

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.

Cancer Series

Number 22

Cancer survival in Australia 1992–1997

Geographic categories and socioeconomic status

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

April 2003

Australian Institute of Health and Welfare
Canberra

AIHW cat. no. CAN 17

© Australian Institute of Health and Welfare 2003

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced without prior written permission from the Australian Institute of Health and Welfare. Requests and enquiries concerning reproduction and rights should be directed to the Head, Media and Publishing, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601.

This publication is part of the Australian Institute of Health and Welfare's Cancer Series. A complete list of the Institute's publications is available from the Media and Publishing Unit, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601, or via the Institute's web site (<http://www.aihw.gov.au>).

ISSN 1039-3307

ISBN 1 74024 255 6

Suggested citation

Australian Institute of Health and Welfare and Australasian Association of Cancer Registries (AACR) 2003. Cancer survival in Australia 1992–1997: geographic categories and socioeconomic status. AIHW cat. no. CAN 17. Canberra: Australian Institute of Health and Welfare (Cancer Series no. 22).

Australian Institute of Health and Welfare

Board Chair
Dr Sandra Hacker

Director
Dr Richard Madden

Any enquiries about or comments on this publication should be directed to:

Dr Christopher Stevenson
Australian Institute of Health and Welfare
GPO Box 570
Canberra ACT 2601
Phone: (02) 6244 1041
Email: chris.stevenson@aihw.gov.au

Published by Australian Institute of Health and Welfare

Printed by Pirion

Contents

- List of tables vi
- List of figuresviii
- Acknowledgments ix
- Abbreviations..... ix
- Executive summary xi**
- 1 Introduction1**
- 2 Method.....5**
- 3 All cancers8**
- 4 Colorectal cancer12**
- 5 Cancer of the lung.....16**
- 6 Melanoma.....20**
- 7 Cancer of the breast (females)24**
- 8 Cancer of the cervix28**
- 9 Cancer of the prostate32**
- 10 Non-Hodgkin’s lymphoma36**
- Glossary.....40**
- References43**

List of tables

Table E.1:	Summary of 5-year relative survival findings significantly above and significantly below the Australian averages	xii
Table 1.2:	General practitioner patient encounters: private practice and public hospital, by geographic location, 1998–99.....	2
Table 1.3:	Distribution of whole patient equivalents: geographic location and Index of Relative Socioeconomic Disadvantage, 1999–2000.....	3
Table 2.1:	Structure of the Rural, Remote and Metropolitan Areas (RRMA) classification ..	6
Table 2.2:	Records excluded from the geographic analysis	6
Table 2.3:	Records excluded from the socioeconomic status analysis.....	7
Table 3.1:	Five-year age-adjusted relative survival proportions for all cancers: geographic category and sex, 1992–1997.....	9
Table 3.2:	Five-year relative survival proportions for all cancers: age and sex, geographic category, 1992–1997.....	9
Table 3.3:	Five-year age-adjusted relative survival proportions for all cancers: socioeconomic status and sex, 1992–1997	11
Table 3.4:	Five-year relative survival proportions for all cancers: age and sex, socioeconomic status, 1992–1997.....	11
Table 4.1:	Five-year age-adjusted relative survival age-adjusted proportions for colorectal cancer: geographic category and sex, 1992–1997	13
Table 4.2:	Five-year relative survival proportions for colorectal cancer: age and sex, geographic category, 1992–1997.....	13
Table 4.3:	Five-year age-adjusted relative survival proportions for colorectal cancer: socioeconomic status and sex, 1992–1997	15
Table 4.4:	Five-year relative survival proportions for colorectal cancer: age and sex, socioeconomic status, 1992–1997.....	15
Table 5.1:	Five-year age-adjusted relative survival proportions for cancer of the lung: geographic category and sex, 1992–1997.....	17
Table 5.2:	Five-year relative survival proportions for cancer of the lung: age and sex, geographic category, 1992–1997.....	17
Table 5.3:	Five-year age-adjusted relative survival proportions for cancer of the lung: socioeconomic status and sex, 1992–1997	19
Table 5.4:	Five-year relative survival proportions for cancer of the lung: age and sex, socioeconomic status, 1992–1997.....	19
Table 6.1:	Five-year age-adjusted relative survival proportions for melanoma: geographic category and sex, 1992–1997.....	21
Table 6.2:	Five-year relative survival proportions for melanoma: age and sex, geographic category, 1992–1997.....	21
Table 6.3:	Five-year age-adjusted relative survival proportions for melanoma: socioeconomic status and sex, 1992–1997	23

Table 6.4:	Five-year relative survival proportions for melanoma: age and sex, socioeconomic status, 1992–1997.....	23
Table 7.1:	Five-year age-adjusted relative survival proportions for cancer of the breast: geographic category, 1992–1997	25
Table 7.2:	Five-year relative survival proportions for cancer of the breast: age, geographic category, 1992–1997	25
Table 7.3:	Five-year age-adjusted relative survival proportions for cancer of the breast: socioeconomic status, 1992–1997	26
Table 7.4:	Five-year relative survival proportions for cancer of the breast: age, socioeconomic status, 1992–1997.....	27
Table 8.1:	Five-year age-adjusted relative survival proportions for cancer of the cervix: geographic category, 1992–1997	29
Table 8.2:	Five-year relative survival proportions for cancer of the cervix: age, geographic category, 1992–1997	29
Table 8.3:	Five-year age-adjusted relative survival proportions for cancer of the cervix: socioeconomic status, 1992–1997	30
Table 8.4:	Five-year relative survival proportions for cancer of the cervix: age, socioeconomic status, 1992–1997.....	31
Table 9.1:	Five-year age-adjusted relative survival proportions for cancer of the prostate: geographic category, 1992–1997.....	33
Table 9.2:	Five-year relative survival proportions for cancer of the prostate: age, geographic category, 1992–1997	33
Table 9.3:	Five-year age-adjusted relative survival proportions for cancer of the prostate: socioeconomic status, 1992–1997	34
Table 9.4:	Five-year relative survival proportions for cancer of the prostate: age, socioeconomic status, 1992–1997.....	35
Table 10.1:	Five-year age-adjusted relative survival proportions for non-Hodgkin’s lymphoma: geographic category and sex, 1992–1997	37
Table 10.2:	Five-year relative survival proportions for non-Hodgkin’s lymphoma: age and sex, geographic category, 1992–1997	37
Table 10.3:	Five-year age-adjusted relative survival proportions for non-Hodgkin’s lymphoma: socioeconomic status and sex, 1992–1997	39
Table 10.4:	Five-year relative survival proportions for non-Hodgkin’s lymphoma: age and sex, socioeconomic status, 1992–1997	39
Table A.1:	Topography codes for International Classification of Diseases, 9th revision (ICD-9) used in this report	42

List of figures

- Figure 3.1: Five-year age-adjusted relative survival proportions for all cancers: geographic category and sex, 1992–1997.....8
- Figure 3.2: Five-year age-adjusted relative survival proportions for all cancers: socioeconomic status and sex, 1992–199710
- Figure 4.1: Five-year age-adjusted relative survival proportions for colorectal cancer: geographic category and sex, 1992–1997.....12
- Figure 4.2: Five-year age-adjusted relative survival proportions for colorectal cancer: socioeconomic status and sex, 1992–199714
- Figure 5.1: Five-year age-adjusted relative survival proportions for cancer of the lung: geographic category and sex, 1992–1997.....16
- Figure 5.2: Five-year age-adjusted relative survival proportions for cancer of the lung: socioeconomic status and sex, 1992–199718
- Figure 6.1: Five-year age-adjusted relative survival proportions for melanoma: geographic category and sex, 1992–1997.....20
- Figure 6.2: Five-year age-adjusted relative survival proportions for melanoma: socioeconomic status and sex, 1992–199722
- Figure 7.1: Five-year age-adjusted relative survival proportions for cancer of the breast: geographic category, 1992–199724
- Figure 7.2: Five-year age-adjusted relative survival proportions for cancer of the breast: socioeconomic status, 1992–199726
- Figure 8.1: Five-year age-adjusted relative survival proportions for cancer of the cervix: geographic category, 1992–199728
- Figure 8.2: Five-year age-adjusted relative survival proportions for cancer of the cervix: socioeconomic status, 1992–199730
- Figure 9.1: Five-year age-adjusted relative survival proportions for cancer of the prostate: geographic category, 1992–1997.....32
- Figure 9.2: Five-year age-adjusted relative survival proportions for cancer of the prostate: socioeconomic status, 1992–199734
- Figure 10.1: Five-year age-adjusted relative survival proportions for non-Hodgkin’s lymphoma: geographic category and sex, 1992–199736
- Figure 10.2: Five-year age-adjusted relative survival proportions for non-Hodgkin’s lymphoma: socioeconomic status and sex, 1992–199738

Acknowledgments

The authors of the report from the Australian Institute of Health and Welfare were Mr John Harding, Dr Chris Stevenson, Mr Krystian Sadkowsky, Ms Janet Markey and Ms Kate Leeds. They were assisted by Mr Robert Van der Hoek, Ms Edith Christensen, and Ms Carolyn Dunn in the data input phase.

Dr Peter Baade of the Epidemiology Services Unit of Queensland Health provided invaluable assistance in the development of a computer program adapting a suite of SAS package macros written by staff at the Mayo Foundation to produce estimates of relative survival.

Funding for the development and publication of this report was contributed by the Department of Health and Ageing and the Institute. This report was made possible with the assistance of the Australasian Association of Cancer Registries which:

- provided leadership to the project through its members of the Project Steering Committee;
- 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

Cancer	Geographic categories		Socioeconomic status quintiles	
	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.

