,878	1,622.4	31,149	1,536.4	29,177	1,539.7	32,678	1,764.3
Stomach (C16)	487	25.1	455	22.5	460	22.7	423	23.1	446	24.3
Colorectal (C18–C20)	4,499	234.7	4,882	240.3	4,692	232.9	4,311	231.5	4,674	256.5
Pancreas (C25)	140	7.3	142	6.9	158	7.7	142	7.5	165	8.9
Lung (C33–C34)	1,620	83.6	1,502	73.0	1,314	65.0	1,138	61.4	1,043	57.2
Melanoma of skin (C43)	3,735	193.0	5,127	254.3	4,704	230.4	4,558	235.1	5,304	279.4
Prostate (C61)	9,325	490.5	11,063	542.3	10,653	528.4	10,001	539.3	12,064	661.4
Testis (C62)	548	27.5	598	31.8	562	27.7	631	29.9	701	35.3
Kidney (C64)	964	48.9	907	43.9	928	44.8	868	45.0	953	50.7
Bladder (C67)	1,215	65.1	1,261	63.8	1,125	57.1	1,037	57.6	940	53.6
Brain (C71)	232	11.3	254	12.7	241	11.7	261	12.7	281	14.4
Thyroid (C73)	287	14.2	258	12.9	272	13.2	273	13.3	303	15.4
Hodgkin lymphoma (C81)	187	9.3	204	10.5	212	10.3	219	10.5	222	11.2
Non-Hodgkin lymphoma (C82–C85, C96)	1,247	63.4	1,317	64.8	1,344	65.5	1,316	67.9	1,589	84.0
Leukaemia (C91–C95)	807	41.3	961	47.6	884	43.6	796	41.3	887	47.4
Unknown primary site (C26, C39, C76, C80)	383	20.0	423	21.2	380	19.0	334	18.0	334	18.4
Females										
All cancers (C00–C96 ^(d) , D45–D47 ^(e))	25,957	1,210.1	28,821	1,305.3	27,745	1,238.7	27,286	1,254.6	31,221	1,418.4
Stomach (C16)	288	13.0	240	10.4	228	9.7	237	10.9	257	11.5
Colorectal (C18–C20)	3,339	150.8	3,899	167.9	3,821	162.7	3,698	167.1	4,130	180.0
Pancreas (C25)	168	7.6	148	6.4	166	7.1	167	7.7	163	7.3
Lung (C33–C34)	969	44.6	944	41.6	850	37.2	786	36.3	841	38.3
Melanoma of skin (C43)	3,090	146.2	4,069	189.8	3,772	172.2	3,646	167.1	4,041	184.6
Breast (C50)	9,316	437.4	10,469	476.6	10,312	464.6	10,299	476.3	12,466	572.0
Cervix (C53)	602	29.2	600	29.5	534	25.1	551	25.7	506	23.8
Uterus, body (C54)	1,324	61.3	1,372	61.0	1,306	57.7	1,242	57.3	1,400	63.7
Ovary (C56)	625	29.4	626	28.3	641	28.9	652	30.2	738	34.0
Kidney (C64)	548	25.5	576	26.0	492	22.0	513	23.9	536	24.6
Bladder (C67)	328	14.5	426	18.2	327	13.7	324	14.4	307	12.9
Brain (C71)	167	8.1	166	8.3	200	9.6	188	8.9	214	10.4
Thyroid (C73)	889	43.6	843	41.7	894	42.4	810	37.8	1,047	49.7
Hodgkin lymphoma (C81)	172	8.5	183	9.3	160	7.9	175	8.2	192	9.3
Non-Hodgkin lymphoma (C82–C85, C96)	1,011	46.8	1,122	50.2	1,031	45.6	1,119	51.3	1,342	60.7
Leukaemia (C91–C95)	562	26.2	603	27.5	568	25.5	609	28.5	648	30.2
Unknown primary site (C26, C39, C76, C80)	329	15.0	341	14.8	272	11.7	260	11.9	306	13.5

(continued)

Table 7.6 (continued): Five-year prevalence^(a) by socioeconomic status^(b) as at end of 2004

Cancer site/type (ICD-10 codes)	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	Number	Ratio ^(c)	Number	Ratio ^(c)	Number	Ratio ^(c)	Number	Ratio ^(c)	Number	Ratio ^(c)
Persons										
All cancers (C00–C96 ^(d) , D45–D47 ^(e))	55,064	1,332.3	61,699	1,440.8	58,894	1,362.5	56,463	1,371.5	63,899	1,555.3
Stomach (C16)	775	18.7	695	16.0	688	15.7	660	16.2	703	17.2
Colorectal (C18–C20)	7,838	189.5	8,781	201.7	8,513	195.1	8,009	196.5	8,804	213.9
Pancreas (C25)	308	7.5	290	6.7	324	7.4	309	7.6	328	8.0
Lung (C33–C34)	2,589	62.3	2,446	56.0	2,164	49.6	1,924	47.5	1,884	46.4
Melanoma of skin (C43)	6,825	166.2	9,196	219.0	8,476	198.0	8,204	197.2	9,345	226.0
Kidney (C64)	1,512	36.4	1,483	34.6	1,420	32.9	1,381	33.7	1,489	36.5
Bladder (C67)	1,543	37.3	1,687	38.7	1,452	33.1	1,361	33.6	1,247	30.0
Brain (C71)	399	9.7	420	10.4	441	10.6	449	10.8	495	12.3
Thyroid (C73)	1,176	28.9	1,101	27.4	1,166	27.8	1,083	25.7	1,350	32.8
Hodgkin lymphoma (C81)	359	8.9	387	9.9	372	9.1	394	9.4	414	10.2
Non-Hodgkin lymphoma (C82–C85, C96)	2,258	54.7	2,439	57.2	2,375	55.0	2,435	59.1	2,931	71.3
Leukaemia (C91–C95)	1,369	33.1	1,564	37.0	1,452	34.0	1,405	34.3	1,535	38.1
Unknown primary site (C26, C39, C76, C80)	712	17.2	764	17.7	652	15.0	594	14.4	640	15.5

(a) Numbers refer to the number of persons, not the number of cancers, prevalent at the end of 2004.

(b) Quintiles are numbered from most disadvantaged (1st quintile) to least disadvantaged (5th quintile).

(c) Ratios are age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000.

(d) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(e) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

8 National Health Priority Area cancers

Introduction

In 1996, Australian health ministers identified cancer as a National Health Priority Area (NHPA), in an initiative to focus public attention and health policy on areas which contributed significantly to the burden of disease in Australia and for which there is potential for health gain. The NHPA Cancer Control initiative focused on eight cancers: colorectal cancer, lung cancer, melanoma of the skin, non-melanocytic skin cancer (NMSC), breast cancer, cervical cancer, prostate cancer and non-Hodgkin lymphoma.

Incidence data on NMSC are not routinely collected by the state and territory cancer registries, but estimates from national household surveys indicate that there were 374,000 people diagnosed with the two most common types of NMSC in 2002 (Staples et al. 2006). In contrast, there were only 390 deaths from NMSC in 2003 (AIHW & AACR 2007). Given its high incidence and low mortality rates, NMSC has both very high prevalence and very high relative survival compared with other cancers.

Summary prevalence and survival statistics for the other seven NHPA cancers are presented below:

Colorectal cancer

- In 2004, there were 12,977 new cases and 4,068 deaths from colorectal cancer.
- At the end of 2004, 23-year prevalence for colorectal cancer was 48,084 males and 43,286 females, a total of 91,370 persons.
- Five-year relative survival from colorectal cancer for diagnoses in 1998–2004 was 61% for males and 62% for females, significantly higher than for colorectal cancers diagnosed in 1982–1986 (48% for males, 50% for females).
- Five-year relative survival from colorectal cancers diagnosed in 1997–2004 was significantly higher for persons in MC (62%) compared with IR (60%), OR (59%) and R/VR (58%) areas.
- Five-year relative survival from colorectal cancers diagnosed in 2000–2004 was significantly higher for persons living in areas belonging to the least disadvantaged socioeconomic status quintile (66% in the fifth quintile) compared with those in more disadvantaged quintiles (60% in the first quintile, 62% in the second quintile, 62% in the third quintile, 63% in the fourth quintile).

Lung cancer

- In 2004, there were 9,096 new cases and 7,259 deaths from lung cancer.
- At the end of 2004, 23-year prevalence for lung cancer was 10,481 males and 6,817 females, a total of 17,298 persons.
- Five-year relative survival from lung cancer for diagnoses in 1998–2004 was 11% for males and 14% for females, significantly higher than for lung cancers diagnosed in 1982–1986 (8% for males, 11% for females).

- Five-year relative survival from lung cancers diagnosed in 1997–2004 was significantly higher for persons in MC (12%) compared with IR (11%), OR (8.7%) and R/VR (9.9%) areas.
- Five-year relative survival from lung cancers diagnosed in 2000–2004 was significantly higher for persons living in areas belonging to the least disadvantaged socioeconomic status quintile (14% in the fifth quintile) compared with the three most disadvantaged quintiles (11% in the first, second and third quintiles).

Melanoma of skin

- In 2004, there were 9,722 new cases and 1,200 deaths from melanoma.
- At the end of 2004, 23-year prevalence for melanoma was 59,947 males and 56,235 females, a total of 116,182 persons.
- Five-year relative survival from melanoma for diagnoses made in 1998–2004 was 90% for males and 94% for females, significantly higher than for melanomas diagnosed in 1982–1986 (82% for males, 91% for females).
- For both males and females, 5-year relative survival from melanomas diagnosed in 1997–2004 was not significantly different between MC, IR, OR and R/VR areas.
- For both males and females, 5-year relative survival from melanomas diagnosed in 2000–2004 did not differ significantly between socioeconomic status quintiles.

Breast cancer (females)

- In 2004, there were 12,126 new cases and 2,664 deaths from breast cancer for females.
- At the end of 2004, 23-year prevalence for breast cancer was 129,438 women.
- Five-year relative survival from breast cancer increased significantly from 72% in 1982–1986 to 88% in 1998–2004.
- Five-year relative survival from breast cancers diagnosed in 1997–2004 was significantly higher in MC (88%) compared with OR areas (85%), but not IR (88%) or R/VR (85%) areas.
- Five-year relative survival from breast cancers diagnosed in 2000–2004 was significantly higher for women living in areas belonging to the least disadvantaged socioeconomic status quintile (90% in the fifth quintile) compared with the three most disadvantaged quintiles (86% in the first quintile, 87% in the second quintile, 88% in the third quintile).

Cervical cancer (females)

- In 2004, there were 718 new cases and 210 deaths from cervical cancer.
- At the end of 2004, 23-year prevalence for cervical cancer was 12,908 women.
- Five-year relative survival from cervical cancer increased significantly from 68% in 1982–1986 to 72% in 1998–2004.
- Five-year relative survival from cervical cancers diagnosed in 1997–2004 was significantly higher in MC (73%) compared with OR areas (67%), but not IR (70%) or R/VR (67%) areas.
- Five-year relative survival from cervical cancers diagnosed in 2000–2004 was significantly higher for females living in areas belonging to the least disadvantaged socioeconomic status

quintile (78% in the fifth quintile) compared with the most disadvantaged quintile (65% in the first quintile).

Prostate cancer (males)

- In 2004, there were 15,759 new cases and 2,792 deaths from prostate cancer.
- At the end of 2004, 23-year prevalence for prostate cancer was 98,485 men.
- Five-year relative survival from prostate cancer increased significantly from 57% in 1982–1986 to 85% in 1998–2004.
- Five-year relative survival from prostate cancers diagnosed in 1997–2004 was significantly higher in MC (86%) compared with IR (83%) and OR (83%) areas, but not R/VR areas (83%).
- Five-year relative survival from prostate cancers diagnosed in 2000–2004 was significantly higher for males living in areas belonging the least disadvantaged socioeconomic status quintile (90% in the fifth quintile) compared with more disadvantaged quintiles (85% in the first and second quintiles, 86% in the third quintile, 87% in the fourth quintile).

Non-Hodgkin lymphoma

- In 2004, there were 3,795 new cases and 1,468 deaths from non-Hodgkin lymphoma.
- At the end of 2004, 23-year prevalence for non-Hodgkin lymphoma was 13,855 males and 11,845 females, a total of 25,700 persons.
- Five-year relative survival from non-Hodgkin lymphoma for diagnoses made in 1998–2004 was 62% for males and 63% for females, significantly higher than for non-Hodgkin lymphomas diagnosed in 1982–1986 (46% for males, 48% for females).
- For males, 5-year relative survival from non-Hodgkin lymphomas diagnosed in 1997–2004 was significantly higher in MC (62%) compared with OR areas (55%), but not IR (60%) or R/VR (61%) areas. However, for females, 5-year survival from non-Hodgkin lymphoma was not significantly different between MC, IR, OR and R/VR areas.
- Five-year relative survival from non-Hodgkin lymphomas diagnosed in 2000–2004 was significantly higher for males living in areas belonging to the least disadvantaged socioeconomic status quintile (67% in the fifth quintile) compared with those living in the two most disadvantaged quintiles (59% in the first quintile, 61% in the second quintile). However, for females, 5-year survival from non-Hodgkin lymphoma did not differ significantly between socioeconomic status quintiles.

Appendix A: Derivation of life tables

The relative survival proportion is defined to be the observed survival proportion divided by the survival proportion that would be expected in the general population. In order to calculate the expected survival proportion it is necessary to have life tables for the population under study. The life tables needed for this report were:

- an Australia-wide life table (Chapter 2)
- a life table for each of the four ASGC remoteness categories used, namely Major Cities, Inner Regional, Outer Regional, and Remote and Very Remote (Chapter 3)
- a life table for each of the five socioeconomic status quintiles (Chapter 4).

Australia-wide life tables are published by the ABS but tables by remoteness or socioeconomic status are not readily available. Therefore it was necessary to derive approximate life tables for these subpopulations. In order to build a life table for subpopulation 'S', the following two pieces of information are required for each combination of calendar year, sex and 1-year age group:

- the mid-year population of S for that calendar year, sex and age
- the number of deaths in S for that calendar year, sex and age.

The methods used to construct those data and the subsequent life tables are explained below. Note that no attempt was made to smooth the life tables so obtained – they were simply used in 'raw' form.

Life tables for the remoteness categories

Population by remoteness category

The AIHW population database (obtained from the ABS) includes two files which break down the Australian population:

- by calendar year, sex and 1-year age group
- by remoteness, calendar year, sex and 5-year age group.

The populations in the first file were converted to 5-year age group populations and then the value of each 1-year age group population as a fraction of its parent 5-year age group population was calculated. For example, in 2001 for males aged 0–4, 19.76% were aged 0 years, 19.89% were aged 1, 19.99% were aged 2, 19.98% were aged 3 and 20.40% were aged 4. These fractions were then applied to the populations in the second file to convert the 5-year age-group populations to 1-year age group populations. An approximation being made here is that the same fractions were used regardless of the remoteness category. This will not be perfectly correct but the variation in fractions between regions within 5-year age groups should be sufficiently small that it makes little impact.

Number of deaths by remoteness category

The National Mortality Database (NMD) at the AIHW contains, for each death, the statistical local area (SLA) of usual residence of the deceased person. Using ABS concordances that map SLA to

ASGC remoteness category from 1997 onwards, the NMD has the remoteness category for each death registered since 1997, or, more precisely, the fractions that can be attributed to each remoteness category. This is because an SLA might contain some areas that are in one remoteness category and some areas in another. The ABS files supply the fraction of the total population of each SLA in each remoteness category. For example, if 70% of the population of an SLA lives in Major Cities (MC) and 30% live in Inner Regional (IR) areas, then each death which belongs to that SLA contributes 0.7 and 0.3 to the total number of deaths in MC and IR, respectively. In this way the number of deaths by remoteness category, calendar year (of registration of death), sex and 1-year age group can be obtained directly from the NMD. About 0.55% of all deaths did not have a remoteness category – these deaths were apportioned pro rata to the four remoteness categories. This approximation assumes that such deaths are distributed the same across the regions as are the deaths with known SLA – this might be incorrect, but there are so few such deaths that it is unlikely to affect the results.

Construction of the life tables by remoteness category

For each calendar year (1997–2005), sex and 1-year age group i (0 to 100+), the above procedures yielded:

- the mid-year population of age group i , denoted by m_i
- the number of deaths in age group i , denoted by d_i .

The population at the beginning of the year, denoted by l_i , was needed. It was assumed that there is no net effect from people ageing into the age group and people ageing out of it. Therefore l_i equals m_i plus the number of people who died before mid-year. Using common practice in demography, for age group 0 it was assumed that 80% of the deaths occurred before mid-year, for age group 1 the figure 65% was used, and for all other age groups the figure 50% was used. Therefore $l_0 = m_0 + 0.8d_0$, $l_1 = m_1 + 0.65d_1$ and $l_i = m_i + 0.5d_i$ for all other i . Then the probability of dying during the year, denoted by q_i , is given by $q_i = d_i/l_i$. Finally, the probability of surviving that year, denoted by p_i , is given by $p_i = 1 - q_i$. These probabilities are the ones used to calculate expected survival for the general population.

The final approximation was that life tables were also required for calendar year 2006 but the NMD only had data up to 2005. The p_i values for 2006 were assumed to be the same as for 2005. An extract of the 2005 life table is shown in Table A1.

Table A1: An extract of the 2005 life table by region

Sex	Age	Region				Australia
		Major Cities	Inner Regional	Outer Regional	Remote and Very Remote	
Male	0	0.9948	0.9948	0.9943	0.9921	0.9946
	10	0.9999	0.9999	0.9999	0.9995	0.9999
	20	0.9994	0.9990	0.9984	0.9979	0.9992
	30	0.9991	0.9987	0.9988	0.9986	0.9990
	40	0.9986	0.9984	0.9981	0.9959	0.9984
	50	0.9973	0.9969	0.9966	0.9965	0.9971
	60	0.9932	0.9926	0.9928	0.9887	0.9929
	70	0.9818	0.9805	0.9763	0.9758	0.9807
	80	0.9451	0.9371	0.9347	0.9283	0.9419
	90	0.8256	0.8306	0.8380	0.8837	0.8290
Female	0	0.9954	0.9954	0.9950	0.9938	0.9953
	10	0.9999	0.9999	1.0000	1.0000	0.9999
	20	0.9997	0.9997	0.9995	0.9990	0.9997
	30	0.9997	0.9997	0.9995	0.9989	0.9996
	40	0.9993	0.9993	0.9985	0.9977	0.9992
	50	0.9983	0.9979	0.9983	0.9968	0.9982
	60	0.9955	0.9951	0.9943	0.9910	0.9952
	70	0.9890	0.9880	0.9874	0.9856	0.9886
	80	0.9639	0.9612	0.9608	0.9653	0.9630
	90	0.8717	0.8561	0.8811	0.8995	0.8695

Notes

1. The numbers in the region columns are the values of p_i , namely the probability of surviving at least 1 more year.
2. The figures for Australia were calculated by analogous (but simpler) methods. That is, they are not taken from an ABS life table.

Life tables for the socioeconomic status quintiles

The methods for building life tables by socioeconomic status (SES) quintiles were the same as those just described for the remoteness categories. However, additional work was required to develop the background data.

A file of population by SES quintile, calendar year, sex and 5-year age group was not available so one had to be built. Further, the NMD does not have information on the SES of the deceased. Instead the source files used to build the life tables were:

- annual population by SLA, sex and 5-year age group (from the ABS)
- a concordance that maps annual SLAs to 2001 SLAs, allocating appropriate fractions of the annual population to various 2001 SLAs (from the ABS)
- a concordance that maps 2001 SLAs to 2001 SES quintiles (derived by collapsing a file from the ABS that maps 2001 SLAs to 2001 SEIFA scores).

It was considered that the years used should be kept close to 2001 because SES (which was assigned based on 2001 SEIFA scores) could change over just a few years. However, there was also a need to use the most recent incidence data (2004) and death data (2006) available to make the comparisons as up-to-date as possible. It was decided to use the incidence data from 2000–2004 and death data from 2000–2006.

By appropriately combining the data in the above files, the following were compiled:

- a file of annual population by 2001 SES quintile, sex and 5-year age group
- a concordance that maps 'year y minus 1' SLAs to 2001 SES quintiles ('year y minus 1' because deaths registered in year y are assigned SLAs from the previous year's ASGC).

The first of these files was used to find the 1-year age group populations by the same method as described for the remoteness categories. The second file was used in conjunction with the NMD to determine the number of deaths by SES quintile. Then the life tables were built just as described for the remoteness categories. Some rows from the 2005 life tables are shown in Table A2.

Table A2: An extract of the 2005 life table by SES quintile

Sex	Age	SES quintile					Australia
		1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	
Male	0	0.9942	0.9944	0.9944	0.9953	0.9951	0.9946
	10	0.9999	0.9999	1.0000	0.9999	1.0000	0.9999
	20	0.9994	0.9988	0.9989	0.9993	0.9996	0.9992
	30	0.9986	0.9990	0.9988	0.9992	0.9992	0.9990
	40	0.9978	0.9980	0.9986	0.9987	0.9990	0.9984
	50	0.9961	0.9969	0.9973	0.9977	0.9977	0.9971
	60	0.9918	0.9924	0.9920	0.9945	0.9940	0.9929
	70	0.9777	0.9782	0.9810	0.9818	0.9858	0.9807
	80	0.9381	0.9400	0.9427	0.9398	0.9488	0.9419
90	0.8484	0.8283	0.8289	0.8287	0.8128	0.8290	
Female	0	0.9944	0.9953	0.9950	0.9961	0.9958	0.9953
	10	0.9999	1.0000	0.9999	0.9999	0.9999	0.9999
	20	0.9997	0.9995	0.9997	0.9998	0.9997	0.9997
	30	0.9993	0.9997	0.9997	0.9998	0.9996	0.9996
	40	0.9988	0.9990	0.9992	0.9993	0.9994	0.9992
	50	0.9976	0.9979	0.9984	0.9983	0.9988	0.9982
	60	0.9947	0.9952	0.9942	0.9959	0.9959	0.9952
	70	0.9873	0.9878	0.9877	0.9905	0.9898	0.9886
	80	0.9593	0.9654	0.9631	0.9633	0.9638	0.9630
90	0.8770	0.8711	0.8762	0.8664	0.8590	0.8695	

Notes

1. The 1st quintile is the most disadvantaged and the 5th quintile is the least disadvantaged.
2. The numbers in the quintile columns are the values of p_x , namely the probability of surviving at least 1 more year.
3. The figures for Australia were calculated by analogous (but simpler) methods. That is, they are not taken from an ABS life table.

Appendix B: Age adjustment of relative survival proportions

When survival is compared between different populations with different age structures (e.g. comparing survival across time periods, geographic regions and socioeconomic status quintiles), it might be important to adjust for these differences. Relative survival can be age-adjusted in an analogous way to the age standardisation of incidence and mortality rates. In this report, the direct standardisation method was used to calculate the age-adjusted survival proportion as a weighted average of the 5-year age-specific relative survival proportions (see, for example, Berrino et al. 1999).

The standard population usually used for age standardisation of Australian health data is the total Australian population as at 30 June 2001. However, the age structure of this population is very different from the age structure of people diagnosed with cancer. Therefore, the standard population for age-adjusting relative survival proportions in this report was chosen to be the 2004 Australian all-cancer incidence population (see Table B1).

Table B1: Australian all-cancer incidence population^(a) in 2004 and the Australian Standard Population

Age	Australian all-cancer incidence population ^(a) , 2004		Australian Standard Population (2001)	
	Number	% of total	Number	% of total
0–4	307	0.3	1,282,357	6.6
5–9	138	0.1	1,351,664	7.0
10–14	165	0.2	1,353,177	7.0
15–19	339	0.3	1,352,745	7.0
20–24	568	0.6	1,302,412	6.7
25–29	841	0.9	1,407,081	7.2
30–34	1,460	1.5	1,466,615	7.6
35–39	2,017	2.1	1,492,204	7.7
40–44	3,231	3.3	1,479,257	7.6
45–49	4,972	5.1	1,358,594	7.0
50–54	7,051	7.2	1,300,777	6.7
55–59	10,035	10.2	1,008,799	5.2
60–64	11,158	11.3	822,024	4.2
65–69	12,685	12.9	682,513	3.5
70–74	12,848	13.1	638,380	3.3
75–79	13,115	13.3	519,356	2.7
80–84	10,009	10.2	330,050	1.7
85 and over	7,397	7.5	265,235	1.4
Total	98,336	100.0	19,413,240	100.0

(a) Excluding non-melanocytic skin cancer (ICD-10 code C44).

Sources: ABS and National Cancer Statistics Clearing House, AIHW.

Appendix C: Supplementary incidence tables

Table C1: Five-year cancer incidence^(a) by region, 2000–2004

Cancer site/type (ICD-10 codes)	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	Number	Rate ^(b)	Number	Rate ^(b)	Number	Rate ^(b)	Number	Rate ^(b)
Males								
All cancers (C00–C96 ^(c) , D45–D47 ^(d))	154,269	545.0	57,132	558.7	25,502	520.7	4,138	452.9
Stomach (C16)	4,116	14.9	1,380	13.6	568	12.1	93	11.4
Colorectal (C18–C20)	21,727	77.4	8,102	78.8	3,664	74.3	581	65.9
Pancreas (C25)	3,238	11.7	1,122	11.1	473	9.8	79	9.1
Lung (C33–C34)	17,359	62.6	6,505	63.8	3,008	62.2	539	61.4
Melanoma of skin (C43)	16,533	56.3	6,719	65.3	2,799	55.6	429	41.4
Prostate (C61)	40,273	144.1	15,366	149.2	6,866	141.9	956	113.8
Testis (C62)	2,216	6.7	603	6.4	276	5.6	47	3.4
Kidney (C64)	4,320	14.9	1,493	14.2	668	13.1	97	9.7
Bladder (C67)	5,388	20.1	2,118	21.5	892	19.0	122	14.9
Brain (C71)	2,559	8.6	916	8.7	368	7.1	66	6.0
Thyroid (C73)	1,086	3.5	321	3.1	142	2.7	32	2.9
Hodgkin lymphoma (C81)	856	2.7	225	2.3	101	2.0	18	1.5
Non-Hodgkin lymphoma (C82–C85, C96)	6,859	23.8	2,110	20.6	868	17.5	137	14.0
Leukaemia (C91–C95)	4,910	17.3	1,801	17.9	817	16.9	117	12.3
Unknown primary site (C26, C39, C76, C80)	5,096	18.9	1,999	20.3	980	20.9	192	23.3
Females								
All cancers (C00–C96 ^(c) , D45–D47 ^(d))	135,289	381.4	45,978	385.3	18,944	352.5	2,931	321.1
Stomach (C16)	2,425	6.5	691	5.4	268	4.8	33	3.6
Colorectal (C18–C20)	18,394	50.1	6,650	53.2	2,680	48.7	321	37.9
Pancreas (C25)	3,169	8.4	1,136	8.9	463	8.2	61	7.6
Lung (C33–C34)	9,923	27.4	3,435	27.9	1,498	27.6	218	25.8
Melanoma of skin (C43)	12,381	35.7	5,160	45.9	2,144	41.4	347	35.4
Breast (C50)	39,923	116.6	12,988	111.8	5,245	98.6	838	87.7
Cervix (C53)	2,423	7.1	722	6.6	391	7.7	74	7.4
Uterus, body (C54)	5,217	15.1	1,759	14.7	765	14.2	135	14.9
Ovary (C56)	3,968	11.3	1,222	10.2	519	9.6	104	11.6
Kidney (C64)	2,544	7.2	864	7.2	375	7.0	44	4.9
Bladder (C67)	1,929	5.0	672	5.3	303	5.4	32	3.9
Brain (C71)	1,935	5.6	656	5.7	243	4.6	45	4.6
Thyroid (C73)	3,427	10.2	860	8.1	383	7.6	75	7.0
Hodgkin lymphoma (C81)	709	2.1	185	1.8	93	1.9	12	1.2
Non-Hodgkin lymphoma (C82–C85, C96)	5,677	15.8	1,769	14.5	673	12.5	81	8.9
Leukaemia (C91–C95)	3,566	9.9	1,224	10.1	476	8.8	65	6.8
Unknown primary site (C26, C39, C76, C80)	5,204	13.5	1,820	14.1	749	13.3	152	18.5

(continued)

Table C1 (continued): Five-year cancer incidence^(a) by region, 2000–2004

Cancer site/type (ICD-10 codes)	Major Cities		Inner Regional		Outer Regional		Remote and Very Remote	
	Number	Rate ^(b)	Number	Rate ^(b)	Number	Rate ^(b)	Number	Rate ^(b)
	Persons							
All cancers (C00–C96 ^(c) , D45–D47 ^(d))	289,558	445.8	103,110	458.3	44,446	426.4	7,069	384.8
Stomach (C16)	6,541	10.1	2,071	9.1	836	8.1	126	7.4
Colorectal (C18–C20)	40,121	61.8	14,752	64.7	6,344	60.8	902	52.2
Pancreas (C25)	6,407	9.8	2,258	9.9	936	9.0	140	8.5
Lung (C33–C34)	27,282	42.1	9,940	43.4	4,506	43.2	757	43.7
Melanoma of skin (C43)	28,914	44.4	11,879	54.4	4,943	47.7	776	38.3
Kidney (C64)	6,864	10.6	2,357	10.4	1,043	9.9	141	7.3
Bladder (C67)	7,317	11.2	2,790	12.2	1,195	11.6	154	9.3
Brain (C71)	4,494	6.9	1,572	7.2	611	5.9	111	5.4
Thyroid (C73)	4,513	6.9	1,181	5.6	525	5.1	107	4.7
Hodgkin lymphoma (C81)	1,565	2.4	410	2.1	194	2.0	30	1.3
Non-Hodgkin lymphoma (C82–C85, C96)	12,536	19.3	3,879	17.3	1,541	14.8	218	11.6
Leukaemia (C91–C95)	8,476	13.0	3,025	13.5	1,293	12.5	182	9.5
Unknown primary site (C26, C39, C76, C80)	10,300	15.7	3,819	16.8	1,729	16.8	344	20.7

(a) Numbers refer to the number of persons, not the number of cancers, diagnosed in 2000–2004.

(b) Rates are age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000.

(c) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(d) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table C2: Five-year cancer incidence^(a) by socioeconomic status^(b), 2000–2004

Cancer site/type (ICD-10 codes)	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	No.	Rate ^(c)	No.	Rate ^(c)	No.	Rate ^(c)	No.	Rate ^(c)	No.	Rate ^(c)
Males										
All cancers (C00–C96 ^(d) , D45–D47 ^(e))	48,087	555.1	52,125	566.1	48,535	531.9	44,500	528.4	47,472	546.0
Stomach (C16)	1,403	16.5	1,280	14.2	1,232	13.9	1,137	14.0	1,102	12.9
Colorectal (C18–C20)	6,739	78.1	7,300	79.0	6,943	76.3	6,396	76.8	6,644	77.3
Pancreas (C25)	1,051	12.4	1,012	11.2	1,013	11.2	883	10.8	949	11.2
Lung (C33–C34)	6,808	79.4	6,416	69.8	5,522	61.4	4,601	56.3	4,035	48.0
Melanoma of skin (C43)	4,296	48.3	5,831	62.2	5,326	56.8	5,099	57.7	5,889	64.9
Prostate (C61)	11,326	133.0	13,366	145.4	12,846	141.7	11,862	143.1	13,981	162.4
Testis (C62)	570	5.8	614	6.7	585	6.0	650	6.5	716	7.3
Kidney (C64)	1,373	15.3	1,349	14.3	1,309	14.0	1,221	14.1	1,314	14.8
Bladder (C67)	1,855	22.6	1,939	21.9	1,694	19.4	1,566	19.7	1,452	17.8
Brain (C71)	761	8.2	776	8.1	760	8.0	795	8.8	810	8.9
Thyroid (C73)	317	3.3	297	3.1	315	3.3	307	3.3	345	3.6
Hodgkin lymphoma (C81)	213	2.2	235	2.5	248	2.6	254	2.6	249	2.6
Non-Hodgkin lymphoma (C82–C85, C96)	1,874	21.1	1,960	21.2	1,988	21.5	1,896	22.1	2,241	25.3
Leukaemia (C91–C95)	1,488	17.2	1,693	18.6	1,545	17.0	1,388	16.5	1,522	17.5
Unknown primary site (C26, C39, C76, C80)	1,845	22.3	1,915	21.7	1,700	19.4	1,400	17.7	1,396	16.9
Females										
All cancers (C00–C96 ^(d) , D45–D47 ^(e))	38,907	376.0	41,969	390.9	39,997	369.1	38,458	369.8	43,574	387.7
Stomach (C16)	759	7.1	684	6.1	685	6.0	626	5.8	661	5.5
Colorectal (C18–C20)	5,197	49.0	5,771	51.8	5,665	50.1	5,420	51.1	5,965	50.9
Pancreas (C25)	961	9.0	961	8.5	1,034	8.8	910	8.3	959	7.9
Lung (C33–C34)	3,434	32.7	3,271	29.6	2,950	26.5	2,673	25.5	2,731	23.7
Melanoma of skin (C43)	3,347	33.0	4,395	42.6	4,059	39.0	3,889	37.8	4,311	39.6
Breast (C50)	10,533	104.0	11,746	112.2	11,470	109.6	11,409	112.5	13,754	127.4
Cervix (C53)	825	8.2	781	7.8	690	6.7	685	6.7	623	5.8
Uterus, body (C54)	1,578	15.4	1,632	15.2	1,552	14.6	1,456	14.3	1,651	15.2
Ovary (C56)	1,110	10.8	1,175	10.9	1,094	10.2	1,123	10.8	1,307	11.7
Kidney (C64)	787	7.6	847	7.8	733	6.7	704	6.8	750	6.7
Bladder (C67)	577	5.3	695	6.1	557	4.8	538	4.9	568	4.5
Brain (C71)	529	5.1	584	5.6	571	5.4	578	5.7	615	5.7
Thyroid (C73)	954	9.7	896	9.1	942	9.4	848	8.4	1,095	10.5
Hodgkin lymphoma (C81)	197	2.0	209	2.1	180	1.8	198	1.9	213	2.0
Non-Hodgkin lymphoma (C82–C85, C96)	1,514	14.5	1,674	15.4	1,489	13.6	1,609	15.4	1,909	16.7
Leukaemia (C91–C95)	1,020	9.7	1,088	10.0	1,030	9.3	1,022	9.7	1,164	10.2
Unknown primary site (C26, C39, C76, C80)	1,702	15.8	1,751	15.3	1,571	13.3	1,344	12.2	1,553	12.2

(continued)

Table C2 (continued): Five-year cancer incidence^(a) by socioeconomic status^(b), 2000–2004

Cancer site/type (ICD-10 codes)	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	No.	Rate ^(c)	No.	Rate ^(c)	No.	Rate ^(c)	No.	Rate ^(c)	No.	Rate ^(c)
Persons										
All cancers (C00–C96 ^(d) , D45–D47 ^(e))	86,994	449.8	94,094	464.6	88,532	435.7	82,958	433.2	91,046	448.3
Stomach (C16)	2,162	11.3	1,964	9.7	1,917	9.4	1,763	9.3	1,763	8.6
Colorectal (C18–C20)	11,936	62.0	13,071	64.0	12,608	61.7	11,816	62.2	12,609	62.0
Pancreas (C25)	2,012	10.5	1,973	9.7	2,047	10.0	1,793	9.4	1,908	9.3
Lung (C33–C34)	10,242	53.0	9,687	47.2	8,472	41.4	7,274	38.5	6,766	33.4
Melanoma of skin (C43)	7,643	39.4	10,226	51.2	9,385	46.7	8,988	46.3	10,200	50.2
Kidney (C64)	2,160	11.1	2,196	10.8	2,042	10.1	1,925	10.1	2,064	10.2
Bladder (C67)	2,432	12.7	2,634	12.9	2,251	11.0	2,104	11.1	2,020	9.7
Brain (C71)	1,290	6.6	1,360	6.8	1,331	6.6	1,373	7.1	1,425	7.1
Thyroid (C73)	1,271	6.5	1,193	6.1	1,257	6.3	1,155	5.8	1,440	7.1
Hodgkin lymphoma (C81)	410	2.1	444	2.3	428	2.2	452	2.3	462	2.3
Non-Hodgkin lymphoma (C82–C85, C96)	3,388	17.5	3,634	18.0	3,477	17.1	3,505	18.3	4,150	20.4
Leukaemia (C91–C95)	2,508	12.9	2,781	13.8	2,575	12.7	2,410	12.6	2,686	13.3
Unknown primary site (C26, C39, C76, C80)	3,547	18.6	3,666	18.2	3,271	16.0	2,744	14.4	2,949	14.1

(a) Numbers refer to the number of persons, not the number of cancers, diagnosed in 2000–2004.

(b) Quintiles are numbered from most disadvantaged (1st quintile) to least disadvantaged (5th quintile).

(c) Rates are age-standardised to the Australian population as at 30 June 2001 and expressed per 100,000.

(d) Excluding non-melanocytic skin cancer (ICD-10 code C44).

(e) Only includes D47.1 and D47.3.

Source: National Cancer Statistics Clearing House, AIHW.

Table C3: Five-year cancer incidence^(a) by socioeconomic status^(b) and region, 2000–2004

SES quintile	Major Cities	Inner Regional	Outer Regional	Remote and Very Remote	Unknown	Total
Number of new cases						
1st (lowest SES)	49,833	22,722	12,331	2,108	0	86,994
2nd	41,542	33,599	16,310	2,643	0	94,094
3rd	47,749	29,244	10,195	1,344	0	88,532
4th	64,182	12,853	5,006	917	0	82,958
5th (highest SES)	86,090	4,393	520	43	0	91,046
Unknown	162	299	84	14	1,084	1,643
Total	289,558	103,110	44,446	7,069	1,084	445,267
% of region						
1st (lowest SES)	17.2	22.0	27.7	29.8	0.0	19.5
2nd	14.3	32.6	36.7	37.4	0.0	21.1
3rd	16.5	28.4	22.9	19.0	0.0	19.9
4th	22.2	12.5	11.3	13.0	0.0	18.6
5th (highest SES)	29.7	4.3	1.2	0.6	0.0	20.4
Unknown	0.1	0.3	0.2	0.2	100.0	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
% of SES quintile						
1st (lowest SES)	57.3	26.1	14.2	2.4	0.0	100.0
2nd	44.1	35.7	17.3	2.8	0.0	100.0
3rd	53.9	33.0	11.5	1.5	0.0	100.0
4th	77.4	15.5	6.0	1.1	0.0	100.0
5th (highest SES)	94.6	4.8	0.6	0.0	0.0	100.0
Unknown	9.9	18.2	5.1	0.9	66.0	100.0
Total	65.0	23.2	10.0	1.6	0.2	100.0

(a) Numbers refer to the number of persons, not the number of cancers, diagnosed in 2000–2004.

(b) Quintiles are numbered from most disadvantaged (1st quintile) to least disadvantaged (5th quintile).

Source: National Cancer Statistics Clearing House, AIHW.

Glossary

Cancer (malignant neoplasm): one of several diseases that result when the process of cell division, by which tissues normally grow and renew themselves, becomes uncontrolled and leads to the development of malignant cells. These cancer cells multiply in an uncoordinated way, independently of normal growth control mechanisms, to form a tumour. The tumour can expand locally by invasion or systemically by metastasis via the lymphatic or vascular systems. If left untreated, most malignant tumours eventually result in death.

Cohort method: the traditional method of calculating relative survival, which is based on the survival experience of a cohort of patients followed over a particular timeframe.

Confidence interval (CI): a range determined by variability in data, within which there is a specified (95% in this report) chance that the true value of a calculated parameter (for example, relative survival) lies.

Mortality to incidence ratio: a ratio calculated by dividing the age-standardised mortality rate by the age-standardised incidence rate. The mortality to incidence ratio can be an indicator of survival outcomes.

National Health Priority Areas (NHPAs): a collaborative initiative of the Australian Government and state and territory governments that seeks to focus public attention and health policy on areas that contribute significantly to the burden of disease in Australia and for which there is potential for health gain. Cancer control is one of the NHPAs and the eight priority cancers are colorectal cancer, lung cancer, melanoma of the skin, non-melanocytic skin cancer, breast cancer for females, cervical cancer, prostate cancer and non-Hodgkin lymphoma.

Period method: a method of calculating relative survival developed by Brenner and Gefeller (1996) that is based on the survival experience of patients who were diagnosed before a particular recent calendar period and who were alive at the beginning of this period.

Prevalence: *N-year prevalence* on a given day, where *N* is any number 1, 2, 3, etc., is defined as the number of people alive at the end of that day who have been diagnosed with cancer at any point in the past *N* years (see Chapter 7).

Region: in this report, the remoteness of a region was based on the Australian Standard Geographical Classification (ASGC) Remoteness Area, which was coded to the place of residence at the time of cancer diagnosis (see Chapter 3).

Relative survival: the ratio of the observed survival for a given cohort of cancer patients to the expected survival in the age-, sex- and calendar year-matched population (see Chapter 1).

Socioeconomic status: in this report, socioeconomic status was assigned using the Index of Relative Socioeconomic Disadvantage coded to the place of residence at the time of cancer diagnosis (see Chapter 4). Socioeconomic status quintiles are numbered from the most disadvantaged (1st quintile) to the least disadvantaged (5th quintile).

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