

A SOCIAL HEALTH ATLAS OF AUSTRALIA

Second Edition

Volume 8: Northern Territory

John Glover, Vija Watts and Sarah Tennant

December 1999

 **Public Health Information Development Unit**

Copyright

© Commonwealth of Australia 1999

This work may be reproduced and used subject to acknowledgement of the source of any material so reproduced.

National Library of Australia Cataloguing in Publication entry

Glover, John, 1945-

A social health atlas of Australia

2nd ed.

Bibliography.

Includes index.

ISBN 0 7308 9021 X (set).

ISBN 0 7308 9029 5 (v. 8).

1. Medical geography – Australia - Maps. 2. Medical - geography – Australia - Statistics. 3. Public health – Australia - Maps. 4. Public health – Australia - Statistics. 5. Health facilities – Australia – Utilization - Maps. 6. Health facilities – Australia – Utilization – Statistics. 7. Health surveys – Australia. I. Watts, Vija. II. Tennant, Sarah. III. University of Adelaide. Public Health Information Development Unit. IV. Commonwealth Department of Health and Aged Care (Australia). V. Title.

362.10994

A Social Health Atlas of Australia was produced by the Public Health Information Development Unit, University of Adelaide, South Australia. The project was funded by the Commonwealth Department of Health and Aged Care and supported by the South Australian Department of Human Services.

The majority of data mapped in the atlas, and the maps, was produced by Prometheus Information Pty Ltd, using the HealthWIZ software package. Further details of these and other contributors to the project are noted in the *Acknowledgements*.

Cover design by Julie Johninke using a photograph by Paul Doherty (photograph entitled *Merti Merti Sandhills, Strzelecki Track*).

Printed in Australia by Openbook Publishers.

Related publications and software products

A Social Health Atlas of Australia, 1992, Vols 1 & 2

HealthWIZ: details available at www.prometheus.com.au

Social health atlas World Wide Web site: www.publichealth.gov.au

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

This page intentionally left blank

Executive summary

The information in the atlas series 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. One of the additions is the presentation of data by the new Accessibility/Remoteness Index of Australia (ARIA). Also included is a cluster analysis, providing profiles at the Statistical Local Area (SLA) 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 few correlations of significance at the SLA level in **Darwin** between the measures of socioeconomic disadvantage and the health status variables. This is in part due to the small numbers of cases at the SLA level. The strongest of the associations were correlations of meaningful significance between high rates of people with a handicap and unskilled and semi-skilled workers (0.56) and the Indigenous population (0.51) (**Table 8.1**).

There were more correlations of significance at the SLA level in the non-metropolitan areas of Northern Territory than was the case in **Darwin**. The strongest of these were with a number of the measures of health status and, to a lesser extent, with many of the variables for use of health services. The strongest correlations with the measures of socioeconomic disadvantage were with the variables for people reporting their health as fair or poor, the PCS, the handicap status of the population, deaths of males and females aged 15 to 64 years and years of potential life lost (the summary measure of premature death). There were positive, although weaker, correlations with many of the variables for admissions to hospital.

For the Indigenous population, there were correlations of substantial significance at the SLA level with these same variables: for people reporting their health as fair or poor, the PCS, the handicap status of the population, deaths of males and females aged 15 to 64 years and years of potential life lost (the

summary measure of premature death). There were positive, although generally weaker, correlations with many of the variables for admissions to hospital: an exception was the correlation of substantial significance with high rates of admission for infectious and parasitic diseases (0.76).

Changes in socioeconomic status

Marked variations were recorded between 1986 and 1996 for a majority of the socioeconomic status variables mapped for the Northern Territory (**Table 9.1**). For **Darwin**, the largest increases were for the population aged 65 years and over (an increase of 77.3 per cent over this ten year period); low income families (49.1 per cent); dwellings without a motor vehicle (37.4 per cent); the occupational grouping of managers and administrators, and professionals (34.0 per cent); Aboriginal and Torres Strait Islander people (33.1 per cent); and single parent families (32.3 per cent). The largest decreases recorded over this ten year period were for the variables for people born overseas in predominantly non-English speaking countries and resident in Australia for less than five years (down by 35.4 per cent) and unemployment among 15 to 19 year olds (down by 22.7 per cent).

Variations of this order were also recorded in the non-metropolitan areas of the Northern Territory. The major differences from the changes noted for **Darwin** were the larger increases for the occupations of managers and administrators and professionals and the number of single parent families; smaller increases in the population of people aged 65 years; and larger decreases for people who reported poor proficiency in English.

Substantial variations were recorded in income support payments to residents of **Darwin** for all of the payment types analysed. The number of recipients for each of the payment types increased substantially, with the number of disability support pensioners increasing by 67.9 per cent (**Table 9.1**). Similar, although smaller, increases were recorded in the non-metropolitan areas of the Northern Territory for recipients of the Age and Disability Support Pensions, while larger increases were recorded for people receiving unemployment benefits and dependent children in families receiving income support.

Changes in death rates

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

In **Darwin**, the largest decreases were recorded for deaths of people aged from 15 to 64 years from diseases of the circulatory system (down by 32.8 per cent), accidents, poisonings and violence (down by 13.9 per cent) and respiratory system diseases (down by 13.7 per cent). All causes mortality was 19.1 per cent lower over this period, marginally more so for females (20.6 per cent) than for males (16.9 per cent).

There were also reductions in rates of premature death in the non-metropolitan areas of the Northern Territory for all but lung cancer, for which there was a marked increase (54.5 per cent). The reductions were all greater than those recorded for **Darwin**.

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 18). The SLAs in **Darwin** 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. The SLAs in the non-metropolitan areas of the Northern Territory have been grouped in the same way.

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 exceptions are the variables for people with a handicap, people with a disability and the Total Fertility Rate in **Darwin** and the Physical Component Summary and people with a disability in the non-metropolitan areas.

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 41 (59 per cent fewer YPLL than were expected from the Northern Territory rates) to an SR of 149 in the most disadvantaged areas (indicating that there were 49 per cent more YPLL than were expected from the Northern Territory rates). Large differentials were also evident for deaths of 15 to 64 year old males (from an SDR of 39 in Quintile 1 to 99 in Quintile 4 and 88 in Quintile 5) and deaths of 15 to 64 years olds from circulatory system diseases (26 to 96) and respiratory system diseases (from an SDR of 32 in Quintile 1 to 111 in Quintile 4 and 77 in Quintile 5) (**Figure 9.2**).

Figure 9.3 shows the rate ratios for each of the health status variables for SLAs in the non-metropolitan areas of the Northern Territory. The most notable differences from the gradients evident for **Darwin** are for the variables for people with a handicap, infant deaths and the Total Fertility Rate. Again, the pattern is 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. The most notable exceptions are the variables for the Physical Component Summary (PCS) score (for which low scores indicate poorer health) and people with a disability.

Health service utilisation

It has not been possible to produce this analysis for the health service utilisation data mapped in Chapter 6, as this data was only available for the four postcode groupings, too few areas to be allocated to the five quintiles.

There is considerable variability across the quintiles in the rate ratios for the health service utilisation variables for SLAs in the non-metropolitan areas of the Northern Territory (**Figure 9.4**). Even where the most advantaged SLAs (those in Quintile 1) have the lowest admission rates and the most disadvantaged SLAs (those in Quintiles 3 and 5) have the highest rates, the pattern is often broken in Quintile 3 and 4. Quintile 3 includes the remote areas of Groote Eylandt and Elsey-Balance as well as the town of Tennant Creek and Cox-Finniss, which is located near **Darwin**. On other occasions the most disadvantaged (and also the most remote) areas have the lowest admission rates. The rates in these areas, in particular, are likely to be affected by a lack of access to hospital facilities.

The variables which consistently have higher rates of admission in the high socioeconomic status areas are those for admissions to a private hospital, same day admissions and admissions for psychosis; for neurotic, personality and other mental disorders; and for bronchitis, emphysema and asthma. The standardised ratios for admissions involving a surgical procedure (other than for Caesarean sections) also generally decrease with increasing disadvantage. A gradient is also evident for the use of GP services for both males and females, and immunisation rates of children at age 12 months, which is likely to reflect a lack of access to these services.

Change in health status by socioeconomic status of area of residence

As noted above, there has been an overall decrease in death rates in the Northern Territory; 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. As data was not available for non-metropolitan SLAs in the first edition of the atlas, the following comparisons have been limited to **Darwin**.

Caution should be exercised in interpreting these data. Although there is a clear gradient in socioeconomic status at the suburb level in **Darwin** (**Figure 9.1**), the suburbs have relatively small, and often diverse, populations which can affect the results of this analysis. Despite these limitations, the analysis has been undertaken and the data included below.

It is clear that despite the overall decline in death rates, the gradient between the quintiles remains, although it is generally smaller than in the other capital cities. The differential in death rates for male residents of **Darwin** aged from 15 to 64 years between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) decreased from 1.21 times higher in the most disadvantaged areas to 1.15 times higher. The percentage decline in death rates between the two periods is largest in Quintiles 3 and smallest in Quintile 1.

Death rates for female residents of **Darwin** aged from 15 to 64 years are lower than for males. As shown in **Figure 9.5**, the rates in the later period are lower than in the earlier period for each quintile, other than for Quintile 5 where the rate is slightly higher.

The largest percentage decreases were recorded in Quintiles 3 (40.8 per cent) and 4 (29.8 per cent), while there was an increase of 2.1 per cent in Quintile 5. For females, the differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) increased, from 0.80 in 1985-89 (more deaths of residents of the high status than in the disadvantaged areas) to 1.01 in 1992-95.

The graph for deaths of all people aged from 15 to 64 years, the combination of the male and female rates, shows similar gradients to those discussed above. The differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) decreased from 1.14 times higher in the most disadvantaged areas in 1985-89 to 1.10 times higher in 1992-95.

The differential in the infant death rate (infant deaths per 1,000 live births) in **Darwin** between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) also increased, from 0.78 in 1985-89 to 0.81 in 1992-95.

There has been a small increase in the differential evident for premature deaths from cancer between Quintile 1 and Quintile 5, from 0.71 in 1985-89 to 0.78 in 1992-95. Similarly, the differential in death rates for lung cancer in **Darwin** is lower in 1992-95 than in 1985-89 (1.22, compared with 1.30).

There is no clear gradient evident in the rates of premature death from circulatory system diseases in either period. However, the differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) has almost doubled, increasing from 1.02 times higher in the most disadvantaged areas in 1985-89 to 1.99 times higher in 1992-95.

Similarly, there is no clear gradient evident in the death rates from respiratory system diseases in either of the periods shown, although the differential between Quintiles 1 and 5 has increased (by 116.2 per cent) from 0.84 in 1985-89 to 1.81 in 1992-95. This was the largest increase in the differential in **Darwin** for the causes studied.

Death rates of 15 to 64 year old people from the external causes of accidents, poisonings and violence are highest in the most disadvantaged areas of **Darwin**. However the differential in 1992-95 is smaller than in 1985-89 (down from 1.60 to 1.07).

The last graph in **Figure 9.5** shows details for all other causes of death between the ages of 15 and 64 years. After higher rates in Quintile 1, there is a gradient in the death rates in both periods from Quintile 2 to Quintile 5. However, as a result of the increase in death rates in Quintile 1 and a reduction in Quintile 5, the differential between these quintiles has decreased, from 1.39 in 1985-89 to 0.98 in 1992-95.

In summary, the overall impression is that death rates for these causes vary between the quintiles; and that the rates have fallen in more of the quintiles than have seen an increase (35 quintiles have a lower death rate and 15 have a higher death rate).

This page intentionally left blank

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 Northern Territory and a companion volume (Volume 8.1) 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 Darwin

Area mapped

The area mapped is the Statistical Division of **Darwin** (generally known as the capital city area). The spatial unit mapped is the Statistical Local Area (SLA). However, SLAs in **Darwin** are based on suburbs and are relatively small (and much smaller on average than SLAs in most other large cities). Small SLAs are likely to have smaller numbers of cases (whether of population, hospital admissions or of deaths) and these are likely to produce results (percentages, ratios) which are less reliable than those for larger areas. Throughout the atlas, estimates with small numbers of cases have not been mapped. To ensure that the majority of areas in these major urban centres are of sufficient size to produce useful results, many of the SLAs have been grouped to form larger areas. The groupings approximate (and are frequently the same as) individual postcode areas.

Additional details, including key maps to assist in the location and identification of particular SLAs and 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 Northern Territory rates (rather than the Australian rates). This allows comparisons to be made between the rates for the SLAs or postcode groups within **Darwin**, and the Northern 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.

Map of the Northern Territory: referred to as the 'non-metropolitan areas' of the Northern Territory Area mapped

The spatial units mapped are again SLAs: however **Darwin** is mapped as one area (ie. not by SLA) to enhance comparisons between the capital city and non-metropolitan areas.

Towns with a population of 7,500 or more (but less than the urban centre cut-off of 100,000) are represented on the maps as circles. Unfortunately, data for many towns is not available for the datasets in the atlas (other than the Census data).

As noted above in relation to the map of **Darwin**, additional details are in *Appendix 1.2*: a set of clear film overlays to assist in the location and identification of particular SLAs is included in a pocket inside the back cover of this atlas.

Data measures mapped

See comments above concerning **Darwin**.

Description

Again, commentary in the top section provides information about the topic being mapped, as well as national comparisons, this time comparing the 'other' major urban centres (those population centres of 100,000 or larger which are not capital cities) and the areas of Australia outside of the capital cities and other major urban centres. These regional/rural/remote areas are referred to in the text as 'non-metropolitan areas'. Where the data are age (or age-sex) standardised, the standard is, again, Australia.

The lower two thirds of the page again draws attention 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 Northern Territory rates (rather than the Australian rates). This allows comparisons to be made between the rates for the SLAs within the non-metropolitan areas of the Northern Territory and the Territory rates – ie. in effect the Territory average.

The cautions in the main introduction and in the introductory notes to each chapter are particularly relevant to the non-metropolitan areas, with their geographically large SLAs and relatively small, scattered populations.

Additional information: ARIA Index

In addition to the map, the map page includes a graph showing the average measure for the variable in each of five levels of accessibility/remoteness, as determined by the Accessibility/Remoteness Index for Australia (ARIA). This Index is described in more detail in Chapter 2, under the heading *Accessibility and Remoteness*. In brief, each SLA in Northern Territory has been allocated to one of five categories, which range from Highly Accessible, through Accessible, Moderately Accessible and Remote, to Very Remote. The average percentage, rate or ratio for each of the five categories is then calculated for each variable and presented as a graph. The graph is accompanied by a brief comment on the distribution across the categories.

Contents

Chapter	Page
Foreword	iii
Executive summary	v
Using the <i>Social Health Atlas</i>	ix
List of maps	xiv
List of tables	xvii
List of figures	xxi
Acknowledgements	xxiii
Glossary and explanatory notes	xxv
1 Introduction	1
2 Methods	7
3 Demography and socioeconomic status	17
Introduction, data sources and explanatory notes	
Age distribution	
children aged 0 to 4 years	22
people aged 65 years and over	26
Families	
single parent families	30
low income families	34
Labour force	
unskilled and semi-skilled workers	38
unemployed people	40
female labour force participation	44
Educational participation and achievement	
people who left school at age 15 years or less, or did not go to school	48
Aboriginal and Torres Strait Islander people	52
People born in predominantly non-English speaking countries	
number resident in Australia for five years or more	56
number resident in Australia for less than five years	60
proficiency in English	64
Housing	
dwellings rented from the Territory housing authority	68
dwellings with no motor vehicle	72
SEIFA Index of Relative Socio-Economic Disadvantage	76
4 Income support payments	81
Introduction, data sources and explanatory notes	
Age pensioners	84
Disability support pensioners	88
Female sole parent pensioners	92
People receiving an unemployment benefit	96
Dependent children of selected pensioners and beneficiaries	100

Chapter	Page
5 Health status	105
Introduction, data sources and explanatory notes	
Synthetic Predictions of selected health status measures	111
Introduction, data sources and explanatory notes	
People reporting their health as fair or poor	114
Physical Component Summary, SF36	118
Handicap status	122
Deaths	127
Introduction, data sources and explanatory notes	
under one year of age : infant deaths	134
15 to 64 year olds	
all causes: males	138
all causes: females	142
all cancers	146
lung cancer	150
circulatory system diseases	152
respiratory system diseases	156
accidents, poisonings and violence	159
15 to 24 year olds	
accidents, poisonings and violence	166
Years of potential life lost	168
Total Fertility Rate	177
6 Utilisation of health services	183
Introduction, data sources and explanatory notes	
Hospital admissions (including for surgical procedures)	185
Introduction and explanatory notes	
public acute hospitals and private hospitals	196
public acute hospitals	200
private hospitals	204
public acute and private hospitals	
males	208
females	212
same day patients	216
infectious and parasitic diseases	220
all cancers	224
lung cancer	228
cancer of the female breast	230
psychosis	232
neurotic, personality or other mental disorders	236
all circulatory system diseases	240
ischaemic heart disease	244
all respiratory system diseases	248
0 to 4 years olds with respiratory system disease	252
bronchitis, emphysema and asthma	256
accidents, poisonings and violence	260

Chapter	Page
Hospital admissions for surgical procedures	265
Introduction, data sources and explanatory notes	
admissions for a surgical procedure	268
same day admissions for a surgical procedure	272
tonsillectomy and/or adenoidectomy	276
myringotomy	278
Caesarean section	280
hysterectomy	284
lens insertion	286
endoscopy	288
hip replacement	298
General medical practitioner (GP) services	301
Introduction, data sources and explanatory notes	
GP services	
males	304
females	308
Immunisation status of one year old children	312
7 Availability of selected health services	317
Introduction, data sources and explanatory notes	
Population per GP	320
Hospital beds	
public acute hospitals	324
private hospitals	326
Residential care places	
Nursing home places	327
Hostel places	328
8 Statistical analysis	331
Introduction and explanatory notes	
Correlation analysis	331
Cluster analysis	337
9 Summary of findings	351
Introduction	
Changes in data rates between editions	351
Summary of findings by socioeconomic status of area of residence	352
Appendix 1: Supporting documentation	361
1.1 Project resources and output	363
1.2 Geographic areas mapped	365
1.3 Analysis and presentation of data	371
1.4 Classification of deaths, admissions and procedures	373
1.5 Synthetic estimates for small area	375
1.6 Additional details of cluster analysis	379
Bibliography	383
Index	393

List of maps

Chapter & Map	Page
2 Methods	
2.1 Accessibility/Remoteness Index of Australia (ARIA), 1996	9
2.2 Accessibility/Remoteness Index of Australia (ARIA), for SLAs in the Northern Territory, 1996	10
3 Demography and socioeconomic status	
3.1 Children aged 0 to 4 years, Darwin, 1996	23
3.2 Children aged 0 to 4 years, Northern Territory, 1996	25
3.3 People aged 65 years and over, Darwin, 1996	27
3.4 People aged 65 years and over, Northern Territory, 1996	29
3.5 Single parent families, Darwin, 1996	31
3.6 Single parent families, Northern Territory, 1996	33
3.7 Low income families, Darwin, 1996	35
3.8 Low income families, Northern Territory, 1996	37
3.9 Unskilled and semi-skilled workers, Darwin, 1996	39
3.10 Unemployed people, Darwin, 1996	41
3.11 Unemployed people, Northern Territory, 1996	43
3.12 Female labour force participation, Darwin, 1996	45
3.13 Female labour force participation, Northern Territory, 1996	47
3.14 People who left school at age 15 years or less, or did not go to school, Darwin, 1996	49
3.15 People who left school at age 15 years or less, or did not go to school, Northern Territory, 1996	51
3.16 Aboriginal and Torres Strait Islander people, Darwin, 1996	53
3.17 Aboriginal and Torres Strait Islander people, Northern Territory, 1996	55
3.18 People born in predominately non-English speaking countries and resident in Australia for five years or more, Darwin, 1996	57
3.19 People born in predominately non-English speaking countries and resident in Australia for five years or more, Northern Territory, 1996	59
3.20 People born in predominately non-English speaking countries and resident for less than five years, Darwin, 1996	61
3.21 People born in predominately non-English speaking countries and resident for less than five years, Northern Territory, 1996	63
3.22 Poor proficiency in English of people aged five years and over and born in predominately non-English speaking countries, Darwin, 1996	65
3.23 Poor proficiency in English of people aged five years and over and born in predominately non-English speaking countries, Northern Territory, 1996	67
3.24 Dwellings rented from the Territory housing authority, Darwin, 1996	69
3.25 Dwellings rented from the Territory housing authority, Northern Territory, 1996	71
3.26 Dwellings with no motor vehicles, Darwin, 1996	73
3.27 Dwellings with no motor vehicles, Northern Territory, 1996	75
3.28 SEIFA Index of Relative Socio-Economic Disadvantage, Darwin, 1996	77
3.29 SEIFA Index of Relative Socio-Economic Disadvantage, Northern Territory, 1996	79
4 Income support payments	
4.1 Age pensioners, Darwin, 30 June 1996	85
4.2 Age pensioners, Northern Territory, 30 June 1996	87
4.3 Disability support pensioners, Darwin, 30 June 1996	89
4.4 Disability support pensioners, Northern Territory, 30 June 1996	91
4.5 Female sole parent pensioners, Darwin, 30 June 1996	93
4.6 Female sole parent pensioners, Northern Territory, 30 June 1996	95
4.7 People receiving an unemployment benefit, Darwin, 30 June 1996	97
4.8 People receiving an unemployment benefit, Northern Territory, 30 June 1996	99
4.9 Dependent children of selected pensioners and beneficiaries, Darwin, 30 June 1996	101
4.10 Dependent children of selected pensioners and beneficiaries, Northern Territory, 30 June 1996	103

5	Health status	
5.1	People reporting their health as fair or poor, Darwin, 1995	115
5.2	People reporting their health as fair or poor, Northern Territory, 1995	117
5.3	Physical Component Summary, SF-36, Darwin, 1995	119
5.4	Physical Component Summary, SF-36, Northern Territory, 1995	121
5.5	Estimated number of people with a handicap, Darwin, 1993	123
5.6	Estimated number of people with a handicap, Northern Territory, 1993	125
5.7	Infant deaths, Darwin, 1992 to 1995	135
5.8	Infant deaths, Northern Territory, 1992 to 1995	137
5.9	Deaths of males aged 15 to 64 years from all causes, Darwin, 1992 to 1995	139
5.10	Deaths of males aged 15 to 64 years from all causes, Northern Territory, 1992 to 1995	141
5.11	Deaths of females aged 15 to 64 years from all causes, Darwin, 1992 to 1995	143
5.12	Deaths of females aged 15 to 64 years from all causes, Northern Territory, 1992 to 1995	145
5.13	Deaths of people aged 15 to 64 years from cancer, Darwin, 1992 to 1995	147
5.14	Deaths of people aged 15 to 64 years from cancer, Northern Territory, 1992 to 1995	149
5.15	Deaths of people aged 15 to 64 years from lung cancer, Darwin, 1992 to 1995	151
5.16	Deaths of people aged 15 to 64 years from circulatory system diseases, Darwin, 1992 to 1995	153
5.17	Deaths of people aged 15 to 64 years from circulatory system diseases, Northern Territory, 1992 to 1995	155
5.18	Deaths of people aged 15 to 64 years from respiratory system diseases, Darwin, 1992 to 1995.	157
5.19	Deaths of people aged 15 to 64 years from accidents, poisonings and violence, Darwin, 1992 to 1995	163
5.20	Deaths of people aged 15 to 64 years from accidents, poisonings and violence, Northern Territory, 1992 to 1995	165
5.21	Deaths of people aged 15 to 24 years from accidents, poisonings and violence, Darwin, 1992 to 1995	167
5.22	Deaths of people aged 15 to 64 years; years of potential life lost, Darwin, 1992 to 1995	169
5.23	Deaths of people aged 15 to 64 years; years of potential life lost, Northern Territory, 1992 to 1995	171
5.24	Total Fertility Rate, Darwin, 1992 to 1995	179
5.25	Total Fertility Rate, Northern Territory, 1992 to 1995	181
6	Utilisation of health services	
6.1	Admissions to public acute hospitals and private hospitals, Darwin, 1995/96	197
6.2	Admissions to public acute hospitals and private hospitals, Northern Territory, 1995/96	199
6.3	Admissions to public acute hospitals, Darwin, 1995/96	201
6.4	Admissions to public acute hospitals, Northern Territory, 1995/96	203
6.5	Admissions to private hospitals, Darwin, 1995/96	205
6.6	Admissions to private hospitals, Northern Territory, 1995/96	207
6.7	Admissions of males, Darwin, 1995/96	209
6.8	Admissions of males, Northern Territory, 1995/96	211
6.9	Admissions of females, Darwin, 1995/96	213
6.10	Admissions of females, Northern Territory, 1995/96	215
6.11	Same day admissions, Darwin, 1995/96	217
6.12	Same day admissions, Northern Territory, 1995/96	219
6.13	Admissions for infectious and parasitic diseases, Darwin, 1995/96	221
6.14	Admissions for infectious and parasitic diseases, Northern Territory, 1995/96	223
6.15	Admissions for cancer, Darwin, 1995/96	225
6.16	Admissions for cancer, Northern Territory, 1995/96	227
6.17	Admissions for lung cancer, Darwin, 1995/96	229
6.18	Admissions of females aged 40 years and over for breast cancer, Darwin, 1995/96	231
6.19	Admissions for psychosis, Darwin, 1995/96	233
6.20	Admissions for psychosis, Northern Territory, 1995/96	235
6.21	Admissions for neurotic, personality or other mental disorders, Darwin, 1995/96	237
6.22	Admissions for neurotic, personality or other mental disorders, Northern Territory, 1995/96	239

Chapter & Map	Page
6.23 Admissions for circulatory system diseases, Darwin, 1995/96	241
6.24 Admissions for circulatory system diseases, Northern Territory, 1995/96	243
6.25 Admissions for ischaemic heart disease, Darwin, 1995/96	245
6.26 Admissions for ischaemic heart disease, Northern Territory, 1995/96	247
6.27 Admissions for respiratory system disease, Darwin, 1995/96	249
6.28 Admissions for respiratory system diseases, Northern Territory, 1995/96	251
6.29 Admissions of children aged 0 to 4 years for respiratory system diseases, Darwin, 1995/96	253
6.30 Admissions of children aged 0 to 4 years for respiratory system diseases, Northern Territory, 1995/96	255
6.31 Admissions for bronchitis, emphysema or asthma, Darwin, 1995/96	257
6.32 Admissions for bronchitis, emphysema or asthma, Northern Territory, 1995/96	259
6.33 Admissions from accidents, poisonings and violence, Darwin, 1995/96	261
6.34 Admissions from accidents, poisonings and violence, Northern Territory, 1995/96	263
6.35 Admissions for a surgical procedure, Darwin, 1995/96	269
6.36 Admissions for a surgical procedure, Northern Territory, 1995/96	271
6.37 Same day admissions for a surgical procedure, Darwin, 1995/96	273
6.38 Same day admissions for a surgical procedure, Northern Territory, 1995/96	275
6.39 Admissions for a tonsillectomy and/or adenoidectomy, Darwin, 1995/96	277
6.40 Admissions of children aged 0 to 9 years for a myringotomy, Darwin, 1995/96	279
6.41 Admissions of females aged 15 to 44 years for a Caesarean section, Darwin, 1995/96	281
6.42 Admissions of females aged 15 to 44 years for a Caesarean section, Northern Territory, 1995/96	283
6.43 Admissions of females aged 30 years and over for an hysterectomy, Darwin, 1995/96	285
6.44 Admissions for a lens insertion, Darwin, 1995/96	287
6.45 Admissions for an endoscopy, Darwin, 1995/96	289
6.46 Admissions for an endoscopy, Northern Territory, 1995/96	291
6.47 General medical practitioner services to males, Darwin, 1996	305
6.48 General medical practitioner services to males, Northern Territory, 1996	307
6.49 General medical practitioner services to females, Darwin, 1996	309
6.50 General medical practitioner services to females, Northern Territory, 1996	311
6.51 Immunisation status of children at 12 months of age, Darwin, 1998	313
6.52 Immunisation status of children at 12 months of age, Northern Territory, 1998	315
7 Availability of selected health services	
7.1 Population per general medical practitioner, Darwin, 1996/97	321
7.2 Population per general medical practitioner, Northern Territory, 1996/97	323
7.3 Public acute hospital beds per 1,000 population, Darwin, 1995/96	325
7.4 Public acute hospital beds per 1,000 population, Northern Territory, 1995/96	325
7.5 Nursing home places per 1,000 population aged 70 years and over, Darwin, 30 June 1997	329
7.6 Hostel places per 1,000 population aged 70 years and over, Darwin, 30 June 1997	329
8 Statistical analysis	
8.1 Socioeconomic clusters based on Statistical Local Areas in Darwin	340
8.2 Health status clusters based on Statistical Local Areas in Darwin	341
8.3 Social health clusters based on Statistical Local Areas in Darwin	342
8.4 Socioeconomic clusters based on Statistical Local Areas in Northern Territory	345
8.5 Health status clusters based on Statistical Local Areas in non-metropolitan areas of Northern Territory	346
8.6 Health service utilisation clusters based on Statistical Local Areas in non-metropolitan areas of Northern Territory	347
8.7 Social health clusters based on Statistical Local Areas in non-metropolitan areas of Northern Territory	348
Appendix 1	
A1 Key map for areas in Darwin, 1996	366
A2 Key map for Statistical Local Areas in the non-metropolitan areas of Northern Territory, 1996	368

List of tables

Chapter & Table	Page
1 Introduction	
1.1 Correlation coefficients for small areas in Sydney	2
1.2 Small area data of relevance to the National Health Priority Areas	4
2 Methods	
2.1 Conversion of 1996 deaths data to SLA using the ABS Census-based postcode converter: deaths by age group for selected SLAs, South Australia, 1996	12
3 Demography and socioeconomic status	
3.1 Population and area, Northern Territory, 1996	17
3.2 Population of Indigenous Australians, 1986 to 1996	19
3.3 Details of demographic and socioeconomic variables mapped	20
3.4 Proportion of population aged 0 to 4 years, capital cities	22
3.5 Proportion of population aged 0 to 4 years, State/Territory	24
3.6 Proportion of population aged 65 years and over, capital cities	26
3.7 Proportion of population aged 65 years and over, State/Territory	28
3.8 Structure of population aged 65 years and over, Northern Territory, 1986 and 1996	28
3.9 Single parent families, capital cities	30
3.10 Single parent families, State/Territory	32
3.11 Housing tenure by family type, Darwin, 1996	32
3.12 Low income families, capital cities	34
3.13 Low income families, State/Territory	36
3.14 Unskilled and semi-skilled workers, capital cities	38
3.15 Unemployed people, capital cities	40
3.16 Unemployed people, State/Territory	42
3.17 Unemployment rates by age, sex and area, Northern Territory, 1996	42
3.18 Female labour force participation, capital cities	44
3.19 Female labour force participation, State/Territory	46
3.20 People who left school at age 15 years or less, or did not go to school, capital cities	48
3.21 People who left school at age 15 years or less, or did not go to school, State/Territory	50
3.22 Aboriginal and Torres Strait Islander people, capital cities	52
3.23 Aboriginal and Torres Strait Islander people, State/Territory	54
3.24 People born in predominantly non-English speaking countries and resident in Australia for 5 years or more, capital cities	56
3.25 People born in predominantly non-English speaking countries and resident in Australia for 5 years or more, State/Territory	58
3.26 People born in predominantly non-English speaking countries and resident in Australia for less than 5 years, capital cities	60
3.27 People born in predominantly non-English speaking countries and resident in Australia for less than 5 years, State/Territory	62
3.28 Countries of origin of people born in non-English speaking countries, Northern Territory, 1996	62
3.29 Poor proficiency in English of people aged 5 years and over and born in predominantly non-English speaking countries, capital cities	64
3.30 Poor proficiency in English of people aged 5 years and over and born in predominantly non-English speaking countries, State/Territory	66
3.31 Dwellings rented from the State/Territory housing authority, capital cities	68
3.32 Dwellings rented from the State/Territory housing authority, State/Territory	70
3.33 Dwellings with no motor vehicle, capital cities	72
3.34 Dwellings with no motor vehicle, State/Territory	74
3.35 SEIFA Index of Relative Socio-Economic Disadvantage, capital cities	76
3.36 SEIFA Index of Relative Socio-Economic Disadvantage, State/Territory	78

4 Income support payments

4.1	Income support payments mapped, 30 June 1996	81
4.2	Age pensioners, capital cities	84
4.3	Age pensioners, State/Territory	86
4.4	Disability support pensioners, capital cities	88
4.5	Disability support pensioners, State/Territory	90
4.6	Female sole parent pensioners, capital cities	92
4.7	Female sole parent pensioners, State/Territory	94
4.8	People receiving an unemployment benefit, capital cities	96
4.9	People receiving an unemployment benefit, State/Territory	98
4.10	Dependent children of selected pensioners and beneficiaries, capital cities	100
4.11	Dependent children of selected pensioners and beneficiaries, State/Territory	102

5 Health Status

5.1	Health status indicators by socioeconomic disadvantage of area and sex, Australia, late 1980s	105
5.2	Rate ratio of mortality inequality by socioeconomic disadvantage of area, 1985-87 and 1995-97	106
5.3	People reporting their health as fair or poor, capital cities	114
5.4	People reporting their health as fair or poor, State/Territory	116
5.5	Physical Component Summary, capital cities, 1995	118
5.6	Physical Component Summary, State/Territory, 1995	120
5.7	Estimated number of people with a handicap, capital cities	122
5.8	Estimated number of people with a handicap, State/Territory	124
5.9	Deaths by cause and age, Northern Territory, 1992 to 1995	129
5.10	Deaths by selected cause and area, Northern Territory, 1992 to 1995	130
5.11	Infant deaths, capital cities	134
5.12	Infant deaths, State/Territory	136
5.13	Deaths of males aged 15 to 64 years from all causes, capital cities	138
5.14	Deaths of males aged 15 to 64 years from all causes, State/Territory	140
5.15	Deaths of females aged 15 to 64 years from all causes, capital cities	142
5.16	Deaths of females aged 15 to 64 years from all causes, State/Territory	144
5.17	Deaths of people aged 15 to 64 years from cancer, capital cities	146
5.18	Deaths of people aged 15 to 64 years from cancer, State/Territory	148
5.19	Deaths of people aged 15 to 64 years from lung cancer, capital cities	150
5.20	Deaths of people aged 15 to 64 years from circulatory system diseases, capital cities	152
5.21	Deaths of people aged 15 to 64 years from circulatory system diseases, State/Territory	154
5.22	Deaths of people aged 15 to 64 years from respiratory system diseases, capital cities	156
5.23	Deaths from accidents, poisonings & violence, by cause, Northern Territory, 1992 to 1995	159
5.24	Deaths from accidents, poisonings and violence, by area of residence, Northern Territory, 1992 to 1995	159
5.25	Deaths of people aged 15 to 64 years from accidents, poisonings and violence, capital cities	162
5.26	Deaths of people aged 15 to 64 years from accidents, poisonings and violence, State/Territory	164
5.27	Deaths of people aged 15 to 24 years from accidents, poisonings and violence, capital cities	166
5.28	Deaths of people aged 15 to 64 years: years of potential life lost, capital cities, 1992 to 1995	168
5.29	Deaths of people aged 15 to 64 years: years of potential life lost, State/Territory, 1992 to 1995	170
5.30	Deaths of people aged 15 to 64 years from lung cancer, State/Territory	173
5.31	Deaths of people aged 15 to 64 years from respiratory system diseases, State/Territory	174
5.32	Deaths of people aged 15 to 24 years from accidents, poisonings and violence, State/Territory	175
5.33	Total Fertility Rate, capital cities, 1992 to 1995	178
5.34	Total Fertility Rate, State/Territory, 1992 to 1995	180

6	Utilisation of health services	
6.1	Health service use by socioeconomic disadvantage of area and sex, Australia, late 1980s	183
6.2	Admissions of Indigenous Australians to public acute and private hospitals, by cause, Australia, 1996/97	186
6.3	Public acute and private hospital admissions included in the analysis, Northern Territory, 1995/96	192
6.4	Public acute and private hospital admissions, by type of admission: Comparison between editions	194
6.5	Admissions of residents of Northern Territory by State/Territory of location of hospital, 1995/96	194
6.6	Admissions to public acute hospitals and private hospitals, capital cities	196
6.7	Admissions to public acute hospitals and private hospitals, State/Territory	198
6.8	Admissions to public acute hospitals, capital cities, 1995/96	200
6.9	Admissions to public acute hospitals, State/Territory, 1995/96	202
6.10	Admissions to private hospitals, capital cities, 1995/96	204
6.11	Admissions to private hospitals, State/Territory, 1995/96	206
6.12	Admissions of males, capital cities	208
6.13	Admissions of males, State/Territory	210
6.14	Admissions of females, capital cities	212
6.15	Admissions of females, State/Territory	214
6.16	Same day admissions, capital cities, 1995/96	216
6.17	Same day admissions, State/Territory, 1995/96	218
6.18	Admissions with a principal diagnosis of infectious and parasitic diseases, capital cities	220
6.19	Admissions with a principal diagnosis of infectious and parasitic diseases, State/Territory	222
6.20	Admissions with a principal diagnosis of cancer, capital cities	224
6.21	Admissions with a principal diagnosis of cancer, State/Territory	226
6.22	Admissions with a principal diagnosis of lung cancer, capital cities	228
6.23	Admissions of females aged 40 years and over with a principal diagnosis of breast cancer, capital cities	230
6.24	Admissions with a principal diagnosis of psychosis, capital cities, 1995/96	232
6.25	Admissions with a principal diagnosis of psychosis, State/Territory, 1995/96	234
6.26	Admissions with a principal diagnosis of neurotic, personality or other mental disorders, capital cities, 1995/96	236
6.27	Admissions with a principal diagnosis of neurotic, personality or other mental disorders, State/Territory, 1995/96	238
6.28	Admissions with a principal diagnosis of circulatory system diseases, capital cities	240
6.29	Admissions with a principal diagnosis of circulatory system diseases, State/Territory	242
6.30	Admissions with a principal diagnosis of ischaemic heart disease, capital cities	244
6.31	Admissions with a principal diagnosis of ischaemic heart disease, State/Territory	246
6.32	Admissions with a principal diagnosis of respiratory system diseases, capital cities	248
6.33	Admissions with a principal diagnosis of respiratory system diseases, State/Territory	250
6.34	Admissions of 0 to 4 year olds with a principal diagnosis of respiratory system diseases, capital cities	252
6.35	Admissions of 0 to 4 year olds with a principal diagnosis of respiratory system diseases, State/Territory	254
6.36	Admissions with a principal diagnosis of bronchitis, emphysema or asthma, capital cities	256
6.37	Admissions with a principal diagnosis of bronchitis, emphysema or asthma, State/Territory	258
6.38	Admissions with an external cause of accidents, poisonings and violence, capital cities	260
6.39	Admissions with an external cause of accidents, poisonings and violence, State/Territory	262
6.40	Admission rates for selected sentinel procedures, public and private hospitals, 1996/1997	265
6.41	Standardised admission ratios for selected surgical procedures, Northern Territory	266
6.42	Admissions for a surgical procedure, capital cities, 1995/96	268
6.43	Admissions for a surgical procedure, State/Territory, 1995/96	270
6.44	Same day admissions for a surgical procedure, capital cities, 1995/96	272
6.45	Same day admissions for a surgical procedure, State/Territory, 1995/96	274
6.46	Admissions with a principal procedure of tonsillectomy and/or adenoidectomy, capital cities, 1995/96	276
6.47	Admissions of children aged 0 to 9 years with a principal procedure of myringotomy, capital cities, 1995/96	278
6.48	Admissions of females aged 15 to 44 years with a principal procedure of Caesarean section, capital cities, 1995/96	280
6.49	Admissions of females aged 15 to 44 years with a principal procedure of Caesarean section, State/Territory, 1995/96	282
6.50	Admissions of females aged 30 years and over with a principal procedure of hysterectomy, capital cities, 1995/96	284

Chapter & Table	Page
6.51 Admissions for a lens insertion, capital cities, 1995/96	286
6.52 Admissions with a principal procedure of endoscopy, capital cities, 1995/96	288
6.53 Admissions with a principal procedure of endoscopy, State/Territory, 1995/96	290
6.54 Admissions with a principal diagnosis of lung cancer, State/Territory	293
6.55 Admissions of females aged 40 years and over with a principal diagnosis of breast cancer, State/Territory	294
6.56 Admissions with a principal procedure of tonsillectomy and/or adenoidectomy, State/Territory, 1995/96	295
6.57 Admissions of children aged 0 to 9 years with a principal procedure of myringotomy, State/Territory, 1995/96	296
6.58 Admissions of females aged 30 years and over with a principal procedure of hysterectomy, State/Territory, 1995/96	297
6.59 Admissions with a principal procedure of hip replacement, capital cities, 1995/96	298
6.60 Admissions with a principal procedure of hip replacement, State/Territory, 1995/96	299
6.61 Admissions for a lens insertion, State/Territory, 1995/96	300
6.62 Location of Royal Flying Doctor Service bases and number of services, 1997	302
6.63 General medical practitioner services to males, capital cities	304
6.64 General medical practitioner services to males, State/Territory	306
6.65 General medical practitioner services to females, capital cities	308
6.66 General medical practitioner services to females, State/Territory	310
6.67 Proportion of children who were fully immunised at 12 months of age, capital cities, 1998	312
6.68 Proportion of children who were fully immunised at 12 months of age, capital cities, 1998	314
7 Availability of selected health services	
7.1 Patient days for nursing home type patients in public acute hospitals, by area, States and Territories, 1997/98	318
7.2 Nursing home and hostel places per 1,000 population aged 70 years and over, 1997	318
7.3 Population per general medical practitioner, capital cities	320
7.4 Population per general medical practitioner, State/Territory	322
7.5 Public acute hospital beds per 1,000 population, State/Territory	324
7.6 Private hospital beds per 1,000 population, State/Territory	326
7.7 Nursing home places per 1,000 population aged 70 years and over, State/Territory	327
7.8 Hostel places per 1,000 population aged 70 years and over, State/Territory	328
8 Statistical analysis	
8.1 Correlation matrix for SLAs in Darwin	333
8.2 Correlation matrix for SLAs in the non-metropolitan areas of Northern Territory	335
8.3 Variables used in cluster analysis	337
8.4 Composition of SLA clusters in Darwin	338
8.5 Composition of SLA clusters in the non-metropolitan areas of Northern Territory	344
8.6 Composition of town clusters in Australia	350
9 Summary of findings	
9.1 Changes in demographic and socioeconomic status variables, by Section of Territory, Northern Territory	351
9.2 Changes in health status variables, by Section of Territory, Northern Territory	352
Appendix	
A1 Urban centres in the Northern Territory	365
A2 Key to Statistical Local Areas in Darwin, 1996	367
A3 Key to Darwin SLA groupings, 1996	367
A4 Key to Statistical Local Areas in non-metropolitan areas of Northern Territory, 1996	369
A5 Data sources	372
A6 ICD-9 Codes for causes of death mapped in Chapter 5	373
A7 ICD-9 Codes for diagnoses/external causes mapped in Chapter 6	373
A8 ICPM Codes for surgical procedures mapped in Chapter 6	373

List of figures

Chapter & Figure	Page
3 Demography and socioeconomic status	
3.1 SEIFA Index of Relative Socio-Economic Disadvantage, capital cities	76
3.2 SEIFA Index of Relative Socio-Economic Disadvantage, Rest of State/Territory	78
4 Income support payments	
4.1 Age pensioners, Northern Territory, 1996	82
4.2 Disability support pensioners, Northern Territory, 1996	82
4.3 Female sole parent pensioners, Northern Territory, 1996	83
4.4 Unemployment beneficiaries, Northern Territory, 1996	83
5 Health Status	
5.1 Death rates of people aged from 15 to 64 years, by cause, Australia	128
5.2 Death rates of people aged from 15 to 64 years, by cause, Northern Territory	128
5.3 Deaths from all causes, by age and sex, Northern Territory, 1992 to 1995	130
5.4 Deaths from cancer, by age and sex, Northern Territory, 1992 to 1995	131
5.5 Deaths from circulatory system diseases, by age and sex, Northern Territory, 1992 to 1995	131
5.6 Deaths from respiratory system diseases, by age and sex, Northern Territory, 1992 to 1995	131
5.7 Deaths from accidents, poisonings and violence, by age and sex, Northern Territory, 1992 to 1995	132
5.8 Suicide rates of people aged from 25 to 64 years, Darwin and Rest of Territory	133
5.9 Suicide rates of people aged from 15 to 24 years, Darwin and Rest of Territory	133
5.10 Total Fertility Rate, Darwin and Rest of Territory, 1992 to 1995	177
6 Utilisation of health services	
6.1 Admissions to public acute and private hospitals, by age, Northern Territory and Australia, 1995/96	186
6.2 Admissions to public acute and private hospitals, by age and sex, Northern Territory, 1995/96	187
6.3 Admissions to public acute hospitals, by age and sex, Northern Territory, 1995/96	187
6.4 Admissions to private hospitals, by age and sex, Northern Territory, 1995/96	188
6.5 Same day admissions, by age and sex, Northern Territory, 1995/96	188
6.6 Admissions for circulatory system diseases, by age and sex, Northern Territory, 1995/96	189
6.7 Admissions for respiratory system diseases, by age and sex, Northern Territory, 1995/96	189
6.8 Admissions from accidents, poisonings and violence, by age and sex, Northern Territory, 1995/96	190
6.9 Admissions for a surgical procedure, by age and sex, Northern Territory, 1995/96	190
6.10 Same day admissions for a surgical procedure, by age and sex, Northern Territory, 1995/96	190
6.11 General medical practitioner services, by age and sex, Northern Territory, 1996-97	302
9 Summary of findings	
9.1 Differentials in IRSD scores for SLAs in Darwin	352
9.2 Health status differentials by quintile of socioeconomic disadvantage of area, Darwin	354
9.3 Health status differentials by quintile of socioeconomic disadvantage of area, Rest of Territory	355
9.4 Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Rest of Territory	356
9.5 Change in health status by quintile of socioeconomic disadvantage of area, Darwin	359

This page intentionally left blank

Acknowledgements

The atlas series was produced with the assistance of a number of people and organisations. This atlas for the Northern Territory was produced by John Glover, Vija Watts and Sarah Tennant, with the assistance of Kevin Harris. Sarah was also responsible for day to day management of the data (for checking and storing it), for producing many of the tables and graphs, and for generally keeping in touch with the whole project. Some of the early drafting of Chapter 3 in this atlas was undertaken by David Forster and Cameron Joyce, and Caroline Bruce was responsible for the majority of the work in checking and validating the Census data that was supplied for all of the atlases. These three people moved on to other jobs in the early stages of this project. Lucy Glover checked the data in the drafts against the source material and edited it as necessary. Nicholas Glover inserted many of the map files (as did Kieran Moors) and set up the graphs in Chapter 9.

Outside the Public Health Information Development Unit (PHIDU), Prometheus Information Pty Ltd was the major contributor to the project. Prometheus is contracted by the Commonwealth Department of Health and Aged Care to develop HealthWIZ, the software which was used to produce the maps in this atlas and the data tables (on which the maps are based) in Volume 1.1. Some of the information was already held by Prometheus, and other information needed to be obtained from various Commonwealth, State and Territory agencies and added to the HealthWIZ database in a way that ensured comparability. This was no small task. Although the HealthWIZ software included a mapping facility, the particular approach to publishing the atlas required that special arrangements be made to output the maps in a suitable format. For example, the maps were exported from HealthWIZ and pasted into frames in a MS Word document. Each of these documents was then inserted into the appropriate page in the atlas. Much of the work was highly complex and technical, and required attention to detail and knowledge of the datasets (in particular in identifying potential problems in the data and following these up to confirm or correct them) and statistical geography over a number of years. The quality of the final result, evident in the published product, is testimony to their efforts. George Preston, a Director of the company, was always willing to assist. His knowledge of health statistics and his statistical expertise were frequently of value in making decisions about alternative approaches to the analysis and interpretation of data. Daryl Akerlind and Alain Remont designed the software enhancements to provide the pullouts and town overlays for the maps. Other major contributors at Prometheus were Jane Gorrie and Jennifer Chorley, Zlatan Dzumhur, Jane Lindsay, Jennie Widdowson, Ayse Idehen and (in the earlier stages of the project) Swandi Candra.

In addition to funding the project, the Commonwealth Department of Health and Aged Care took a keen interest in the ongoing work. A number of people had a key role in this, including Ruth Parslow, Karl Higgins and Frances Byers (in aspects of project establishment and contract management) and Jan Bennett and Brendan Gibson (overall direction of the project). In more recent months, Joy Eshpeter and Renata Rustowski have had a major role in seeing the project signed off and in negotiating release arrangements. The support and

encouragement of this group of people (and others in the Department) has been greatly appreciated, as were their comments on the final drafts.

The South Australian Department of Human Services had contract responsibility for the atlas for much of the time over which it was produced. They provided a supportive environment in which the atlas could be produced, and made possible the transition of responsibility for the project to PHIDU in April 1999. The support of many people in the Department, including the Chief Executive, Christine Charles, is gratefully acknowledged.

The Australian Institute of Health and Welfare (AIHW) provided the majority of the hospital inpatient data in Chapter 6. They also provided other material for this chapter, in addition to the data mapped. The main individuals who assisted were Jenny Hargreaves, Janis Shaw and Paul Halliday. The State and Territory health agencies all provided additional details of hospital admissions not available from the AIHW (of admissions of residents of one State or Territory occurring in another).

Colin Mathers of the AIHW and Theo Voss of the Victorian Department of Human Services readily agreed to the use in the atlas of the results of their recent (unpublished) studies into links between socioeconomic status and health status.

All of the data in Chapter 3, as well as a range of other data used throughout the atlas, were purchased from the Australian Bureau of Statistics (ABS). The staff of the Adelaide office of the ABS handled these requests and were thorough and helpful in assisting us to define the data so that it was comparable with that published in the first edition of the atlas. The staff of the ABS office in Darwin were also helpful in providing details of population counts for areas affected by boundary changes that had implications for the datasets being used.

The cluster analysis was a major exercise and was undertaken in a highly professional manner by Graeme Tucker. The ARIA graphs and the graphs in Chapter 9 were exported from a module produced by Andrew McAlindon. This module streamlined the calculation of the many rates, percentages etc. used in these sections of the atlas, as well as the production of the final graphs.

Diana Hetzel and Jeanette Pope provided invaluable support in strengthening the discussion of the socioeconomic determinants of health in Chapter 1. Diana contributed in a number of other ways, in particular by providing much of the referenced background material in the topic introductions throughout the atlas; she also read the final drafts. Tony Woollacott and Fearnley Szuster read a number of earlier drafts and Fearnley also provided many useful comments on later drafts. Thanks are also due to Julie Johinke who produced the cover design, and to Paul Doherty for the photographic image used on the cover.

The final responsibility for the content and comment remains with me.

John Glover
Project Manager
December 1999

This page intentionally left blank

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 Northern Territory there were 8 LGAs and 63 SLAs at 1 July 1996 (ABS 1996).

Symbols used

n.a. not available

.. not applicable

- nil, or less than half the final digit shown

CGC Community Government Council

S Shire

T Town

This page intentionally left blank