

A SOCIAL HEALTH ATLAS OF AUSTRALIA

Second Edition

Volume 9: Australian Capital Territory

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 **Public Health Information Development Unit**

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Foreword

The publication of this second edition of ***A Social Health Atlas of Australia*** brings together a wide range of information about the health status of Australians by region, and the health service use by the Australian population.

By presenting the data as maps, the atlas provides a graphical image of the distribution of health status, and differences in the patterns and levels of access to and use of health services at the local level throughout the cities, towns, and rural and remote areas of Australia. The format of the atlas makes the information easy to understand and readily accessible to a broad group of users, including public health planners, providers, researchers, students and the general public.

The graphs of the newly developed Accessibility/Remoteness Index for Australia (ARIA) provide useful information for communities, as well as practitioners and managers in the health sector, to better understand the differences in the statistics that describe health status and health service use.

This data is essential for policy development and local area planning, and for monitoring and evaluating health services. It is also of major importance for resource allocation at the broadest level, and between areas, services and population groups. The maps and tabulations presented in this atlas represent a major compilation of information for these purposes.

I congratulate all those who have contributed to this important project.



Dr Michael Wooldridge
The Minister for Health and Aged Care

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Executive summary

The information in this atlas adds to a convincing body of evidence built up over a number of years in Australia on the striking disparities in health that exist between groups in the population. People of low socioeconomic status (those who are relatively socially or economically deprived) experience worse health than those of higher socioeconomic status for almost every major cause of mortality and morbidity. The challenge for policy makers, health practitioners and governments is to find ways to address these health inequities.

The primary aims of the first edition of *A Social Health Atlas of Australia* were to illustrate the spatial distribution of the socioeconomically disadvantaged population, and to compare this with patterns of distribution of major causes of illness and death and use of health services. The maps and correlation analysis highlighted associations between social and economic factors in relation to health and illness.

A number of new variables have been included in this second edition, together with new data on many of the variables from the first edition. Also included is a cluster analysis, providing profiles at the small area level of the socioeconomic status, health status and health service utilisation of the population.

The extent of change (between the editions) in the patterns of distribution in death rates by socioeconomic status is also highlighted.

Findings

Correlation analysis

There were correlations of significance at the postcode level in **Canberra-Queanbeyan** between the measures of socioeconomic status and a number of the health status variables. The strongest of these were generally with the variables for people reporting their health as fair or poor (as opposed to those reporting their health as being excellent, very good, or good); the Physical Component Summary (PCS, a measure of physical health); and premature death from, in particular, the combined causes of accidents, poisonings and violence (**Table 8.2**). Similarly, strong associations were also evident in the correlation analysis with the health service use variables of admissions for psychosis, accidents, poisonings and violence, Caesarean section and hysterectomy.

Changes in socioeconomic status

Marked variations were recorded between 1986 and 1996 for a majority of the socioeconomic status variables mapped for the Australian Capital Territory (**Table 9.1**). For **Canberra-Queanbeyan**, the largest increases were for the population of Aboriginal and Torres Strait Islander people (an increase of 140.1 per cent over this ten year period); unemployed people (92.3 per cent); low income families (75.2 per cent); people aged 65 years and over (66.0 per cent); dwellings without a motor vehicle (53.5 per cent); and single parent families (50.8 per cent). The only decreases recorded over this ten year period were for the variables for unskilled and semi-skilled workers (down by 12.7 per cent) and early school leavers (down by 7.9 per cent).

Variations of this order were also recorded in **Canberra** and the Australian Capital Territory.

Substantial variations were recorded in the level of income support payments to residents of **Canberra-Queanbeyan** for all of the payment types analysed (**Table 9.1**). The number of recipients for each of the payment types increased substantially, with the number of unemployment beneficiaries (an increase of 167.0 per cent) and disability support pensioners (101.3 per cent) more than doubling. Similar, although slightly larger increases were recorded in both **Canberra** and the Australian Capital Territory for all of these payments.

Changes in death rates

Death rates in the Australian Capital Territory have declined over the years 1985 to 1989 and 1992 to 1995 for the majority of causes studied.

In **Canberra-Queanbeyan**, the largest decreases were recorded for deaths of people aged from 15 to 64 years from circulatory system diseases (down by 52.2 per cent), respiratory system diseases (down by 40.3 per cent) and accidents, poisonings and violence (down by 36.0 per cent). All causes mortality was 36.4 per cent lower over this period, marginally more so for males than for females.

There were also reductions for every category in **Table 9.2** for **Canberra** and the Australian Capital Territory as a whole.

Summary of findings by socioeconomic status of area of residence

Comparisons are made of differences in the health status and health service use of the population by socioeconomic status. In the absence of any direct measure of socioeconomic status in the health status data, the socioeconomic status of the SLA of usual residence in the health status records is used. In this analysis socioeconomic status is measured by the Index of Relative Socio-Economic Disadvantage (IRSD, see page 14). The SLAs in **Canberra-Queanbeyan** have been grouped into five groups (quintiles) based on the IRSD score, with Quintile 1 comprising the twenty per cent of SLAs with the highest IRSD scores, and Quintile 5 comprising the twenty per cent of SLAs with the lowest IRSD scores.

Health status

Although there is some variability across the quintiles, the pattern is generally for the highest socioeconomic status SLAs (those in Quintile 1) to have the most advantageous (ie. in the majority of cases the lowest) rates and, generally, for the most disadvantaged SLAs (those in Quintile 5) to have the highest rates (**Figure 9.2**). The most notable exception is the Physical Component Summary (PCS), for which low scores indicate poorer health. Despite the narrow range of these scores, there is a clear gradient across the quintiles of socioeconomic disadvantage of area. Unlike the other

capital cities, there is little variation in the Total Fertility Rate, and what there is shows a decline with increasing disadvantage.

Years of potential life lost (YPLL) from deaths between the ages of 15 to 64 years varied from a standardised ratio (SR) in the most advantaged areas of 74 (26 per cent fewer YPLL than were expected from the ACT rates) to an SR of 138 in the most disadvantaged areas (indicating that there were 38 per cent more YPLL than were expected from the ACT rates). Large differentials were also evident for deaths of 15 to 64 year old females (from an SDR of 58 in Quintile 1 to 132 in Quintile 5) and deaths of 15 to 64 years olds from circulatory system diseases (89 to 160), respiratory system diseases (67 to 163) and the combined causes of accidents, poisonings and violence (59 to 159).

Health service utilisation

Although there is some variability across the quintiles, the pattern is generally for the most advantaged SLAs (those in Quintile 1) to have the lowest admission rates, and for the most disadvantaged SLAs (those in Quintile 5) to have the highest rates. The major exceptions include the variables for admissions to a private hospital, for lung cancer, for breast cancer of females aged 40 years and over, and for the surgical procedures of Caesarean section, hysterectomy and lens insertion, for which the standardised admission ratios decrease with increasing disadvantage. There is a less consistent pattern evident for a number of the other variables. There are only minor variations between the quintiles in the percentages for immunisation rates of children at age 12 months (**Figure 9.3**).

Change in health status by socioeconomic status of area of residence

As noted above, there has been an overall decrease in death rates in **Canberra-Queanbeyan**; there are also differentials in death rates by socioeconomic status of area. It is possible to examine the extent of the change in death rates by socioeconomic status of area.

Death rates in **Canberra-Queanbeyan** declined between 1985-89 and 1992-95 for all of the causes of death studied, both overall and in each quintile of socioeconomic status of area.

It is clear, however, that despite the overall decline, the strong gradient in death rates between the quintiles remains. In fact, the differential in death rates for male residents aged from 15 to 64 years between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) increased, from 1.53 times higher in the most disadvantaged areas in 1985-89 to 1.94 times higher in 1992-95.

For females, overall death rates decreased to a similar extent to those for males, and the differential in death rates for females (aged from 15 to 64 years) between Quintile 1 and Quintile 5 also increased, from 1.34 times higher in the most disadvantaged areas in 1985-89 to 1.45 times higher in 1992-95.

Infant death rates declined by around one third (35.4 per cent) in **Canberra-Queanbeyan**, however the differential in rates between Quintile 1 and Quintile 5 increased, from 1.74 times higher in the most disadvantaged areas in 1985-89 to 3.57 times higher in 1992-95.

Despite a decline in death rates in the 15 to 64 year old population for all cancers and lung cancer (with a larger decline), the differential in rates between Quintile 1 and Quintile 5 increased, from 1.01 times higher in the most disadvantaged areas in 1985-89 to 1.16 times higher in 1992-95 for cancer; and from 1.47 to 3.07 for lung cancer.

The overall decline in death rates for 15 to 64 year olds from circulatory system diseases was the highest among the causes of death studied (52.2 per cent) in **Canberra-Queanbeyan**. The differential in rates between Quintile 1 and Quintile 5 increased from 1.42 times higher in the most disadvantaged areas in 1985-89 to 2.11 times higher in 1992-95.

The gradients in death rates from respiratory system diseases across the quintiles of socioeconomic status of area of residence in **Canberra-Queanbeyan** are particularly strong over both periods. In 1985-89, the differential between Quintiles 1 and 5 was 1.55; by 1992-95 this had increased (by 163.6 per cent) to 4.09. This was the largest increase and the highest differential for any of the causes studied.

Death rates of 15 to 64 year old people from the external causes of accidents, poisonings and violence are also highest in the most disadvantaged areas of **Canberra-Queanbeyan**. As with the other variables described above, the differential in 1992-95 is higher than in 1985-89 (up from 1.76 to 2.50). This is a result of the larger declines in death rates in Quintiles 1 (the largest, down by 42.4 per cent), 3 (-38.0 per cent) and 2 (-34.6 per cent).

Death rates for 15 to 24 year olds from these external causes show a different pattern. Rates are highest in Quintiles 2 and 3 in 1985-89, although in 1992-95, following substantial reductions over all the quintiles, the rate in Quintile 5 is the highest (at 64.9 deaths per 100,000 population) and the differential in rates between Quintile 1 and Quintile 5 has increased, from 1.71 in 1985-89 to 1.87 in 1992-95.

Conclusion

There is clear evidence in the data of an association at the SLA level between high premature death rates (both for deaths from all causes and from most specific causes) and socioeconomic disadvantage, as measured by the IRSD. These associations are generally evident not only between the most advantaged (Quintile 1) and disadvantaged areas (Quintile 5), but also at each of the intervening levels of socioeconomic status (Quintiles 2 to 4) (**Figures 9.2 and 9.4**).

Although less consistent, there are associations between socioeconomic disadvantage and high rates of use of general medical practitioner services and many of the variables for hospital admission (**Figure 9.3**).

It is also clear that, despite an overall improvement in death rates in **Canberra-Queanbeyan** from all causes and for all of the specific causes studied, these improvements have not resulted in any reduction in the disparities evident in death rates between residents of the most well off areas and those in the poorest areas. In fact, for all but deaths of 15 to 24 year olds from the 'other causes' group, the gap in death rates has increased (**Figure 9.4**).

Using the *Social Health Atlas*

The social health atlas package

This second edition of *A Social Health Atlas of Australia* comprises:

- this volume for the Australian Capital Territory and a companion volume (Volume 9.1) containing the data mapped (the numbers and rate/ratio/percentages on which the maps are based); and
- similar volumes for each of the other States and Territories and a separate atlas for Australia as a whole (each of these atlases also has a companion volume containing the data mapped).

Some of the data from the atlas are also available on the **HealthWIZ** statistics database product, which comprises comprehensive health statistics from Australia's hospital systems, cause of death registries, population censuses, cancer registries, Medicare and income support system, as well as details of aged care and child care.

This volume contains general background information to the atlas, as well as maps of selected variables showing patterns of socioeconomic status, health status and health and welfare service use at a small area level. Each of these maps is accompanied by a commentary.

The text and maps can also be downloaded for reading and printing from the Public Health Information Development Unit World Wide Web site at www.publichealth.gov.au. The text (including the maps and graphs) and datasets on which the maps are based are available on CD-ROM (for Windows). Further details are in Appendix 1.1, *Project Resources and Output*.

Content

The atlas has nine chapters, an appendix, a bibliography and an index. The chapters are:

- 1 Introduction
- 2 Methods
- 3 Demography and socioeconomic status
- 4 Income support payments
- 5 Health status
- 6 Utilisation of health services
- 7 Availability of selected health services
- 8 Statistical analysis
- 9 Summary

Chapters 1 and 2 provide an overview of the atlas and the approach taken in analysing and mapping data. These sections contain important information on the limitations of the mapped data. The Appendix provides additional background information, and the *Glossary*, at the end of this section, defines some of the terms used.

Chapters 3 to 7 each provide an introduction to the topic(s) being mapped, as well as the maps and associated commentary.

Chapter 8 shows the results of the correlation and cluster analyses. Chapter 9 presents details of the major changes noted in the data between this second and the first edition, as well as some summary measures of the health differentials calculated from the health status and health service utilisation data mapped in Chapters 5 and 6.

Using the atlas

Some people will use the atlas as a reference source, either going to particular maps (eg. of hospital surgical procedures), or using the index to find a particular topic (eg. deaths from circulatory system diseases) or variable (eg. tonsillectomy).

Others may choose to examine the correlation matrices and to then view the maps for variables for which the data are highly correlated. Or they may access the data in a spreadsheet and re-group the SLAs to suit their own purpose, recalculating the percentages or standardised ratios to represent the new spatial groupings.

To assist users in reading the maps, the layout of the two map types used most frequently is described below. The more detailed discussion in Chapter 2 on the way in which the data have been analysed and presented is, however, important in terms of gaining an understanding of how best to use the data and maps in this atlas. Users of the atlas are particularly encouraged to read this chapter to ensure they are aware of the deficiencies in the datasets presented, as well as in the mapping approach used.

Map of Canberra-Queanbeyan

Area mapped

The area mapped is the Statistical Division of **Canberra-Queanbeyan** (generally known as the capital city area).

Additional details, including key maps to assist in the location and identification of particular SLAs or postcode areas, are in *Appendix 1.2*: a set of clear film overlays to assist in this process is included in a pocket inside the back cover of this atlas.

Data measures mapped

The map sub-title indicates the format in which the data are presented. In a majority of cases, data are mapped as either a percentage or age (or age-sex) standardised ratio (the process of standardisation is described in Appendix 1.3, *Analysis and presentation of data*). The exceptions are the maps, in Chapter 7, of the location of selected health services; the Index of Relative Socio-Economic Disadvantage mapped in Chapter 3; the infant death rate; and the Total Fertility Rate.

The legend shows the data ranges used to indicate the spatial distribution of the characteristic being mapped.

Footnotes on the map page draw attention to particular aspects of the mapped data and the source of data.

Description

The text associated with the maps provides background information on the variable being mapped and describes the pattern of distribution of the variable at the SLA level.

The commentary in the top section provides information about the topic being mapped, as well as a comparison between the capital cities and, where the data is available, refers to the situation reported in the first edition of the atlas. For variables where the data are age (or age-sex) standardised, these comparisons are made across Australia (with Australia as the standard for comparison).

In the lower two thirds of the page, attention is drawn to other sources of information about the variable, or characteristics of the population under discussion. The pattern of distribution shown in the map is then described, and associations evident in the correlation analysis with other variables are noted. Users should note that in these descriptions, where data has been standardised, it has been re-calculated to a new standard – in this atlas, to the Australian Capital Territory rates (rather than the Australian rates). This allows comparisons to be made between the rates for the SLAs within **Canberra-Queanbeyan**, and the Australian Capital Territory rates – ie. in effect the Territory average. This differs from the commentary on the top of the page, for which comparisons are made with the Australian rates.

Where the numbers of cases are relatively small (and, in particular, where these small numbers are associated with elevated rates), the absolute numbers are included in the commentary. The numbers (as well as the percentages, rates and ratios) are available in printed and electronic forms and should be used in conjunction with the information in this atlas.

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John Glover
Project Manager
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Glossary and Explanatory notes

Cause of death

Causes of death are classified by the Australian Bureau of Statistics to the Ninth (1975) Revision of the World Health Organisation's International Classification of Diseases (ICD-9) which was adopted for world-wide use from 1979.

The cause of death particulars in this publication relate to the underlying cause of death, which the World Health Organisation has defined as the disease or injury which initiated the train of morbid events leading directly to death. Accidental and violent deaths are classified to the circumstances of the accident or violence which produced the fatal injury. Deaths of infants aged less than one month are classified according to the main condition in the infant which contributed to the death.

Details of the ICD-9 codes applicable to the variables mapped in Chapter 5 are shown in *Appendix 1.4*.

Coding of hospital admissions

Diagnoses and procedures are classified according to the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM October 1988 Revision). External causes are classified according to ICD-9-CM Supplementary Classification of External Causes of Injury and Poisoning ('E' codes) classification codes.

Details of the codes applicable to the variables mapped in Chapter 6 are shown in *Appendix 1.4*.

Admissions

The technical term describing a completed hospital episode (ie. the discharge, death or transfer of a patient) is a 'separation'.

At the time of admission, the age, sex, address of usual residence and other personal details of the patient are recorded. At the end of the episode, at the time of separation from hospital, details of the episode itself are recorded, including the principal diagnosis (and other diagnoses), principal procedure (and other procedures), and the date, time and method (discharge, transfer or death) of separation. Consequently, hospital inpatient data collections are based on separations. In this atlas the more commonly used term of 'admission' has been used. In an analysis such as this, which excludes long stay patients (other than the few long stay acute patients), there is little difference between the number of admissions and the number of separations in a year. Also, 'admission' is a much more familiar term to many people who will use this atlas.

Standardised ratios

Data on which many of the variables have been mapped has been adjusted to remove differences in the data between areas mapped where those differences result from differences in the age and/or sex profiles of the populations being examined. This standardisation process is described in Appendix 1.3, *Analysis and presentation of data*.

Statistical Local Area

The Statistical Local Area (SLA) is a standard geographic area established by the Australian Bureau of Statistics (ABS) to cover the whole of Australia, for the purposes of geographically coding data. It is, in a majority of cases, equivalent to a legal local government area (LGA). SLAs comprise whole LGAs; part LGAs (where the LGA has been split for planning, administrative or statistical purposes); or are unincorporated areas. In Canberra-Queanbeyan there were 107 SLAs at 1 July 1996 (ABS 1996).

Symbols used

- n.a. not available
- .. not applicable
- nil, or less than half the final digit shown
- C City

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