# Cancer survival in Australia 1992–1997

## Geographic categories and socioeconomic status

The Australian Institute of Health and Welfare is Australia's national health and welfare statistics and information agency. The Institute's mission is to improve the health and well-being of Australians by informing community discussion and decision making through national leadership in developing and providing health and welfare statistics and information.

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

The purposes of the AACR are:

- to provide a continuing framework for the development of population-based cancer registration in Australia and New Zealand,
- to facilitate exchange of scientific and technical information between cancer registries and to promote standardisation in the collection and classification of cancer data,
- to facilitate cancer research both nationally and internationally, and
- to facilitate the dissemination of cancer information.

The Australian Institute of Health and Welfare and the AACR jointly produce national cancer statistics from the National Cancer Statistics Clearing House.

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**Australian Institute of Health and Welfare**
**and Australian Association of Cancer Registries**

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- contributed through the state and territory Cancer Registries the cancer data underpinning the analyses; and
- assisted in the refereeing of the report.

# Abbreviations

| | |
|---|---|
| ABS | Australian Bureau of Statistics |
| AIHW | Australian Institute of Health and Welfare |
| CI | confidence interval |
| GP | general practitioner |
| RRMA | Rural, Remote and Metropolitan Areas |

# Executive summary

This report provides 5-year relative survival proportions by geographic category and socioeconomic status for persons diagnosed with cancer during the years 1992–1997. It reports on survival for all cancers (excluding non-melanocytic skin cancers) and for the following National Health Priority Area cancers—colorectal cancer, cancer of the lung, melanoma, cancer of the breast (females only), cancer of the cervix, cancer of the prostate, and non-Hodgkin's lymphoma. The impact of socioeconomic status on mortality and morbidity in Australia has been well demonstrated (see, for example, Turrell et al. 1999). Socioeconomic factors are also believed to be of major importance in explaining other health differentials, such as between men and women, between Indigenous and non-Indigenous persons, and between urban and rural residents.

Studies have also shown that living in rural or remote areas may have a direct impact on survival because of access to health services. For example, a New South Wales study of remote areas in that state has found that people living in these areas face a 30% worse chance of surviving cancer partly due to poor access to cancer treatment and support services (Jong et al. 2002).

There are age distribution differences in the populations in the various geographic and socioeconomic status categories. Hence age standardisation has been used in this report to remove the effects of age distribution differences on relative survival comparisons of geographic and socioeconomic status categories.

## Geographic category findings

Because the capital city population represents 64% of the total population, the 95% confidence interval for relative survival for capital city cancer cases will usually overlap with the 95% confidence interval for the population as a whole, and therefore not be statistically significantly different. Capital cities also contain a mix of high, medium and socioeconomic status areas and this is also likely to reduce the likelihood of survival findings significantly different from the national average. Hence the only cancer for which 5-year relative survival was significantly higher for capital city residents was prostate cancer. This may largely be attributed to more widespread use of prostate specific antigen (PSA) testing in capital cities, resulting in prostate cancer being detected at a much earlier stage than in rural and remote residents.

There were no significant findings for either other metropolitan areas (population over 100,000 persons) or large rural centres (population 25,000 to 100,000).

In contrast, people who live outside metropolitan areas and large rural centres are disadvantaged in their prospects of 5-year survival (Table E.1):

- males living in these areas had 5-year relative survival significantly below the national average for 'all cancers';
- males living in some of these areas were significantly below the national relative survival average for lung and prostate cancer and for melanoma; and
- females living in some of these areas were significantly below the national relative survival average for lung and cervical cancer.

Possible influences on these poorer survival outcomes include:

- relatively poorer access to both primary medical care, resulting in later detection of cancers, and to the standard of cancer treatment services found in capital cities;
- the socioeconomic mix of the population. Most of the areas outside metropolitan centres and the large rural centres are predominantly classified by the Australian Bureau of Statistics as lower socioeconomic status (Table 1.3, page 3). The 40% of the population in areas classified as most socioeconomically disadvantaged had poorer cancer survival outcomes (see findings below);
- the poorer survival, and relatively higher populations, of Aboriginal and Torres Strait Islander people in rural and remote areas.

This report is a descriptive report about relative 5-year cancer survival for geographic categories and socioeconomic quintiles. The extent to which the findings can be attributed to remoteness of residence, the proportion of the population who are Indigenous, access to relevant medical services, and socioeconomic indicators requires further research.

**Table E.1: Summary of 5-year relative survival findings significantly above and significantly below the Australian averages**

| | Geographic categories | | Socioeconomic status quintiles | |
|---|---|---|---|---|
| **Cancer** | **Above** | **Below** | **Above** | **Below** |
| All cancers | | | | |
| Males | — | R2, R3, Rem 1, Rem 2 | Q1 | Q4, Q5 |
| Females | — | — | Q1 | Q4, Q5 |
| Colorectal | | | | |
| Males | — | — | — | — |
| Females | — | — | — | — |
| Lung | | | | |
| Males | — | R3 | Q1 | — |
| Females | — | Rem1 | — | — |
| Melanoma | | | | |
| Males | Rem1 | R3 | — | — |
| Females | — | — | — | — |
| Breast | — | — | Q1 | Q3, Q4, Q5 |
| Cervix | — | Rem1 | — | — |
| Prostate | M1 | R3, Rem2 | Q1 | Q5 |
| Non-Hodgkins lymphoma | | | | |
| Males | — | — | — | — |
| Females | — | — | — | — |

—not significantly above or below the Australian average.

*Note*: M1 Capital cities, M2 Other metropolitan, R1 Large rural centres, R2 Small rural centres, R3 Other rural areas, Rem1 Remote centres, Rem2 Other remote areas, Q1 Highest quintile of socioeconomic status, Q5 Lowest quintile of socioeconomic status.

## Socioeconomic status findings

Areas classified by the Australian Bureau of Statistics (ABS) as 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 may be expected to result in relatively earlier detection and treatment of cancer, and therefore improved relative survival.

In contrast, many areas classified by the ABS as low socioeconomic status are located in places with comparatively poor access to cancer services, and the populations are less well educated. Later detection, and less adequate treatment and support services, may result, leading to reduced relative survival.

The socioeconomic status findings in this report support these hypotheses of better relative survival outcomes for persons living in high socioeconomic status areas and poorer outcomes for those in low socioeconomic status areas:

- Persons residing in areas in the top quintile of socioeconomic status have significantly higher 5-year relative survival for 'all cancers' for males and females, for lung and prostate cancer for males, and for breast cancer for females.
- Persons residing in areas in the bottom two quintiles of socioeconomic status have significantly lower 5-year relative survival for 'all cancers' for males and females.
- Women residing in areas in the bottom three quintiles of socioeconomic status have significantly lower 5-year relative survival for breast cancer.
- Men residing in areas in the bottom quintile of socioeconomic status have significantly lower 5-year relative survival for prostate cancer.

# 1 Introduction

This report is the third of three volumes being published by the Australian Institute of Health and Welfare on cancer survival in Australia. This project was funded by the Department of Health and Ageing and the Australian Institute of Health and Welfare, and undertaken as a joint project by the Institute and the Australasian Association of Cancer Registries.

This volume presents 5-year relative survival comparisons for geographical categories and socioeconomic status quintiles for all cancers as a single group as well as for seven National Health Priority Area cancers. These are lung cancer, melanoma, cancer of the cervix, breast cancer (female only), colorectal cancer, prostate cancer, and non-Hodgkin's lymphoma. The remaining National Health Priority Area cancer is non-melanocytic skin cancer, for which data are unavailable to calculate relative survival.

This volume was originally intended to include 5-year relative survival comparisons for states and territories. However, comparisons between jurisdictions are potentially confounded by state and territory differences in characteristics such as socioeconomic status and geographic distribution. Further, there are some differences between jurisdictions in the way basis of diagnosis and diagnosis date are recorded by cancer registries. All of these factors mean that a simple comparison of survival proportions between jurisdictions could be misleading. Instead, a further publication on relative survival is being considered for 2004 which would incorporate a more detailed, multivariate comparison of relative survival proportions for states and territories. This analysis would explore the effect of these confounding factors on this comparison. It would also incorporate data on cancers diagnosed up to the end of 2001.

The first volume **Part 1: National summary statistics** reported on national age and sex measures of survival for all cancers and 20 cancer types over three time periods from 1986 through to 1997. International comparisons were presented for a selected group of countries for 5-year relative survival. The second volume **Part 2: Statistical tables** supported the analyses in Part 1, presenting detailed tables for each cancer site.

## Interpretation of survival measures

It was noted in the *Cancer Survival in Australia, 2001 Part 1* report (AIHW & AACR 2001) that increased relative survival may arise from a number of factors. These include:

- public education about screening programs and self-examination;
- the effect of changing mortality patterns from other causes of death;
- increased effectiveness of general practitioners in diagnosing and following up on suspicious signs and symptoms;
- increased speed in referral;
- more effective investigation and staging of disease;
- more widespread availability of treatment; and
- more effective treatment (Coleman et al. 1999).

These factors are also likely to be contributors to differences in relative survival in Australia between metropolitan, rural and remote areas, and between socioeconomic status categories.

Access to primary, secondary and tertiary medical care services and facilities is lower in rural and remote areas. In 1998–99, average primary medical care patient encounters per annum in private medical practice and hospital outpatient services ranged from 7.7 in capital cities to 4.8 in other remote areas (Table 1.2) (AMWAC 2000).

**Table 1.2: General practitioner patient encounters: private practice and public hospital, by geographic location, 1998–1999**

| | Capital city | Other metro. | Large rural centre | Small rural centre | Other rural | Remote centre | Other remote | Total |
|---|---|---|---|---|---|---|---|---|
| | | | | Average patient encounters per capita | | | | |
| Private practice | 6.72 | 6.51 | 6.19 | 5.87 | 4.62 | 3.83 | 2.81 | 6.24 |
| Public hospital | 0.99 | 0.63 | 1.09 | 0.84 | 0.55 | 1.49 | 1.97 | 0.92 |
| Total | 7.71 | 7.14 | 7.28 | 6.71 | 5.17 | 5.32 | 4.77 | 7.16 |
| Bulk-billing rate (% of GPs) | 85.6 | 79.6 | 60.2 | 59.4 | 58.7 | 66.0 | | 79.6 |

*Source:* AIHW.

Yet the health of populations living in rural and remote areas of Australia is worse than the health of those living in capital cities and other metropolitan areas (AIHW 1998). Mortality and illness levels increase as the distance from metropolitan centres increases. In addition to relatively poor access to health services, lower socioeconomic status and employment levels, exposure to comparatively harsher environments and occupational hazards contribute to and may explain most of these inequalities. Also, a higher proportion of the population in rural and remote parts of Australia are Aboriginal and Torres Strait Islander people, who generally have much poorer health status.

### Socioeconomic status

There has been a considerable research focus in Australia and overseas on the association between socioeconomic disadvantage and health. The impact of socioeconomic status on mortality and morbidity in Australia has been well demonstrated (see, for example, Turrell et al. 1999). Socioeconomic factors are also believed to be of major importance in explaining other health differentials, such as between men and women, between Indigenous and non-Indigenous persons, and between urban and rural residents.

There are elements to socioeconomic status, including income, level of education, employment status, occupation, and occupational status or prestige. None of these elements by themselves provide an ideal measure, and their use is often dependent on the age group being analysed. Instead analysis by socioeconomic status is often done by classifying health data into socioeconomically graded areas of residence. The most common measure of socioeconomic status by area of residence in Australia, and the one used in the analysis in this report, is the Index of Relative Socioeconomic Disadvantage.

This index is one of the five Socioeconomic Indexes for Areas (SEIFA) produced by the ABS and is available at statistical local area (SLA) and postcode level (ABS 1998). Each index focuses on a different aspect of the socioeconomic conditions in the geographic area. The *Index of Relative Socioeconomic Disadvantage* is derived from attributes including low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations.

This information is derived by ABS from the 5-yearly census data. However, as both SLA and postcode boundaries change over time, concordances identifying postcode and SLA to socioeconomic index with acceptable degrees of accuracy are restricted to periods around the census years. In this analysis information from the 1996 Census was concorded to the other years in the analysis.

The Department of Health and Ageing uses the Index of Relative Socioeconomic Disadvantage to classify the postcodes of the Australian population making claims on Medicare for privately billed medical consultations. Postcodes are classified from highest disadvantage (–5) to most advantaged (5). Nearly all of the high socioeconomic status residential areas (4, 5) are in capital cities and other metropolitan areas, while most of the areas outside metropolitan areas and large rural centres are predominantly lower socioeconomic status (Table 1.3) (AMWAC 2000).

**Table 1.3: Distribution of whole patient equivalents[(a)]: geographic location and Index of Relative Socioeconomic Disadvantage, 1999–2000**

| Index | Capital city | Other metro. | Large rural centre | Small rural centre | Other rural | Remote centre | Other remote | Total | % |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Whole patient equivalents[(a)] | | | | |
| –5 | 888,530 | 118,205 | 32,719 | 47,949 | 80,366 | 4,701 | 32,881 | 1,205,351 | 7.4 |
| –4 | 915,794 | 191,440 | 114,177 | 164,351 | 203,645 | 8,736 | 17,289 | 1,615,432 | 9.9 |
| –3 | 646,498 | 96,291 | 39,625 | 283,261 | 289,109 | 27,548 | 21,165 | 1,403,497 | 8.6 |
| –2 | 426,654 | 75,810 | 142,312 | 204,109 | 288,423 | 5,343 | 25,863 | 1,168,514 | 7.2 |
| –1 | 626,392 | 149,848 | 169,588 | 120,461 | 304,898 | 33,657 | 13,875 | 1,418,719 | 8.7 |
| 0 | 560,635 | 221,512 | 336,130 | 135,537 | 170,757 | 13,047 | 8,650 | 1,446,268 | 8.9 |
| 1 | 1,038,175 | 99,048 | 193,035 | 86,251 | 161,858 | 11,183 | 11,380 | 1,600,930 | 9.8 |
| 2 | 903,153 | 131,160 | 24,959 | 14,647 | 109,123 | 53,508 | 9,089 | 1,245,639 | 7.6 |
| 3 | 1,173,421 | 149,805 | 28,750 | 38,939 | 52,019 | — | 9,788 | 1,452,722 | 8.9 |
| 4 | 1,749,735 | 49,950 | 2,244 | — | 37,021 | 2,218 | 4,247 | 1,845,415 | 11.3 |
| 5 | 1,791,530 | — | — | — | 15,119 | — | 591 | 1,807,240 | 11.1 |
| Unknown | 60,491 | 10,859 | 1,772 | 5,789 | 7,719 | — | 13,103 | 99,733 | 0.6 |
| Total | 10,781,008 | 1,293,928 | 1,085,311 | 1,101,294 | 1,720,057 | 159,941 | 167,921 | 16,309,460 | 100.0 |
| | | | | | Per cent | | | | |
| –5 | 8.2 | 9.1 | 3.0 | 4.4 | 4.7 | 2.9 | 19.6 | 7.4 | |
| –4 | 8.5 | 14.8 | 10.5 | 14.9 | 11.8 | 5.5 | 10.3 | 9.9 | |
| –3 | 6.0 | 7.4 | 3.7 | 25.7 | 16.8 | 17.2 | 12.6 | 8.6 | |
| –2 | 4.0 | 5.9 | 13.1 | 18.5 | 16.8 | 3.3 | 15.4 | 7.2 | |
| –1 | 5.8 | 11.6 | 15.6 | 10.9 | 17.7 | 21.0 | 8.3 | 8.7 | |
| 0 | 5.2 | 17.1 | 31.0 | 12.3 | 9.9 | 8.2 | 5.2 | 8.9 | |
| 1 | 9.6 | 7.7 | 17.8 | 7.8 | 9.4 | 7.0 | 6.8 | 9.8 | |
| 2 | 8.4 | 10.1 | 2.3 | 1.3 | 6.3 | 33.5 | 5.4 | 7.6 | |
| 3 | 10.9 | 11.6 | 2.6 | 3.5 | 3.0 | 0.0 | 5.8 | 8.9 | |
| 4 | 16.2 | 3.9 | 0.2 | 0.0 | 2.2 | 1.4 | 2.5 | 11.3 | |
| 5 | 16.6 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.4 | 11.1 | |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | |

(a) The whole patient equivalent is derived by the Department of Health and Ageing as an indicator of patient load. See the Glossary for a definition.

*Note:* –5 indicates most disadvantaged, 5 most advantaged.

*Source:* AIHW analysis of Department of Health and Ageing data.

For example, 63.5% of people in small rural centres and 50.1% of those in other rural areas lived in low socioeconomic status –2 to –5 areas, compared with 26.7% in capital cities.

**Further research and analysis**

Where there are significant differences in relative survival for particular cancers according to rurality and socioeconomic status, further research is needed on the extent to which these may be attributed to differences in screening and detection, stage of cancer, cancer treatment and support services, lifestyle factors or other influences.

# 2 Method

This report includes the development and analysis of 5-year relative survival proportions by geographical category and socioeconomic index calculated for the place of residence at time of diagnosis with cancer. It examines relative survival for persons diagnosed with cancer between 1992 and 1997, and deaths of these persons which occurred between 1992 and 1999.

Relative survival is the ratio of the observed survival rate for a given cohort of cancer patients to the expected survival rate in the general population. The observed survival rate is calculated by dividing the survival period (which is 5 years in this report) up into successive small intervals. The rate is estimated by first calculating the survival rate for each interval. This is the proportion of all cancer patients alive at the start of the interval who are still alive at the end of it. The overall observed survival rate for the period is then the product of the rates for each small interval in the period. This means that patients who were diagnosed between 1995 and 1997 still contribute to the estimate of 5-year survival through contributing to the survival estimates for the earlier intervals in the five-year period, though they do not contribute to the later intervals. These later intervals are only based on data for people diagnosed prior to 1994.

The methodology used in developing the relative survival estimates is outlined in *Cancer Survival in Australia, 2001 Part 1* (AIHW & AACR 2001):

- The Australian state and territory cancer registries provided cancer incidence data for the analyses. The cancer data included place of residence at time of diagnosis.
- The cancer incidence data were matched to data provided in the National Death Index to determine if a death had occurred.
- Population information was sourced from the Australian Bureau of Statistics and classified to geographic categories and socioeconomic status quintiles.
- Mortality data were extracted from the AIHW National Mortality Database, and classified to the respective geographic and socioeconomic groupings.
- Hazard rates were determined for the respective geographic and socioeconomic groupings from the mortality and population figures.
- Relative survival proportions for the seven individual cancers and for all cancers at the appropriate levels were produced using the computer software outlined in *Cancer Survival in Australia, 2001 Part 1* (AIHW & AACR 2001).

Issues in classifying the data by geographic region and socioeconomic status are outlined below.

## 2.1 Classification by geographical category

The Rural, Remote and Metropolitan Areas (RRMA) classification (DPIE & DHSH 1994) classifies each state and territory into three groups—metropolitan zones, rural zones and remote zones—using information from the 1991 Census. Metropolitan areas include the capital cities and some areas outside the capital cities which are determined according to total population. Rural and remote zones are classified according to an index of remoteness, which is based on population density and distance to large population centres. Some cancer registries record place of residence as a postcode, while other registries record the place of

residence as a statistical local area. Respective electronic concordances were developed by the AIHW to code SLA and postcode into the appropriate RRMA categories and were used to classify the cancer, mortality, and population data to one of the seven categories shown in Table 2.1.

**Table 2.1: Structure of the Rural, Remote and Metropolitan Areas (RRMA) classification**

| Zone | Category | Description |
|---|---|---|
| Metropolitan zone | M1 | Capital cities |
| | M2 | Other metropolitan areas (urban centre population –100,000) |
| Rural zone | R1 | Large rural centres (urban centre population 25,000–99,999) |
| | R2 | Small rural centres (urban centre population 10,000–24,999) |
| | R3 | Other rural areas (urban centre population <10,000) |
| Remote zone | Rem1 | Remote centres (urban centre population –5,000) |
| | Rem2 | Other remote areas (urban centre population <5,000) |

*Source:* DPIE & DHSH 1994.

Relative survival proportions for the seven individual cancers and for all cancers by RRMA at the appropriate levels were produced using the computer software outlined in *Cancer Survival in Australia, 2001 Part 1* (AIHW & AACR 2001).

A small proportion of cancer incidence and mortality records could not be assigned a RRMA code and were excluded (Table 2.2).

**Table 2.2: Records excluded from the geographic analysis**

| | Cancer incidence cases | | Mortality cases | |
|---|---|---|---|---|
| Year | Males | Females | Males | Females |
| 1992 | 76 | 95 | 217 | 112 |
| 1993 | 68 | 74 | 240 | 125 |
| 1994 | 66 | 69 | 264 | 132 |
| 1995 | 73 | 67 | 245 | 127 |
| 1996 | 64 | 91 | 360 | 180 |
| 1997 | 80 | 101 | 339 | 170 |
| **Total** | **1,678** | **1,812** | **2,275** | **1,139** |

## 2.2 Classification by socioeconomic status

As discussed in *Cancer Survival in Australia, 2001 Part 1* (AIHW & AACR 2001), the ABS *Index of Relative Socioeconomic Disadvantage* has been used to classify socioeconomic status in this report. This involved allocating to the residence of each person with a cancer diagnosis a code indicating the socioeconomic status of the SLA or postcode of that residence. These data were then used to calculate the survival rates for each cancer by socioeconomic status. Each person on the mortality database was similarly allocated a socioeconomic status code based on their residence at the time of their death. Finally the population estimates for each SLA were also allocated a socioeconomic status code. The mortality and population data were then used to calculate hazard rates by socioeconomic status for the general population.

One drawback of this analysis by area of residence is that it will misclassify high socioeconomic status persons living in low socioeconomic status areas, and vice versa. Hence findings by socioeconomic status should be interpreted with care.

A small proportion of cancer incidence, mortality and population records were unable to be allocated a socioeconomic index value and were excluded (Table 2.3).

**Table 2.3: Records excluded from the socioeconomic status analysis**

| | Cancer cases | | Mortality cases | | Population cases | |
|---|---|---|---|---|---|---|
| Year | Males | Females | Males | Females | Males | Females |
| 1992 | 354 | 314 | 577 | 411 | 229 | 117 |
| 1993 | 360 | 273 | 584 | 404 | 251 | 129 |
| 1994 | 409 | 336 | 178 | 101 | 280 | 138 |
| 1995 | 397 | 338 | 177 | 96 | 261 | 136 |
| 1996 | 432 | 361 | 171 | 95 | 384 | 187 |
| 1997 | 510 | 409 | 169 | 98 | 351 | 176 |
| **Total** | **2,462** | **2,031** | **927** | **608** | **1,755** | **883** |

## 2.3 Age adjustment

Where survival is compared between different populations with different age structures, it is important to adjust for these differences. Relative survival can be age adjusted in an analogous way to the age adjustment of incidence or mortality rates. The age-adjusted survival proportion is calculated, using the direct standardisation method, as a weighted sum of the age-specific relative survival proportions (see, for example, Berrino et al. 1999). The formula is:

$$ASR = \sum_{j=1}^{n} \left( \frac{m_j}{M} \right) R_j$$

where

$ASR$ = the age-standardised relative survival proportion;

$R_j$ = the age-specific relative survival proportion at age $j, j = 1, \cdots, n$;

$m_j$ = the number of people in the standard population at age $j, j = 1, \cdots, n$; and

M = the total number of people in the whole standard population

$$= \sum_{j=1}^{n} m_j$$

The usual standard population used for age adjustment of Australian health data is the total Australian population for 1991. However, the age structure of the total population is very different to the age structure of people diagnosed with cancer. Instead the population consisting of all people diagnosed with cancer during the period 1991–1997 has been used as the standard population for age adjustment in this report.

# 3 All cancers

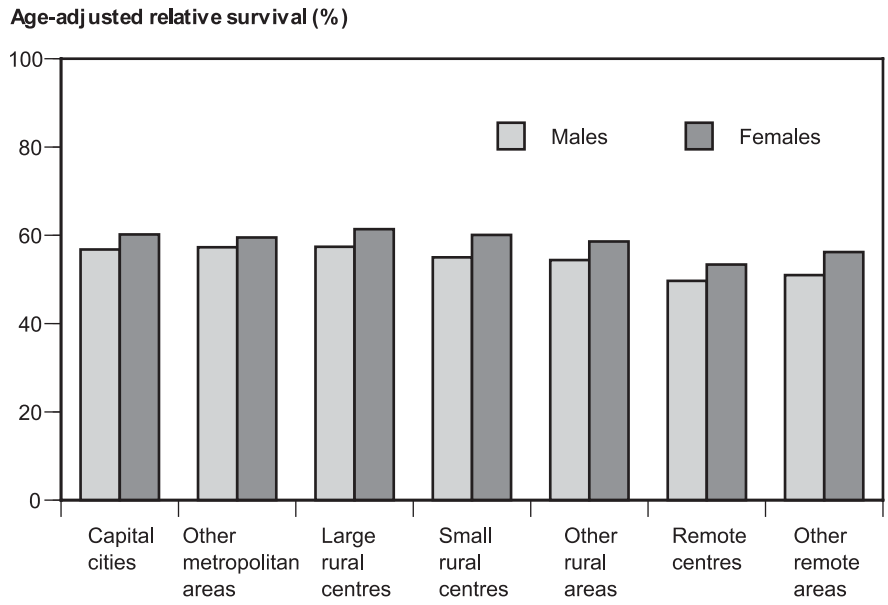
## Survival by geographic category

### Males

- The 5-year age-adjusted relative survival proportion was highest for males living in 'large rural centres' (57.4%), 'other metropolitan areas' (57.3%) and 'capital cities' (56.8%).
- In all other areas, the proportions were significantly lower than that of the all-Australia proportion of 56.4%. The proportion for 'small rural centres' was 55.0%, 'other rural areas' 54.4%, 'remote centres' 51.0%, and for 'other remote areas' 49.7%.

### Females

- Females had significantly higher relative survival than males in all but 'remote areas'.
- The 5-year age-adjusted relative survival proportions for 'remote centres' (53.4%), 'other remote areas' (56.2%) and 'other rural areas' (58.6%) were significantly lower than that of the all-Australia proportion of 60.0%.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 3.1: Five-year age-adjusted relative survival proportions for all cancers: geographic category and sex, 1992–1997**

**Table 3.1: Five-year age-adjusted relative survival proportions for all cancers: geographic category and sex, 1992–1997**

| Location | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| Capital cities | 56.8 | 56.4–57.1 | 60.2 | 59.8–60.5 |
| Other metropolitan | 57.3 | 56.3–58.2 | 59.5 | 58.6–60.5 |
| Large rural centres | 57.4 | 56.3–58.5 | 61.4 | 60.3–62.5 |
| Small rural centres | 55.0 | 54.0–55.9 | 60.1 | 59.1–61.1 |
| Other rural areas | 54.4 | 53.7–55.1 | 58.6 | 57.9–59.4 |
| Remote centres | 49.7 | 46.2–53.2 | 53.4 | 49.6–57.3 |
| Other remote areas | 51.0 | 48.5–53.4 | 56.2 | 53.2–59.1 |
| **Australia** | **56.4** | **56.1–56.7** | **60.0** | **59.7–60.3** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 3.2: Five-year relative survival proportions for all cancers: age and sex, geographic category, 1992–1997**

| Age | Capital cities | Other metropolitan | Large rural centres | Small rural centres | Other rural areas | Remote centres | Other remote areas |
|---|---|---|---|---|---|---|---|
| | | | | Per cent | | | |
| **Males** | | | | | | | |
| 0–9 | 71.1 | 70.5 | 71.2 | 74.3 | 73.7 | 62.6 | 67.7 |
| 10–19 | 79.6 | 75.8 | 69.6 | 78.5 | 77.0 | 63.9 | 61.1 |
| 20–29 | 81.7 | 87.1 | 81.6 | 87.6 | 84.7 | 84.6 | 84.0 |
| 30–39 | 76.4 | 78.3 | 81.2 | 77.4 | 81.1 | 77.3 | 74.4 |
| 40–49 | 65.3 | 65.8 | 65.4 | 66.4 | 66.7 | 59.1 | 61.3 |
| 50–59 | 59.7 | 58.8 | 59.0 | 55.6 | 56.0 | 47.8 | 51.0 |
| 60–69 | 57.6 | 56.3 | 56.6 | 54.7 | 54.6 | 48.6 | 47.4 |
| 70–79 | 52.9 | 53.9 | 53.4 | 51.7 | 49.9 | 42.3 | 47.2 |
| 80–99 | 43.5 | 46.8 | 48.4 | 41.1 | 39.8 | 47.7 | 45.3 |
| **All ages** | **57.5** | **57.5** | **57.6** | **55.2** | **54.7** | **52.7** | **51.9** |
| **Age adjusted** | **56.8** | **57.3** | **57.4** | **55.0** | **54.4** | **49.7** | **51.0** |
| **Females** | | | | | | | |
| 0–9 | 72.9 | 83.7 | 61.9 | 76.6 | 73.1 | 85.7 | 73.2 |
| 10–19 | 81.0 | 83.1 | 81.7 | 80.2 | 84.3 | 80.1 | 81.4 |
| 20–29 | 87.3 | 87.5 | 88.3 | 88.0 | 85.7 | 90.4 | 87.0 |
| 30–39 | 83.0 | 84.2 | 81.9 | 82.9 | 83.5 | 81.2 | 75.7 |
| 40–49 | 79.2 | 77.9 | 77.4 | 77.2 | 78.7 | 75.3 | 74.2 |
| 50–59 | 71.5 | 69.7 | 70.9 | 70.1 | 68.1 | 60.1 | 66.5 |
| 60–69 | 61.2 | 59.9 | 61.3 | 62.7 | 60.2 | 50.9 | 48.2 |
| 70–79 | 50.5 | 51.9 | 55.3 | 50.1 | 50.5 | 41.4 | 51.4 |
| 80–99 | 41.4 | 38.2 | 42.8 | 41.5 | 36.5 | 44.8 | 46.0 |
| **All ages** | **63.6** | **62.6** | **64.2** | **63.0** | **62.2** | **63.0** | **61.9** |
| **Age adjusted** | **60.2** | **59.5** | **61.4** | **60.1** | **58.6** | **53.4** | **56.2** |

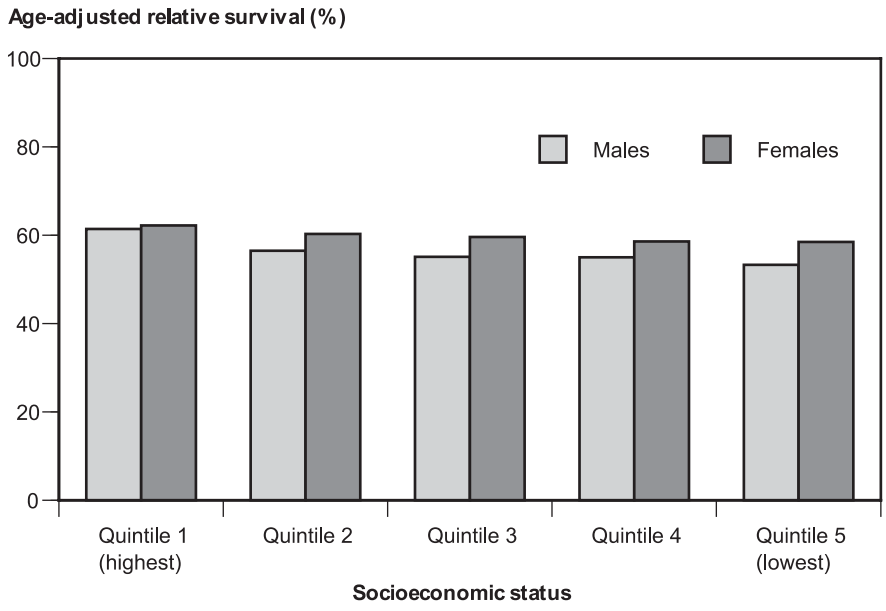
## Survival by socioeconomic status

### Males

- The male 5-year age-adjusted relative survival proportion for males living in areas with the highest quintile for socioeconomic status was 61.4%. This was significantly above the national average of 56.4%.
- The proportions fell with each successive quintile to 53.3% for the fifth and lowest. The lowest three quintiles were significantly below the national average.

### Females

- The proportion for the highest quintile (62.2%) was significantly above the national average (60.0%).
- In contrast, the proportions for the bottom two quintiles (58.6% for the fourth and 58.5% for the fifth and lowest) were significantly below the national average.
- Female relative survival was significantly higher than male relative survival for all but the highest socioeconomic quintile.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 3.2: Five-year age-adjusted relative survival proportions for all cancers: socioeconomic status and sex, 1992–1997**

**Table 3.3: Five-year age-adjusted relative survival proportions for all cancers: socioeconomic status and sex, 1992–1997**

| Quintile of socioeconomic status | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| 1 (highest) | 61.4 | 60.8–62.0 | 62.2 | 61.7–62.8 |
| 2 | 56.5 | 55.8–57.1 | 60.3 | 59.7–61.0 |
| 3 | 55.1 | 54.5–55.7 | 59.6 | 59.0–60.2 |
| 4 | 55.0 | 54.4–55.6 | 58.6 | 58.0–59.2 |
| 5 (lowest) | 53.3 | 52.7–53.9 | 58.5 | 57.9–59.1 |
| **Australia** | **56.4** | **56.1–56.7** | **60.0** | **59.7–60.3** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 3.4: Five-year relative survival proportions for all cancers: age and sex, socioeconomic status, 1992–1997**

| Age | Quintile 1 (highest) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (lowest) |
|---|---|---|---|---|---|
| | | | Per cent | | |
| **Males** | | | | | |
| 0–19 | 74.1 | 75.6 | 74.7 | 84.2 | 75.8 |
| 20–29 | 83.3 | 81.7 | 80.0 | 79.2 | 85.4 |
| 30–39 | 81.2 | 78.1 | 74.1 | 64.3 | 75.1 |
| 40–49 | 68.4 | 67.0 | 65.0 | 56.4 | 62.4 |
| 50–59 | 66.5 | 57.8 | 57.1 | 54.6 | 54.4 |
| 60–69 | 63.2 | 56.9 | 55.0 | 51.2 | 53.7 |
| 70–79 | 57.4 | 52.7 | 51.5 | 43.7 | 49.3 |
| 80–99 | 46.5 | 43.3 | 43.5 | 26.0 | 40.7 |
| **All ages** | **62.1** | **57.3** | **55.7** | **55.4** | **53.7** |
| **Age adjusted** | **61.4** | **56.5** | **55.1** | **55.0** | **53.3** |
| **Females** | | | | | |
| 0–19 | 76.4 | 80.9 | 77.2 | 87.2 | 79.3 |
| 20–29 | 86.4 | 89.8 | 87.0 | 82.6 | 85.7 |
| 30–39 | 84.8 | 81.9 | 82.9 | 77.1 | 82.4 |
| 40–49 | 81.2 | 79.4 | 77.5 | 68.7 | 77.8 |
| 50–59 | 75.0 | 70.4 | 71.0 | 59.7 | 67.3 |
| 60–69 | 63.3 | 61.4 | 60.4 | 50.0 | 59.7 |
| 70–79 | 52.5 | 51.3 | 51.0 | 39.3 | 49.4 |
| 80–99 | 42.8 | 41.2 | 39.6 | 32.3 | 40.2 |
| **All ages** | **65.3** | **64.1** | **63.0** | **62.3** | **61.7** |
| **Age adjusted** | **62.2** | **60.3** | **59.6** | **58.6** | **58.5** |

# 4 Colorectal cancer

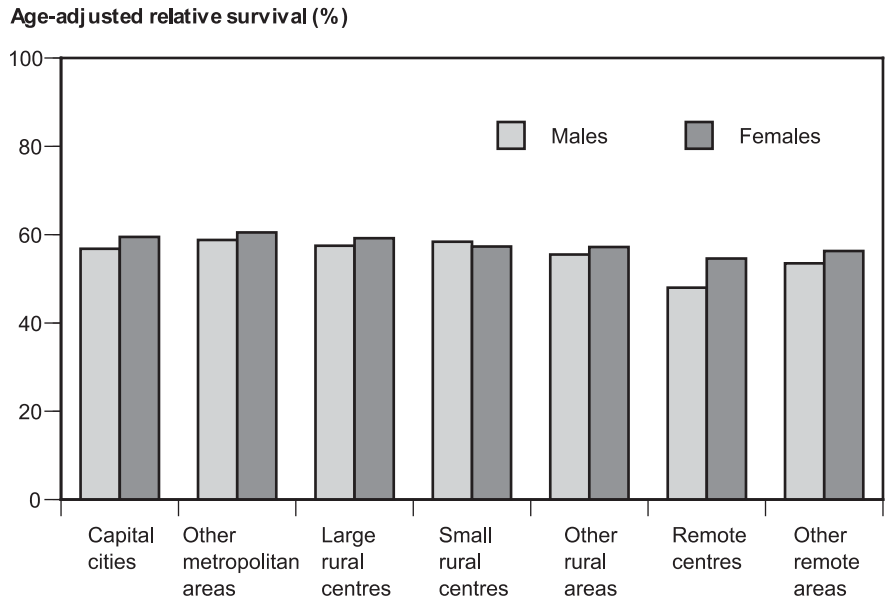
## Survival by geographic category

### Males

- The 5-year age-adjusted relative survival proportion for colorectal cancer was highest for males living in 'other metropolitan areas' (58.4%) and lowest for persons in 'remote centres' (48.0%). However, the proportions were not significantly different across geographical categories.

### Females

- As for males, there were no significant differences across geographic categories for females. Relative survival was highest for females living in 'other metropolitan areas' (60.5%) and lowest in 'remote centres' (54.6%).
- Female 5-year relative survival was higher than for males in 'capital cities' but not in other areas.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 4.1: Five-year age-adjusted relative survival proportions for colorectal cancer: geographic category and sex, 1992–1997**

**Table 4.1: Five-year age-adjusted relative survival age-adjusted proportions for colorectal cancer: geographic category and sex, 1992–1997**

| Location | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| Capital cities | 56.8 | 55.8–57.8 | 59.5 | 58.6–60.5 |
| Other metropolitan | 58.8 | 56.1–61.6 | 60.5 | 57.9–63.1 |
| Large rural centres | 57.5 | 54.4–60.5 | 59.2 | 56.2–62.2 |
| Small rural centres | 58.4 | 55.5–61.2 | 57.3 | 54.6–60.0 |
| Other rural areas | 55.5 | 53.4–57.6 | 57.2 | 55.2–59.3 |
| Remote centres | 48.0 | 37.9–58.2 | 54.6 | 43.0–66.2 |
| Other remote areas | 53.5 | 46.5–60.6 | 56.3 | 47.9–64.6 |
| **Australia** | **57.0** | **56.2–57.8** | **59.2** | **58.4–59.9** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 4.2: Five-year relative survival proportions for colorectal cancer: age and sex, geographic category, 1992–1997**

| Age | Capital cities | Other metropolitan | Large rural centres | Small rural centres | Other rural areas | Remote centres | Other remote areas |
|---|---|---|---|---|---|---|---|
| | | | | Per cent | | | |
| **Males** | | | | | | | |
| 40–49 | 59.0 | 64.9 | 61.0 | 55.6 | 63.2 | 49.7 | 68.3 |
| 50–59 | 61.5 | 60.6 | 61.4 | 57.3 | 59.9 | 64.5 | 60.5 |
| 60–69 | 58.8 | 55.5 | 56.1 | 59.0 | 58.3 | 54.1 | 61.8 |
| 70–79 | 55.4 | 58.3 | 57.8 | 59.5 | 54.6 | 30.8 | 45.1 |
| 80–99 | 49.5 | 60.2 | 53.0 | 57.9 | 43.0 | 52.5 | 38.6 |
| **All ages** | **57.6** | **58.6** | **57.8** | **58.4** | **57.0** | **51.0** | **56.9** |
| **Age adjusted** | **56.8** | **58.8** | **57.5** | **58.4** | **55.5** | **48.0** | **53.5** |
| **Females** | | | | | | | |
| 40–49 | 63.1 | 64.6 | 57.0 | 60.9 | 56.6 | 51.9 | 60.7 |
| 50–59 | 63.7 | 67.6 | 56.7 | 61.3 | 59.3 | 61.4 | 59.9 |
| 60–69 | 61.0 | 63.7 | 60.8 | 64.0 | 61.4 | 46.8 | 50.2 |
| 70–79 | 57.5 | 59.9 | 63.5 | 55.1 | 58.9 | 48.8 | 59.6 |
| 80–99 | 54.2 | 46.0 | 51.9 | 43.4 | 44.7 | 74.6 | 54.1 |
| **All ages** | **59.5** | **61.3** | **59.6** | **58.0** | **57.8** | **55.3** | **55.4** |
| **Age adjusted** | **59.5** | **60.5** | **59.2** | **57.3** | **57.2** | **54.6** | **56.3** |

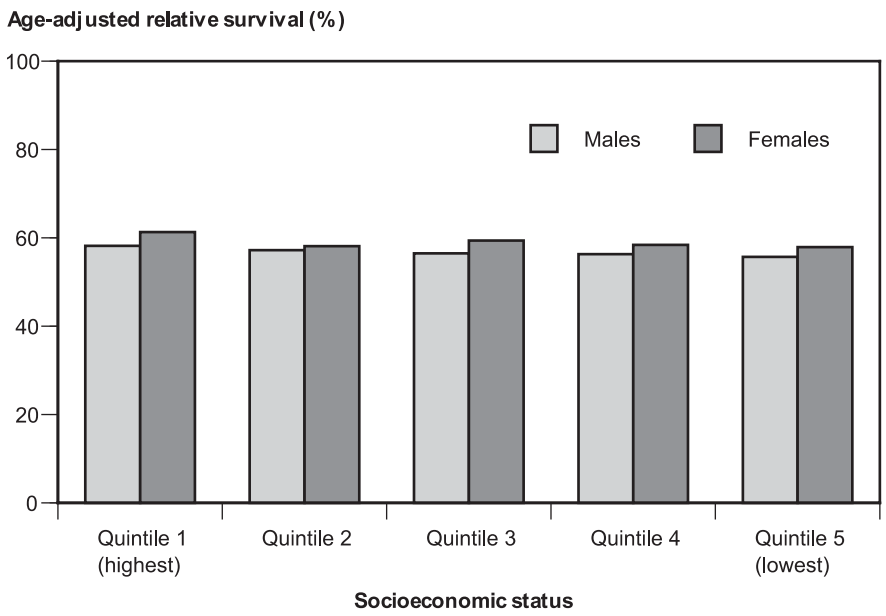
## Survival by socioeconomic status

### Males

- The 5-year age-adjusted relative survival proportion for colorectal cancer fell steadily with each quintile from (58.2%) for the highest socioeconomic status, down to 55.7% for persons in the lowest. However, these proportions were not significantly different.

### Females

- The 5-year age-adjusted relative survival proportion was highest for females in the highest socioeconomic status with 61.3%. This was significantly different to the proportion for the fifth and lowest quintile (57.9%).
- Female relative survival was not significantly different from male relative survival for any of the quintiles, although female relative survival for Australia was significantly higher than male relative survival.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 4.2: Five-year age-adjusted relative survival proportions for colorectal cancer: socioeconomic status and sex, 1992–1997**

**Table 4.3: Five-year age-adjusted relative survival proportions for colorectal cancer: socioeconomic status and sex, 1992–1997**

| Quintile of socioeconomic status | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| 1 (highest) | 58.2 | 56.5–59.9 | 61.3 | 59.7–62.9 |
| 2 | 57.2 | 55.4–59.1 | 58.1 | 56.3–59.8 |
| 3 | 56.5 | 54.8–58.3 | 59.4 | 57.7–61.1 |
| 4 | 56.3 | 54.5–58.1 | 58.4 | 56.7–60.2 |
| 5 (lowest) | 55.7 | 54.0–57.5 | 57.9 | 56.1–59.6 |
| **Australia** | **57.0** | **56.2–57.8** | **59.2** | **58.4–59.9** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 4.4: Five-year relative survival proportions for colorectal cancer: age and sex, socioeconomic status, 1992–1997**

| Age | Quintile 1 (highest) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (lowest) |
|---|---|---|---|---|---|
| | | | Per cent | | |
| **Males** | | | | | |
| 40–49 | 57.6 | 61.8 | 57.7 | 58.1 | 59.5 |
| 50–59 | 64.1 | 61.2 | 61.6 | 56.4 | 58.0 |
| 60–69 | 59.6 | 58.7 | 59.1 | 52.4 | 59.1 |
| 70–79 | 56.0 | 54.9 | 55.6 | 53.5 | 54.9 |
| 80–99 | 54.6 | 52.1 | 47.8 | 42.5 | 46.7 |
| **All ages** | **58.9** | **58.0** | **57.7** | **55.2** | **56.7** |
| **Age adjusted** | **58.2** | **57.2** | **56.5** | **56.3** | **55.7** |
| **Females** | | | | | |
| 40–49 | 62.2 | 61.0 | 60.8 | 54.9 | 62.6 |
| 50–59 | 66.8 | 58.5 | 65.5 | 59.4 | 58.8 |
| 60–69 | 61.6 | 59.9 | 62.4 | 58.3 | 61.9 |
| 70–79 | 60.9 | 57.5 | 58.8 | 54.6 | 55.2 |
| 80–99 | 55.2 | 53.8 | 48.0 | 43.0 | 51.9 |
| **All ages** | **61.3** | **58.0** | **59.8** | **57.1** | **58.3** |
| **Age adjusted** | **61.3** | **58.1** | **59.4** | **58.4** | **57.9** |

# 5 Cancer of the lung

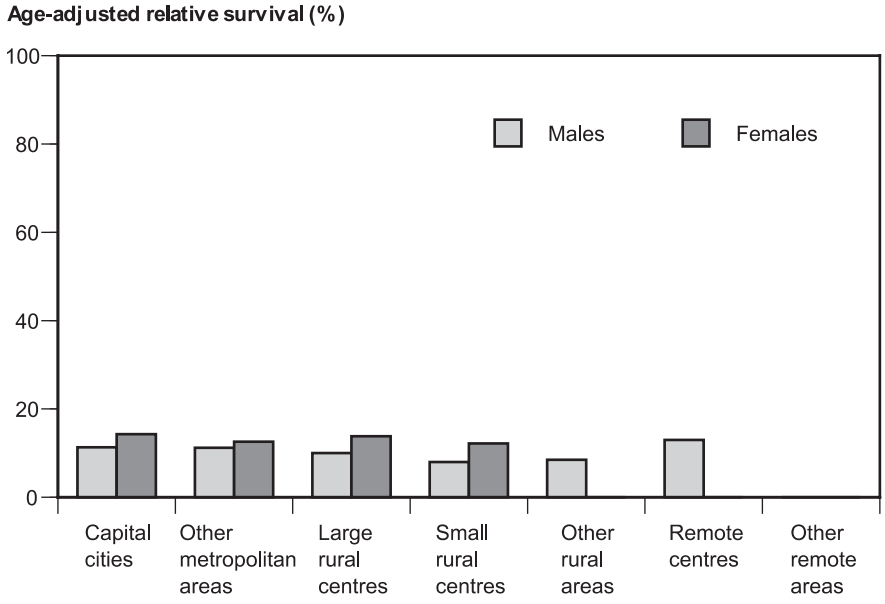
## Survival by geographic category

### Males

- The 5-year age-adjusted relative survival proportions for lung cancer for males living in 'small rural centres' (8.0%) and 'other rural areas' (8.5%) were significantly lower than the national proportion of 10.5%.

### Females

- The 5-year age-adjusted relative survival proportion was highest for females living in 'capital cities' (14.3%) and lowest for those in 'small rural centres' (12.2%), but these differences were not statistically significant because of small numbers.
- Female relative survival was significantly higher in 'capital cities' and 'small rural centres' than for males.




*Notes*

1. Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.
2. There were no cases of lung cancer recorded for the relevant period in other remote areas and no cases in women in other rural areas or remote centres.

**Figure 5.1: Five-year age-adjusted relative survival proportions for cancer of the lung: geographic category and sex, 1992–1997**

**Table 5.1: Five-year age-adjusted relative survival proportions for cancer of the lung: geographic category and sex, 1992–1997**

| Location | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| Capital cities | 11.3 | 10.7–11.9 | 14.3 | 13.4–15.2 |
| Other metropolitan | 11.2 | 9.6–12.8 | 12.6 | 10.3–14.9 |
| Large rural centres | 10.0 | 8.2–11.7 | 13.8 | 10.8–16.8 |
| Small rural centres | 8.0 | 6.7–9.4 | 12.2 | 9.8–14.7 |
| Other rural areas | 8.5 | 7.3–9.6 | .. | .. |
| Remote centres | 13.0 | 7.0–18.9 | .. | .. |
| Other remote areas | .. | .. | .. | .. |
| **Australia** | **10.5** | **10.1–11.0** | **13.4** | **12.7–14.1** |

.. No data in this cell.

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 5.2: Five-year relative survival proportions for cancer of the lung: age and sex, geographic category, 1992–1997**

| Age | Capital cities | Other metropolitan | Large rural centres | Small rural centres | Other rural areas | Remote centres | Other remote areas |
|---|---|---|---|---|---|---|---|
| | | | | Per cent | | | |
| **Males** | | | | | | | |
| 40–49 | 17.3 | 11.4 | 12.4 | 5.9 | 11.0 | 13.9 | 15.3 |
| 50–59 | 15.5 | 14.0 | 13.8 | 9.5 | 13.4 | 12.2 | 12.8 |
| 60–69 | 12.7 | 13.4 | 11.7 | 10.7 | 9.2 | 13.3 | 9.0 |
| 70–79 | 10.0 | 9.5 | 8.2 | 8.8 | 5.6 | 10.7 | 3.3 |
| 80–99 | 3.2 | 7.3 | 4.8 | 1.7 | 6.1 | 17.1 | .. |
| **All ages** | **11.8** | **11.8** | **10.4** | **9.2** | **8.6** | **12.4** | **8.7** |
| **Age adjusted** | **11.3** | **11.2** | **10.0** | **8.0** | **8.5** | **13.0** | **..** |
| **Females** | | | | | | | |
| 40–49 | 22.7 | 13.1 | 19.3 | 7.2 | 21.8 | .. | 10.5 |
| 50–59 | 19.7 | 12.7 | 20.6 | 12.4 | 15.5 | .. | 4.0 |
| 60–69 | 16.5 | 15.7 | 13.0 | 17.6 | 11.5 | .. | 12.2 |
| 70–79 | 10.6 | 12.2 | 12.7 | 10.3 | 10.0 | .. | 3.5 |
| 80–99 | 6.9 | 7.6 | 7.1 | 9.5 | .. | .. | .. |
| **All ages** | **14.7** | **13.0** | **14.1** | **13.2** | **12.2** | **..** | **9.6** |
| **Age adjusted** | **14.3** | **12.6** | **13.8** | **12.2** | **..** | **..** | **..** |

.. No data in this cell.

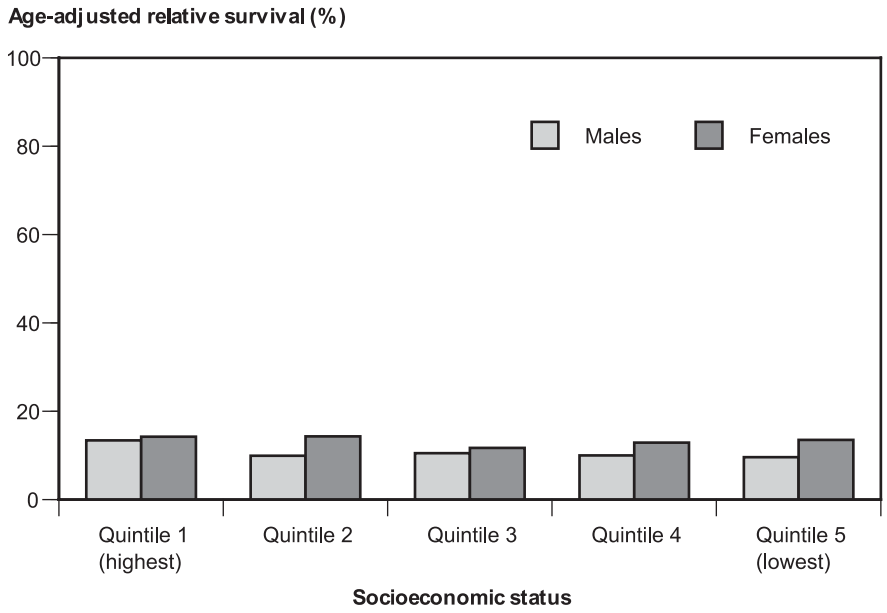
## Survival by socioeconomic status

### Males

- Males living in areas with the highest quintile for socioeconomic status for lung cancer had the highest survival proportion (13.4%). This was significantly greater than the proportion for each of the other quintiles.

### Females

- Across the quintiles there were no significant differences in 5-year age-adjusted relative survival for females.
- In quintiles 2, 4 and 5, female relative survival was significantly higher than male relative survival.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 5.2: Five-year age-adjusted relative survival proportions for cancer of the lung: socioeconomic status and sex, 1992–1997**

**Table 5.3: Five-year age-adjusted relative survival proportions for cancer of the lung: socioeconomic status and sex, 1992–1997**

| Quintile of socioeconomic status | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| 1 (highest) | 13.4 | 12.1–14.7 | 14.2 | 12.5–15.8 |
| 2 | 9.9 | 8.9–10.9 | 14.3 | 12.6–16.0 |
| 3 | 10.5 | 9.5–11.4 | 11.7 | 10.2–13.2 |
| 4 | 10.0 | 9.0–10.9 | 12.9 | 11.4–14.4 |
| 5 (lowest) | 9.6 | 8.7–10.4 | 13.5 | 12.0–15.0 |
| **Australia** | **10.5** | **10.1–11.0** | **13.4** | **12.7–14.1** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 5.4: Five-year relative survival proportions for cancer of the lung: age and sex, socioeconomic status, 1992–1997**

| Age | Quintile 1 (highest) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (lowest) |
|---|---|---|---|---|---|
| | | | Per cent | | |
| **Males** | | | | | |
| 40–49 | 24.8 | 15.6 | 11.4 | 11.1 | 13.8 |
| 50–59 | 18.3 | 12.6 | 15.3 | 14.0 | 13.3 |
| 60–69 | 14.1 | 11.6 | 11.0 | 12.2 | 11.7 |
| 70–79 | 11.7 | 8.9 | 9.6 | 7.5 | 8.3 |
| 80–99 | 3.3 | 2.4 | 5.5 | 5.8 | 1.6 |
| **All ages** | **13.2** | **10.5** | **11.0** | **10.4** | **10.6** |
| **Age adjusted** | **13.4** | **9.9** | **10.5** | **10.0** | **9.6** |
| **Females** | | | | | |
| 40–49 | 23.9 | 15.9 | 15.6 | 19.7 | 25.2 |
| 50–59 | 16.2 | 18.9 | 20.8 | 13.8 | 17.2 |
| 60–69 | 16.3 | 15.9 | 14.4 | 15.9 | 15.3 |
| 70–79 | 11.8 | 11.9 | 7.1 | 12.2 | 9.9 |
| 80–99 | 6.6 | 10.2 | 4.0 | 3.9 | 6.0 |
| **All ages** | **14.2** | **14.8** | **12.7** | **13.9** | **14.1** |
| **Age adjusted** | **14.2** | **14.3** | **11.7** | **12.9** | **13.5** |

# 6 Melanoma

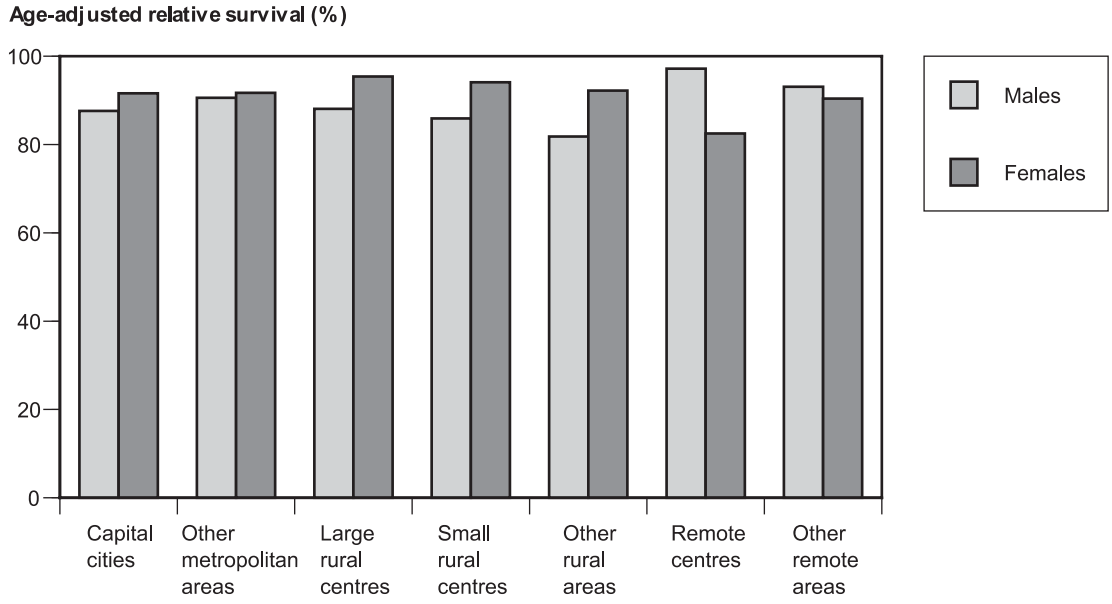
## Survival by geographic category

### Males

- For persons living in 'other rural areas' (81.8%) male 5-year age-adjusted relative survival for melanoma was significantly below the national average.

### Females

- There were no significant differences in relative survival across geographic categories.
- Female relative survival was higher than male relative survival in 'capital cities', 'small rural centres' and 'other rural areas'.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 6.1: Five-year age-adjusted relative survival proportions for melanoma: geographic category and sex, 1992–1997**

**Table 6.1: Five-year age-adjusted relative survival proportions for melanoma: geographic category and sex, 1992–1997**

| Location | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| Capital cities | 87.6 | 86.1–89.1 | 91.6 | 90.3–93.0 |
| Other metropolitan | 90.6 | 87.1–94.0 | 91.7 | 87.9–95.5 |
| Large rural centres | 88.1 | 83.9–92.3 | 95.4 | 91.6–99.2 |
| Small rural centres | 85.9 | 81.9–89.8 | 94.1 | 90.2–97.9 |
| Other rural areas | 81.8 | 78.7–84.8 | 92.2 | 89.3–95.0 |
| Remote centres | 97.2 | 83.6–110.9 | 82.5 | 67.2–97.9 |
| Other remote areas | 93.1 | 81.4–104.9 | 90.4 | 77.9–102.9 |
| **Australia** | **87.4** | **86.2–88.5** | **92.3** | **91.2–93.4** |

*Notes*

1. Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.
2. Some confidence intervals in this table have an upper bound which is greater than 100. This means that survival for people with a diagnosis of melanoma in these areas cannot be statistically distinguished from survival for people in the general population. This is largely due to the small number of cases of melanoma in these areas.

**Table 6.2: Five-year relative survival proportions for melanoma: age and sex, geographic category, 1992–1997**

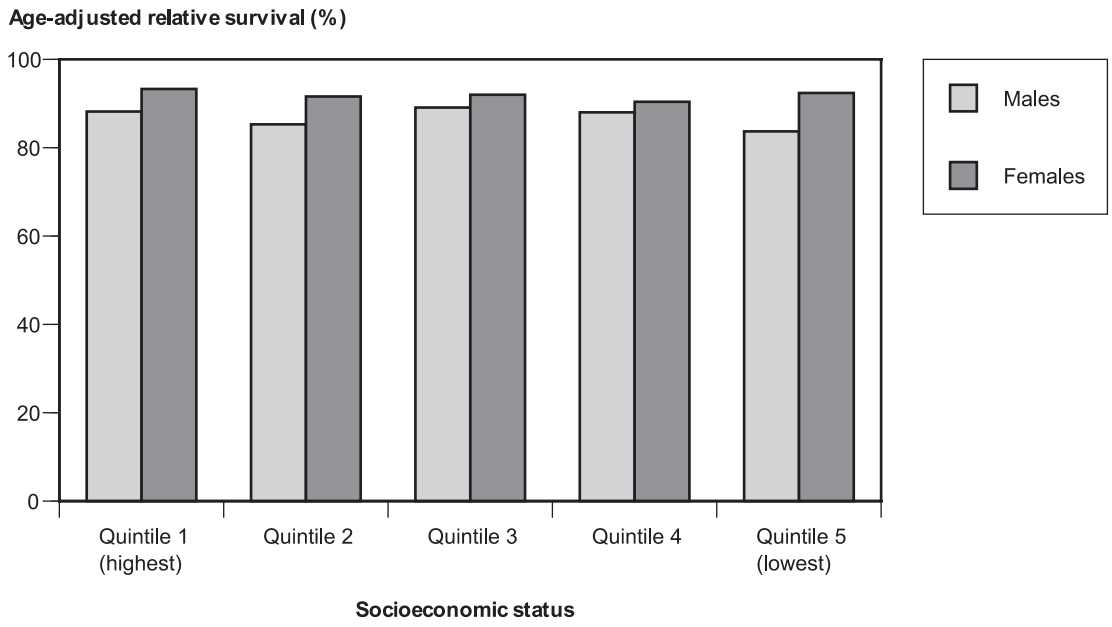
| Age | Capital cities | Other metropolitan | Large rural centres | Small rural centres | Other rural areas | Remote centres | Other remote areas |
|---|---|---|---|---|---|---|---|
| | | | | Per cent | | | |
| **Males** | | | | | | | |
| 40–49 | 93.0 | 93.9 | 92.8 | 90.5 | 90.0 | 94.0 | 83.5 |
| 50–59 | 92.8 | 94.7 | 89.3 | 89.4 | 87.1 | 95.9 | 90.9 |
| 60–69 | 89.6 | 86.1 | 89.8 | 87.3 | 88.8 | 105.3 | 97.9 |
| 70–79 | 85.3 | 90.4 | 84.6 | 81.7 | 78.8 | 98.9 | 86.2 |
| 80–99 | 79.8 | 92.6 | 87.8 | 84.9 | 64.2 | 83.1 | 106.5 |
| **All ages** | **90.4** | **91.5** | **90.2** | **88.1** | **87.2** | **97.1** | **91.7** |
| **Age adjusted** | **87.6** | **90.6** | **88.1** | **85.9** | **81.8** | **97.2** | **93.1** |
| **Females** | | | | | | | |
| 40–49 | 95.6 | 94.3 | 96.0 | 97.6 | 97.1 | 89.9 | 100.8 |
| 50–59 | 95.7 | 94.9 | 93.3 | 96.2 | 95.9 | 93.5 | 99.5 |
| 60–69 | 92.7 | 92.8 | 96.9 | 91.3 | 95.1 | 92.8 | 81.7 |
| 70–79 | 92.2 | 91.7 | 98.5 | 92.2 | 90.5 | 78.9 | 88.5 |
| 80–99 | 82.0 | 84.9 | 88.4 | 98.2 | 83.3 | 55.4 | 93.2 |
| **All ages** | **94.3** | **94.1** | **95.6** | **95.4** | **95.1** | **93.8** | **95.4** |
| **Age adjusted** | **91.6** | **91.7** | **95.4** | **94.1** | **92.2** | **82.5** | **90.4** |

*Note:* Some estimated relative survival proportions in this table are greater than 100. This means that survival for people with a diagnosis of melanoma in these areas cannot be statistically distinguished from survival for people in the general population. This is largely due to the small number of cases of melanoma in these areas.

## Survival by socioeconomic status

### Males and females

- There were no significant differences in 5-year relative survival by socioeconomic status quintile for melanoma for either males or females.
- Female relative survival was significantly higher than male relative survival for quintiles 1, 2 and 5.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 6.2: Five-year age-adjusted relative survival proportions for melanoma: socioeconomic status and sex, 1992–1997**

**Table 6.3: Five-year age-adjusted relative survival proportions for melanoma: socioeconomic status and sex, 1992–1997**

| Quintile of socioeconomic status | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| 1 (highest) | 88.2 | 85.9–90.4 | 93.3 | 91.1–95.5 |
| 2 | 85.3 | 82.6–88.0 | 91.6 | 89.0–94.1 |
| 3 | 89.1 | 86.4–91.9 | 92.0 | 89.6–94.4 |
| 4 | 88.0 | 85.5–90.6 | 90.4 | 88.0–92.9 |
| 5 (lowest) | 83.7 | 81.1–86.3 | 92.4 | 90.0–94.8 |
| **Australia** | **87.4** | **86.2–88.5** | **92.3** | **91.2–93.4** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

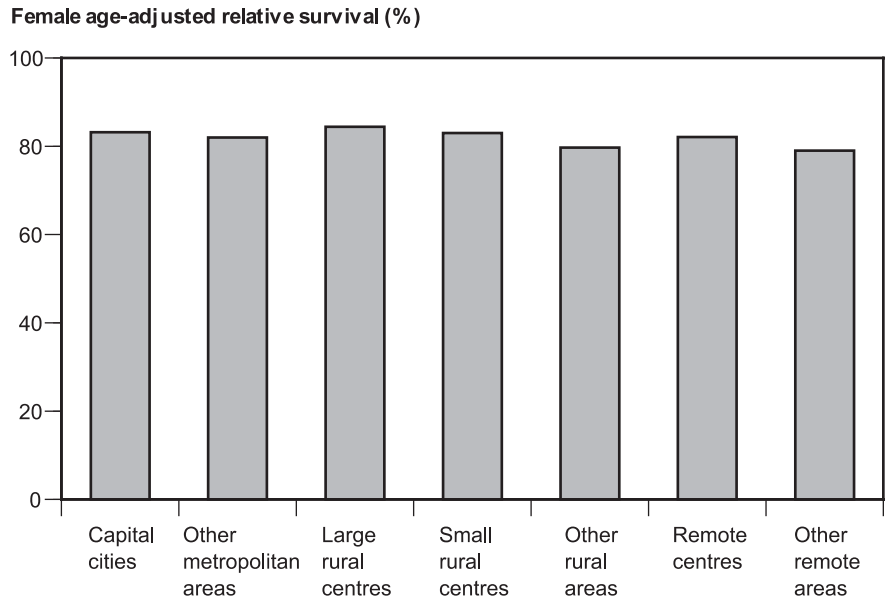
**Table 6.4: Five-year relative survival proportions for melanoma: age and sex, socioeconomic status, 1992–1997**

| Age | Quintile 1 (highest) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (lowest) |
|---|---|---|---|---|---|
| | | | Per cent | | |
| **Males** | | | | | |
| 40–49 | 92.0 | 94.2 | 92.5 | 91.5 | 90.1 |
| 50–59 | 94.1 | 91.7 | 93.3 | 90.2 | 88.8 |
| 60–69 | 87.9 | 86.2 | 91.5 | 87.2 | 90.2 |
| 70–79 | 86.7 | 81.3 | 84.9 | 82.9 | 82.6 |
| 80–99 | 84.1 | 70.9 | 83.0 | 84.0 | 69.2 |
| **All ages** | **90.9** | **89.4** | **91.4** | **89.7** | **86.4** |
| **Age adjusted** | **88.2** | **85.3** | **89.1** | **88.0** | **83.7** |
| **Females** | | | | | |
| 40–49 | 96.2 | 95.0 | 96.5 | 95.0 | 96.2 |
| 50–59 | 98.1 | 95.5 | 95.2 | 93.1 | 94.5 |
| 60–69 | 92.2 | 91.2 | 94.5 | 91.3 | 92.5 |
| 70–79 | 91.6 | 94.5 | 95.0 | 89.3 | 89.2 |
| 80–99 | 92.0 | 86.2 | 76.9 | 78.9 | 80.9 |
| **All ages** | **95.1** | **94.4** | **94.9** | **93.7** | **94.5** |
| **Age adjusted** | **93.3** | **91.6** | **92.0** | **90.4** | **92.4** |

# 7 Cancer of the breast (females)

## Survival by geographic category

- The 5-year age-adjusted relative survival proportion for breast cancer for 'other rural areas' (79.9%) was significantly below the national average (82.8%).




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 7.1: Five-year age-adjusted relative survival proportions for cancer of the breast: geographic category, 1992–1997**

**Table 7.1: Five-year age-adjusted relative survival proportions for cancer of the breast: geographic category, 1992–1997**

| Location | Females (%) | 95% CI |
|---|---|---|
| Capital cities | 83.2 | 82.5–84.0 |
| Other metropolitan | 82.0 | 79.7–84.2 |
| Large rural centres | 84.4 | 81.9–86.9 |
| Small rural centres | 83.0 | 80.7–85.4 |
| Other rural areas | 79.7 | 78.0–81.4 |
| Remote centres | 82.1 | 73.0–91.2 |
| Other remote areas | 79.0 | 72.3–85.6 |
| **Australia** | **82.8** | **82.2–83.4** |

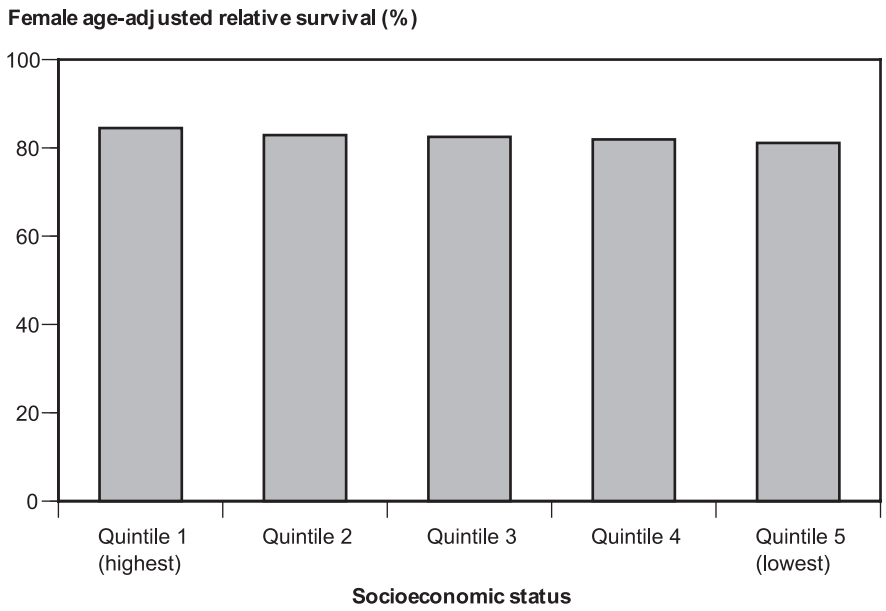
*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 7.2: Five-year relative survival proportions for cancer of the breast: age, geographic category, 1992–1997**

| Age | Capital cities | Other metropolitan | Large rural centres | Small rural centres | Other rural areas | Remote centres | Other remote areas |
|---|---|---|---|---|---|---|---|
| | | | Per cent | | | | |
| **Females** | | | | | | | |
| 40–49 | 85.9 | 86.3 | 84.5 | 84.8 | 86.3 | 85.3 | 85.9 |
| 50–59 | 86.2 | 86.2 | 84.8 | 85.8 | 83.8 | 77.2 | 84.3 |
| 60–69 | 86.8 | 83.8 | 86.4 | 88.7 | 83.5 | 84.6 | 71.1 |
| 70–79 | 83.0 | 85.1 | 83.9 | 81.4 | 80.3 | 79.0 | 83.6 |
| 80–99 | 72.6 | 65.7 | 81.7 | 72.2 | 63.4 | 86.5 | 74.2 |
| **All ages** | **84.4** | **83.6** | **84.0** | **84.0** | **82.2** | **81.1** | **79.7** |
| **Age adjusted** | **83.2** | **82.0** | **84.4** | **83.0** | **79.7** | **82.1** | **79.0** |

## Survival by socioeconomic status

- The 5-year age-adjusted relative survival proportion for breast cancer for females living in areas in the highest quintile for socioeconomic status was 84.5%. This fell with each successive quintile to 81.1% for the lowest.
- The 84.5% for the highest socioeconomic status quintile was significantly higher than the fifth and lowest quintile (81.1%).




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 7.2: Five-year age-adjusted relative survival proportions for cancer of the breast: socioeconomic status, 1992–1997**

**Table 7.3: Five-year age-adjusted relative survival proportions for cancer of the breast: socioeconomic status, 1992–1997**

| Quintile of socioeconomic status | Females (%) | 95% CI |
|---|---|---|
| 1 (highest) | 84.5 | 83.2–85.7 |
| 2 | 82.9 | 81.5–84.4 |
| 3 | 82.5 | 81.1–83.9 |
| 4 | 81.9 | 80.5–83.4 |
| 5 (lowest) | 81.1 | 79.6–82.5 |
| **Australia** | **82.8** | **82.2–83.4** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

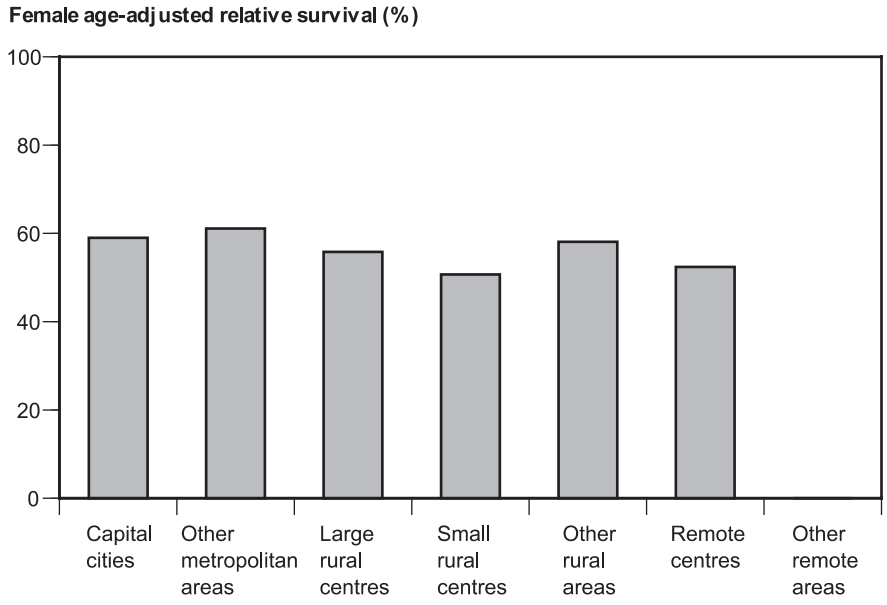
**Table 7.4: Five-year relative survival proportions for cancer of the breast: age, socioeconomic status, 1992–1997**

| Age | Quintile 1 (highest) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (lowest) |
|---|---|---|---|---|---|
| | | | Per cent | | |
| **Females** | | | | | |
| 40–49 | 86.8 | 86.6 | 84.1 | 85.2 | 85.7 |
| 50–59 | 87.3 | 85.8 | 84.7 | 84.8 | 83.1 |
| 60–69 | 86.6 | 85.5 | 83.9 | 84.2 | 84.6 |
| 70–79 | 81.3 | 79.0 | 80.9 | 79.7 | 77.6 |
| 80–99 | 65.6 | 62.9 | 63.9 | 60.4 | 59.2 |
| **All ages** | **84.2** | **82.7** | **81.8** | **81.6** | **81.4** |
| **Age adjusted** | **84.5** | **82.9** | **82.5** | **81.9** | **81.1** |

# 8 Cancer of the cervix

## Survival by geographic category

- There were no significant differences in 5-year age-adjusted relative survival for cervical cancer across geographic categories.
- The 5-year age-adjusted relative survival was highest for persons living in 'other metropolitan areas' (61.1%) and lowest for persons in 'small rural centres' (50.7%).




*Notes*

1. Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

2. There were no cases of cancer of the cervix recorded for the relevant period in other remote areas.

**Figure 8.1: Five-year age-adjusted relative survival proportions for cancer of the cervix: geographic category, 1992–1997**

**Table 8.1: Five-year age-adjusted relative survival proportions for cancer of the cervix: geographic category, 1992–1997**

| Location | Females (%) | 95% CI |
|---|---|---|
| Capital cities | 59.0 | 56.1–61.9 |
| Other metropolitan | 61.1 | 53.4–68.9 |
| Large rural centres | 55.8 | 46.3–65.4 |
| Small rural centres | 50.7 | 42.3–59.1 |
| Other rural areas | 58.1 | 51.7–64.6 |
| Remote centres | 52.4 | 28.0–76.7 |
| Other remote areas | .. | .. |
| **Australia** | **58.4** | **56.1–60.8** |

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*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 8.2: Five-year relative survival proportions for cancer of the cervix: age, geographic category, 1992–1997**

| Age | Capital cities | Other metropolitan | Large rural centres | Small rural centres | Other rural areas | Remote centres | Other remote areas |
|---|---|---|---|---|---|---|---|
| | | | | Per cent | | | |
| **Females** | | | | | | | |
| 40–49 | 84.7 | 77.1 | 82.0 | 76.8 | 80.7 | 60.5 | 64.3 |
| 50–59 | 71.0 | 76.3 | 68.7 | 67.6 | 73.0 | 48.7 | 74.2 |
| 60–69 | 68.5 | 64.3 | 62.6 | 45.9 | 62.3 | 70.7 | 60.0 |
| 70–79 | 47.7 | 49.1 | 41.1 | 49.9 | 54.1 | 31.1 | 67.1 |
| 80–99 | 35.1 | 53.1 | 42.5 | 26.8 | 28.9 | 59.5 | .. |
| **All ages** | **75.6** | **73.9** | **74.5** | **66.5** | **74.7** | **63.4** | **73.7** |
| **Age adjusted** | **59.0** | **61.1** | **55.8** | **50.7** | **58.1** | **52.4** | **..** |

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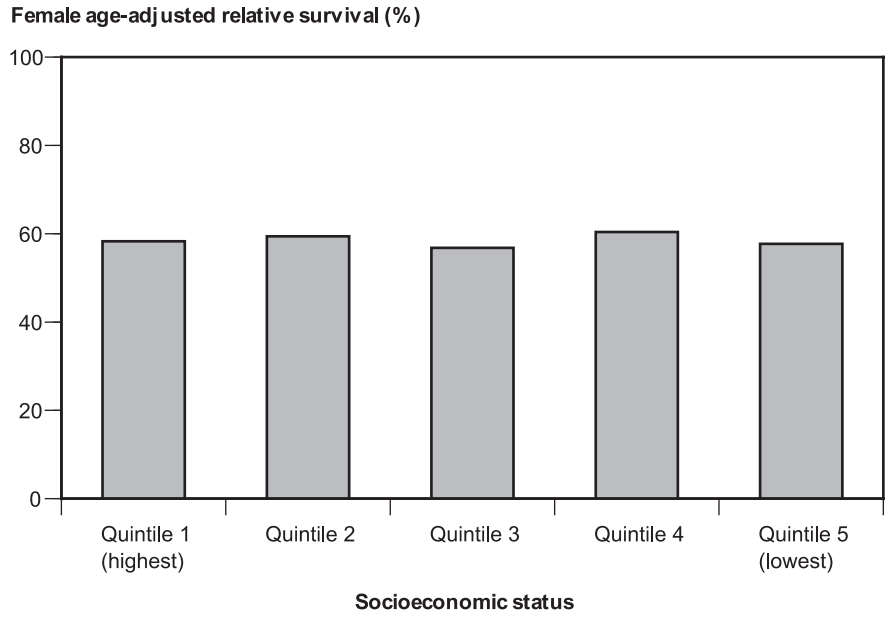
## Survival by socioeconomic status

- There was no significant difference in 5-year age-adjusted relative survival for cervical cancer by socioeconomic status.
- The age-adjusted relative survival proportion ranged from 60.4% for the second lowest quintile for socioeconomic status to 56.8% for the third lowest.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 8.2: Five-year age-adjusted relative survival proportions for cancer of the cervix: socioeconomic status, 1992–1997**

**Table 8.3: Five-year age-adjusted relative survival proportions for cancer of the cervix: socioeconomic status, 1992–1997**

| Quintile of socioeconomic status | Females (%) | 95% CI |
|---|---|---|
| 1 (highest) | 58.3 | 53.1–63.6 |
| 2 | 59.4 | 53.6–65.2 |
| 3 | 56.8 | 52.0–61.5 |
| 4 | 60.4 | 54.9–66.0 |
| 5 (lowest) | 57.7 | 53.1–62.3 |
| **Australia** | **58.4** | **56.1–60.8** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

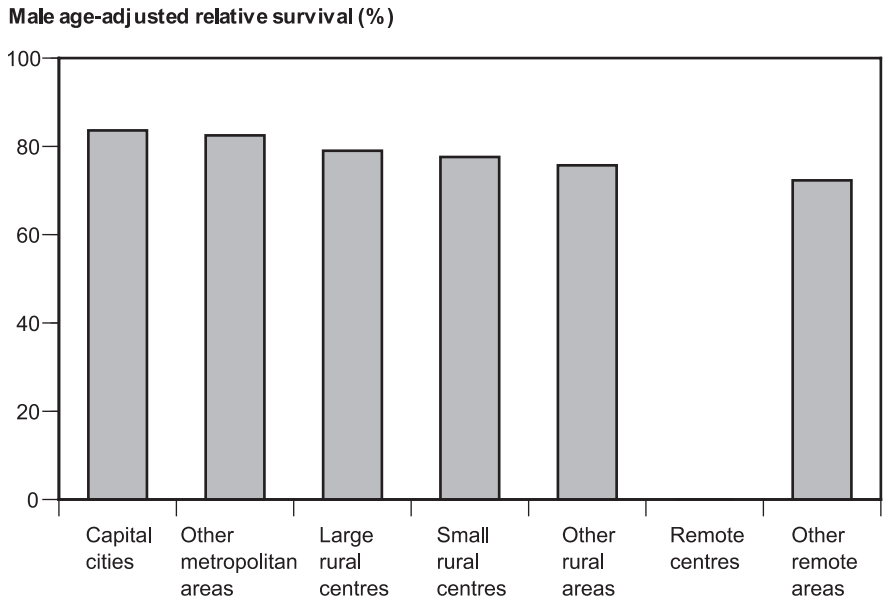
**Table 8.4: Five-year relative survival proportions for cancer of the cervix: age, socioeconomic status, 1992–1997**

| Age | Quintile 1 (highest) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (lowest) |
|---|---|---|---|---|---|
| | | | Per cent | | |
| **Females** | | | | | |
| 40–49 | 84.58 | 86.1 | 79.92 | 77.52 | 82.59 |
| 50–59 | 74.68 | 68.73 | 75.2 | 70.27 | 66.8 |
| 60–69 | 72.24 | 62.22 | 63.23 | 67.79 | 62.84 |
| 70–79 | 45.32 | 43.68 | 51.6 | 45.2 | 55.95 |
| 80–99 | 25.41 | 58.31 | 21.6 | 55.87 | 26.78 |
| **All ages** | **76.16** | **74.96** | **73.94** | **74.26** | **73.2** |
| **Age adjusted** | **58.3** | **59.4** | **56.8** | **60.4** | **57.7** |

# 9 Cancer of the prostate

## Survival by geographic category

- The 5-year relative survival proportion for prostate cancer fell steadily with distance from 'capital cities'.
- The proportions for males living in 'capital cities' (83.6%) and 'other metropolitan areas' (82.5%) were significantly higher than the proportions for persons living in 'other rural areas' (75.7%) and 'other remote areas' (72.3%).
- The 'capital city' proportion was significantly above the national average. This is largely attributed to more widespread use of PSA testing by general practitioners in 'capital cities'. This assists in diagnosing males with prostate cancer at a comparatively early stage.
- The proportions for 'other rural areas' (75.7%) and 'other remote areas' (72.3%) were significantly below the national average.




*Notes*

1. Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.
2. There were no cases of cancer of the prostate recorded for the relevant period in remote centres.

**Figure 9.1: Five-year age-adjusted relative survival proportions for cancer of the prostate: geographic category, 1992–1997**

**Table 9.1: Five-year age-adjusted relative survival proportions for cancer of the prostate: geographic category, 1992–1997**

| Location | Males (%) | 95% CI |
|---|---|---|
| Capital cities | 83.6 | 82.8–84.4 |
| Other metropolitan | 82.5 | 80.0–85.0 |
| Large rural centres | 79.0 | 75.9–82.0 |
| Small rural centres | 77.6 | 75.1–80.1 |
| Other rural areas | 75.7 | 73.5–77.8 |
| Remote centres | .. | .. |
| Other remote areas | 72.3 | 65.9–78.6 |
| **Australia** | **81.7** | **81.0–82.4** |

.. No data in this cell.

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 9.2: Five-year relative survival proportions for cancer of the prostate: age, geographic category, 1992–1997**

| Age | Capital cities | Other metropolitan | Large rural centres | Small rural centres | Other rural areas | Remote centres | Other remote areas |
|---|---|---|---|---|---|---|---|
| | | | | Per cent | | | |
| **Males** | | | | | | | |
| 40–49 | 82.0 | 78.7 | 60.1 | 85.6 | 60.7 | .. | 58.0 |
| 50–59 | 90.0 | 90.2 | 83.6 | 82.9 | 83.6 | 84.2 | 76.7 |
| 60–69 | 89.7 | 86.9 | 86.8 | 84.3 | 85.3 | 72.9 | 70.2 |
| 70–79 | 83.5 | 83.3 | 79.9 | 76.7 | 76.4 | 82.0 | 77.0 |
| 80–99 | 67.5 | 67.5 | 70.4 | 57.2 | 58.3 | 60.7 | 71.4 |
| **All ages** | **84.6** | **83.5** | **81.3** | **78.0** | **78.2** | **76.0** | **73.4** |
| **Age adjusted** | **83.6** | **82.5** | **79.0** | **77.6** | **75.7** | **..** | **72.3** |

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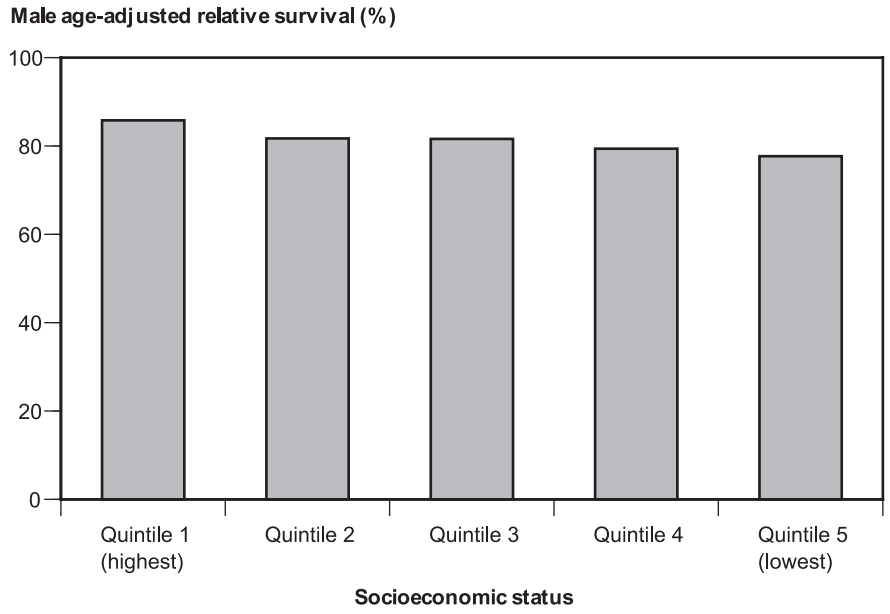
## Survival by socioeconomic status

- The 5-year relative survival proportion for prostate cancer for males living in areas with the highest quintile for socioeconomic status was 85.8%. This fell with each successive quintile to 77.7% for the lowest.
- The proportion for the highest socioeconomic status quintile was significantly above the national average, and the proportion for the lowest quintile was significantly below the national average.




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 9.2: Five-year age-adjusted relative survival proportions for cancer of the prostate: socioeconomic status, 1992–1997**

**Table 9.3: Five-year age-adjusted relative survival proportions for cancer of the prostate: socioeconomic status, 1992–1997**

| Quintile of socioeconomic status | Males (%) | 95% CI |
|---|---|---|
| 1 (highest) | 85.8 | 84.6–87.0 |
| 2 | 81.7 | 80.1–83.3 |
| 3 | 81.6 | 80.1–83.1 |
| 4 | 79.4 | 77.7–81.1 |
| 5 (lowest) | 77.7 | 75.8–79.6 |
| **Australia** | **81.7** | **81.0–82.4** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 9.4: Five-year relative survival proportions for cancer of the prostate: age, socioeconomic status, 1992–1997**

| Age | Quintile 1 (highest) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (lowest) |
|---|---|---|---|---|---|
| | | | Per cent | | |
| **Males** | | | | | |
| 40–49 | 84.7 | 76.9 | 74.7 | 77.2 | 71.8 |
| 50–59 | 91.4 | 86.1 | 87.9 | 87.2 | 84.3 |
| 60–69 | 91.3 | 88.3 | 87.1 | 84.8 | 86.4 |
| 70–79 | 85.5 | 81.1 | 79.3 | 80.9 | 79.4 |
| 80–99 | 68.2 | 64.4 | 70.3 | 62.3 | 62.0 |
| **All ages** | **86.3** | **82.2** | **81.9** | **80.8** | **80.4** |
| **Age adjusted** | **85.8** | **81.7** | **81.6** | **79.4** | **77.7** |

# 10 Non-Hodgkin's lymphoma

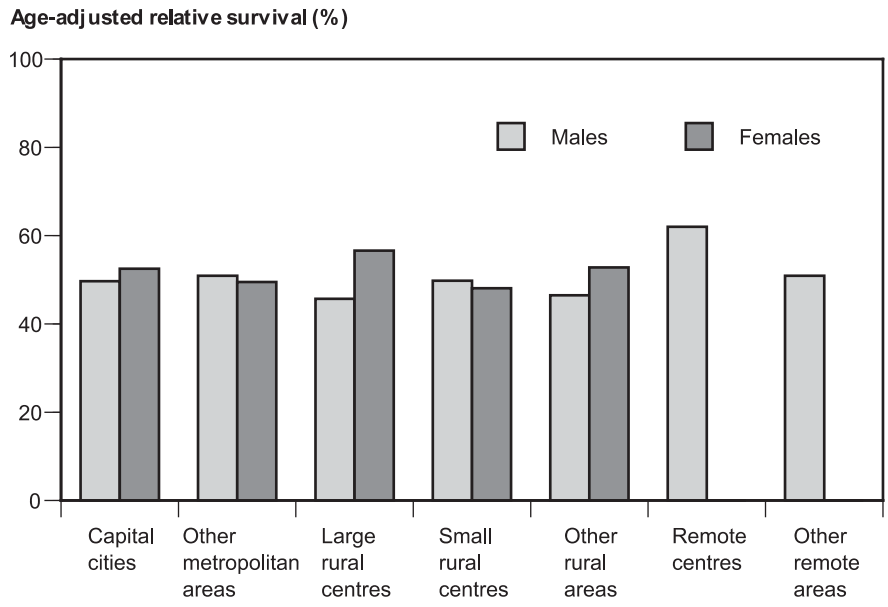
## Survival by geographic category

### Males

- Five-year age-adjusted relative survival proportions for non-Hodgkin's lymphoma were not significantly different across geographic category because of the small number of cases in each category.

### Females

- As for males, there were no significant differences across geographic category.




*Notes*

1. Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.
2. There were no cases of non-Hodgkin's lymphoma recorded in women for the relevant period in remote centres or other remote areas.

**Figure 10.1: Five-year age-adjusted relative survival proportions for non-Hodgkin's lymphoma: geographic category and sex, 1992–1997**

**Table 10.1: Five-year age-adjusted relative survival proportions for non-Hodgkin's lymphoma: geographic category and sex, 1992–1997**

| Location | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| Capital cities | 49.7 | 47.8–51.6 | 52.5 | 50.7–54.3 |
| Other metropolitan | 50.9 | 45.6–56.2 | 49.5 | 44.3–54.6 |
| Large rural centres | 45.7 | 40.0–51.4 | 56.6 | 50.6–62.6 |
| Small rural centres | 49.8 | 44.3–55.2 | 48.1 | 42.9–53.3 |
| Other rural areas | 46.5 | 42.3–50.8 | 52.8 | 48.8–56.9 |
| Remote centres | 62.0 | 35.0–89.0 | .. | .. |
| Other remote areas | 50.9 | 35.0–66.8 | .. | .. |
| **Australia** | **49.5** | **48.0–51.0** | **52.1** | **50.7–53.6** |

.. No data in this cell.

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 10.2: Five-year relative survival proportions for non-Hodgkin's lymphoma: age and sex, geographic category, 1992–1997**

| Age | Capital cities | Other metropolitan | Large rural centres | Small rural centres | Other rural areas | Remote centres | Other remote areas |
|---|---|---|---|---|---|---|---|
| | | | | Per cent | | | |
| **Males** | | | | | | | |
| 40–49 | 60.7 | 64.9 | 66.1 | 64.7 | 61.2 | 71.0 | 86.8 |
| 50–59 | 60.4 | 64.4 | 67.5 | 61.9 | 59.7 | 70.6 | 66.8 |
| 60–69 | 56.7 | 54.7 | 50.4 | 54.6 | 52.0 | 58.8 | 50.6 |
| 70–79 | 44.5 | 51.1 | 39.6 | 42.3 | 36.9 | 54.5 | 27.0 |
| 80–99 | 29.6 | 21.0 | 13.8 | 33.7 | 32.6 | 67.8 | 58.4 |
| **All ages** | **54.3** | **56.3** | **53.8** | **55.6** | **51.7** | **68.7** | **65.9** |
| **Age adjusted** | **49.7** | **50.9** | **45.7** | **49.8** | **46.5** | **62** | **50.9** |
| **Females** | | | | | | | |
| 40–49 | 76.2 | 75.4 | 64.2 | 72.0 | 86.6 | 37.4 | 50.4 |
| 50–59 | 66.5 | 63.4 | 80.3 | 64.1 | 59.4 | 61.3 | 63.9 |
| 60–69 | 55.3 | 50.4 | 55.2 | 52.0 | 55.2 | 53.3 | 61.6 |
| 70–79 | 45.6 | 44.7 | 50.8 | 36.1 | 46.3 | 24.4 | 54.6 |
| 80–99 | 31.4 | 26.3 | 41.4 | 32.8 | 33.1 | 0.0 | 0.0 |
| **All ages** | **55.9** | **52.7** | **58.0** | **52.3** | **56.9** | **51.2** | **62.1** |
| **Age adjusted** | **52.5** | **49.5** | **56.6** | **48.1** | **52.8** | **..** | **..** |

.. No data in this cell.

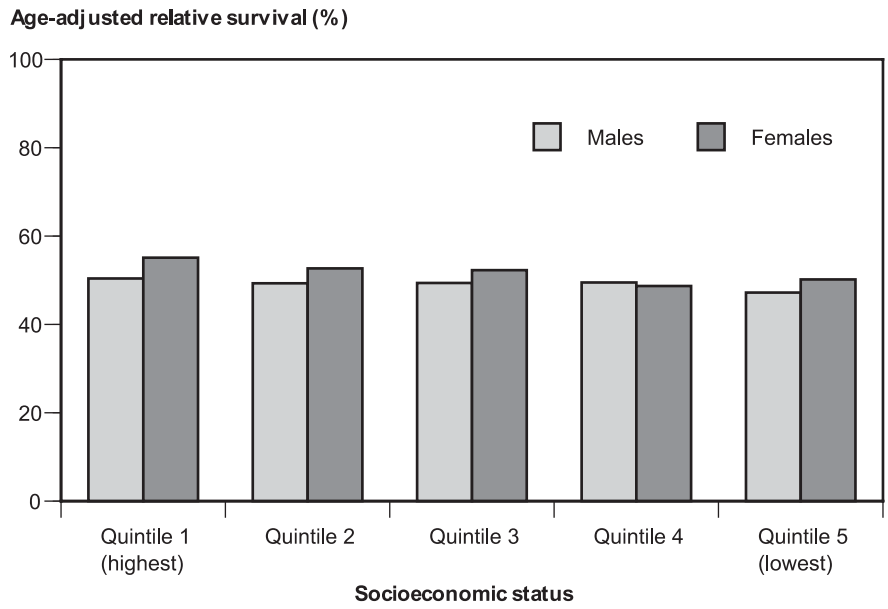
## Survival by socioeconomic status

### Males

- Five-year age-adjusted relative survival for non-Hodgkin's lymphoma for males did not differ significantly across socioeconomic status quintiles.

### Females

- The 5-year age-adjusted relative survival proportion for the highest quintile for socioeconomic status (55.1%) was significantly greater than the proportion for the fourth lowest quintile (48.7%).




*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Figure 10.2: Five-year age-adjusted relative survival proportions for non-Hodgkin's lymphoma: socioeconomic status and sex, 1992–1997**

**Table 10.3: Five-year age-adjusted relative survival proportions for non-Hodgkin's lymphoma: socioeconomic status and sex, 1992–1997**

| Quintile of socioeconomic status | Males (%) | 95% CI | Females (%) | 95% CI |
|---|---|---|---|---|
| 1 (highest) | 50.4 | 47.3–53.6 | 55.1 | 52.2–58.1 |
| 2 | 49.3 | 45.9–52.8 | 52.7 | 49.3–56.0 |
| 3 | 49.4 | 46.0–52.9 | 52.3 | 49.0–55.6 |
| 4 | 49.5 | 46.1–52.9 | 48.7 | 45.4–52.1 |
| 5 (lowest) | 47.2 | 43.8–50.6 | 50.2 | 46.8–53.5 |
| **Australia** | **49.5** | **48.0–51.0** | **52.1** | **50.7–53.6** |

*Note:* Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

**Table 10.4: Five-year relative survival proportions for non-Hodgkin's lymphoma: age and sex, socioeconomic status, 1992–1997**

| Age | Quintile 1 (highest) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (lowest) |
|---|---|---|---|---|---|
| | | | Per cent | | |
| **Males** | | | | | |
| 40–49 | 66.9 | 63.5 | 61.1 | 58.4 | 60.8 |
| 50–59 | 61.6 | 61.7 | 60.9 | 62.2 | 60.6 |
| 60–69 | 55.8 | 57.3 | 60.0 | 53.2 | 50.9 |
| 70–79 | 41.9 | 45.3 | 43.4 | 47.3 | 39.7 |
| 80–99 | 35.6 | 21.2 | 23.2 | 28.3 | 32.8 |
| **All ages** | **54.5** | **55.5** | **54.6** | **54.4** | **52.9** |
| **Age adjusted** | **50.4** | **49.3** | **49.4** | **49.5** | **47.2** |
| **Females** | | | | | |
| 40–49 | 80.7 | 77.4 | 73.8 | 74.4 | 73.0 |
| 50–59 | 68.5 | 72.2 | 64.2 | 63.1 | 60.7 |
| 60–69 | 58.5 | 51.0 | 58.5 | 48.1 | 55.4 |
| 70–79 | 47.3 | 46.1 | 45.5 | 40.7 | 45.3 |
| 80–99 | 34.3 | 32.6 | 28.3 | 34.5 | 24.9 |
| **All ages** | **58.1** | **56.5** | **56.2** | **52.2** | **54.5** |
| **Age adjusted** | **55.1** | **52.7** | **52.3** | **48.7** | **50.2** |

# Glossary

See also the Methods Appendix in *Cancer Survival in Australia, 2001 Part 1* (AIHW & AACR 2001).

## Confidence intervals

Where indicators include a comparison between time periods and age groups, rates are presented with a 95% confidence interval. This is because the observed value of a rate may vary due to chance even where there is no variation in the underlying value of the rate. The 95% confidence interval represents a range over which variation in the observed rate is consistent with this chance variation. These confidence intervals can be used as an approximate test of whether changes in a particular rate are consistent with chance variation. Where the confidence intervals do not overlap, the difference in rates is greater than that which could be explained by chance. Where the intervals do overlap, then differences in the rates may be due to chance, and thus are not statistically significant.

## Hazard rates

Estimation of relative survival requires hazard rates by single-year ages for each year of follow-up. These hazard rates, $\lambda_x$, were calculated from life table information using the formula:

$$\lambda_x = -\ln(1 - q_x)$$

where $q_x$ is the probability of dying between exact ages *x* and *x+1* and is calculated using the following standard approximation:

$$q_x = \frac{M_x}{(1 + M_x(1 - a_x))}$$

where $M_x$ is the age-specific death rate of persons aged *x*

$a_x$ is the assumed fraction of a year lived by those who die during the year.

The following assumptions were made for $a_x$:

- $a_0$ = 0.9 because deaths among the very young in Australia tend to be concentrated early in the first year of life
- $a_1 - a_{99}$ = 0.5 because those who die in the year will live, on average, half of a year during that year.

## Life tables

Life tables by sex and single-year ages (0–99 years) were obtained from the ABS for Australia, and for geographic zones (classified by RRMA) for each year from 1982 to 1997. The method used to calculate the life tables is outlined by the Australian Government Actuary (1999) in *Australian Life Tables 1995–1997*. The total number of deaths that occurred

in each year by individual age (0 to 99) and sex were then linked to the respective populations to determine hazard rates.

## National Cancer Statistics Clearing House

Each year the National Cancer Statistics Clearing House at AIHW receives from the eight state and territory cancer registries data on new cases of cancer diagnosed in residents of Australia. This commenced with cases first diagnosed in 1982. The data provided to the Clearing House enable record linkage to be performed and the analysis of cancer by site and behaviour.

Data used in the relative survival analysis in this report were for the period 1 January 1992 to 31 December 1997 for new cases of cancer and for the period 1 January 1992 to 31 December 1999 for deaths.

## National Death Index

The National Death Index is a database maintained by the AIHW. It contains data on all deaths that have occurred in Australia since 1980. The data contained in the Index come from state and territory Registrars of Births, Deaths and Marriages.

As part of normal National Cancer Statistics Clearing House operating practices, the Clearing House is regularly linked to the National Death Index. This linkage is undertaken to assist state and territory cancer registries to identify deaths occurring interstate or that were not notified to the cancer register.

In the analyses in this report follow-up cancer survival analysis finished at 31 December 1999. This cut-off date provided at least 2 years of follow-up for the persons diagnosed with cancer during 1997.

## Relative survival

Relative survival is defined as the ratio of the observed survival rate for a given cohort of patients to the expected survival rate (Ederer, Axtell & Cutler 1961). The expected survival rate is the rate that the patient group should have experienced based on the lifetable of the general population from which they were diagnosed (Estève et al. 1990).

For example, in the general population during 1992–1997, the expected proportion of males aged 60–69 years who survive for the next five years is 90.6%. The observed survival rate after five years for males diagnosed with lung cancer at age 60–69 is 10.8%. The five-year relative survival proportion for males diagnosed with lung cancer at age 60–69 is the ratio of these two percentages (10.8/90.6), that is 0.119, or 11.9%.

## Significance

In this report significant differences mean differences which statistically are significantly different at the 95% confidence level. See 'Confidence intervals' for methodology for statistically significant differences.

The relative survival analysis in this report was undertaken using the SAS statistical software functions as developed by the Mayo Foundation in 1994 (Therneau et al. 1994). This code was developed by Terry Therneau in 1994 using SAS Version 8.1. Staff at Queensland

Health further adapted and developed the code for local use (Baade, Coory & Ring 2000). AIHW staff then further developed the code to handle national level data. The resultant program calculates expected survival using the life table method and estimates relative survival using a Cox proportional hazards regression.

Results using this method will produce estimates which will be slightly different to those produced by the New South Wales and Western Australian Cancer Registries which used the RELSURV package as developed by Hedelin, and the South Australian Cancer Registry who used the SERV2 package as developed by Voutilainen. The results will also by slightly different to those produced by the AIHW *in Breast Cancer Survival in Australian Women 1982–1994* which used RELSURV to produce its estimates.

## Topography codes

**Table A.1: Topography codes for International Classification of Diseases, 9th revision (ICD-9) used in this report**

| ICD-9 code | Cancer name |
|---|---|
| All cancers | All cancers excluding ICD-9 173 (non-melanocytic skin cancer) |
| 153, 154 | Colorectal cancer |
| 162 | Cancer of the lung |
| 172 | Melanoma of the skin |
| 174 | Cancer of the breast (female) |
| 180 | Cancer of the cervix |
| 185 | Cancer of the prostate |
| 200, 202 | Non-Hodgkin's lymphoma |

## Whole patient equivalent (WPE)

The whole patient equivalent (WPE) is derived by the Department of Health and Ageing as an indicator of patient load as follows:

- If a patient has visited only one general practice during a financial year, that patient will be counted as one WPE for the practice.
- If a patient visits more than one general practice, the patient will be counted as a fraction of a WPE for each practice visited.

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