

# 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
<b>Average patient encounters per capita</b>								
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 concurred 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<sup>(a)</sup>: 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	%
<b>Whole patient equivalents<sup>(a)</sup></b>									
-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
<b>Per cent</b>									
-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.