A Social Health Atlas of Young South Australians

Second Edition

Sarah Tennant, Diana Hetzel and John Glover

January 2003

Public Health Information Development Unit

Copyright

National Library of Australia Cataloguing in Publication entry

Tennant, Sarah.
A social health atlas of young South Australians.

2nd ed.
Bibliography.
Includes index.
ISBN 0 7308 9221 2.

1. Health surveys - South Australia. 2. Public health - South Australia - Statistics. 3. Public health – South Australia - Maps. 4. Health facilities - South Australia - Utilization - Statistics. 5. Health facilities – South Australia - Utilization - Maps. 6. Children - Health and hygiene - South Australia - Statistics. 7. Children - Health and hygiene - South Australia - Maps. 8. Youth - Health and hygiene - South Australia - Statistics. 9. Youth - Health and hygiene - South Australia - Maps. I. Glover, John, 1945- . II. Hetzel, Diana. III. South Australia. Dept. of Human Services. IV. Public Health Information Development Unit (Australia). V. Title.

362.1083099423

Public Health Information Development Unit, The University of Adelaide

This report was produced by the Public Health Information Development Unit (PHIDU), The University of Adelaide, South Australia. The project was funded and supported by the South Australian Department of Human Services. The views expressed in this report are solely those of the authors and should not be attributed to the Department of Human Services or the Minister for Health or the Minister for Youth.

Suggested citation:

Tennant S, Hetzel D and Glover J (2003) *A social health atlas of young South Australians*. Public Health Information Development Unit, Adelaide.

Enquiries about or comments on this publication should be addressed to:

PHIDU, The University of Adelaide, South Australia 5005
Phone: 08-8303 6239 or e-mail: **PHIDU@publichealth.gov.au**

This and other publications are available from the PHIDU website (www.publichealth.gov.au)

Published by Public Health Information Development Unit, The University of Adelaide

Printed by Openbook Print

Foreword

Our children and young people are the future of South Australia. Their wellbeing and healthy development are essential foundations for the responsibilities of active citizenship in later life. How are our children and young people doing now? The answer to this will be an important indication of what is ahead - for them individually, and for the future quality of life in our community as a whole.

A Social Health Atlas of Young South Australians, now in its second edition, provides communities, practitioners and policy makers with some of the answer. As a reference, it contains a rich source of descriptive, population-based data about the current health and wellbeing of South Australian children and young people, from birth to the age of 24 years. By focusing on many of the social determinants of children's and young people's health, the Atlas also examines the impact of differences in socioeconomic status, the relationship between education and health, and the community resources and family characteristics that can promote healthy development.

In recent years, the wellbeing of children and young people in South Australia has improved in many areas, as exemplified by increases in life expectancy and reductions in perinatal and infant mortality rates. However, other data suggest that some outcomes have remained static or have even declined, and that not everyone has experienced health improvement. Substantial inequalities in the health of certain groups remain, particularly Indigenous children and young people and those whose families are socioeconomically disadvantaged.

The material in this Atlas raises pertinent questions for our community. Given what we now know about the factors influencing early development of the brain, the different pathways that affect wellbeing, and the possible long-term effects of a disadvantaged childhood, how do we minimise poor outcomes for children and young people in South Australia? This Atlas provides evidence of the significance of supportive social, economic and ecological environments.

A Social Health Atlas of Young South Australians is an important addition to the resources available to policy makers, planners, service providers and community members working towards the future health and wellbeing of young South Australians. Our hope is that the Atlas will be used to identify inequalities in health and wellbeing at both the regional and State level and to determine areas where new efforts are necessary. For South Australia to be a socially just community, we need to address these inequalities and ensure the best possible environments in which our children and young people can grow and develop.

HON LEA STEVENS MP
Minister for Health
Minister Assisting the Premier in Social Inclusion

HON STEPHANIE KEY MP
Minister for Social Justice
Minister for Housing
Minister for Youth
Minister for the Status of Women

This page intentionally left blank

Contents

This page intentionally left blank

List of maps

Chapter & Map		*Page*
3.47	ABS Index of Relative Socio-Economic Disadvantage, Adelaide, 1996	119
3.48	ABS Index of Relative Socio-Economic Disadvantage, South Australia, 1996	121
3.49	Dependent children of selected pensioners and beneficiaries, Adelaide, 2001	123
3.50	Dependent children of selected pensioners and beneficiaries, South Australia, 2001	125
3.51	Average publicly examined subject achievement scores, Adelaide, 2000	129
3.52	Average publicly examined subject achievement scores, South Australia, 2000	131
3.53	Average publicly assessed subject achievement scores, Adelaide, 2000	133
3.54	Average publicly assessed subject achievement scores, South Australia, 2000	135
3.55	Average school assessed subject achievement scores, Adelaide, 2000	137
3.56	Average school assessed subject achievement scores, South Australia, 2000	139
3.57	Total Fertility Rate, Adelaide, 1996-99	141
3.58	Total Fertility Rate, South Australia, 1996-99	143
4	**Health status**	
4.1	Infant deaths, Adelaide, 1996-99	153
4.2	Infant deaths, South Australia, 1996-99	155
4.3	Deaths of people aged 15 to 24 years from all causes, Adelaide, 1996-99	157
4.4	Deaths of people aged 15 to 24 years from all causes, South Australia, 1996-99	159
4.5	Deaths of people aged 15 to 24 years from injury and poisoning, Adelaide, 1996-99	161
4.6	Deaths of people aged 15 to 24 years from injury and poisoning, South Australia, 1996-99	163
4.7	Perinatal risk factors, Adelaide	167
4.8	Low birthweight babies, Adelaide, 1995-97	169
4.9	Low birthweight babies, South Australia, 1995-97	171
4.10	Body Mass Index, 0 to 4 year olds, Adelaide, 2000-01	175
4.11	Body Mass Index, 0 to 4 year olds, South Australia, 2000-01	177
4.12	Substantiated reports of child abuse and neglect, 0 to 19 year olds, Adelaide, 1996-99	181
4.13	Substantiated reports of child abuse and neglect, 0 to 19 year olds, South Australia, 1996-99	183
5	**Utilisation of health and welfare services**	
5.1	Admissions to public acute and private hospitals, 0 to 14 years, Adelaide, 1996/97-98/99	193
5.2	Admissions to public acute and private hospitals, 0 to 14 years, South Australia, 1996/97-98/99	195
5.3	Admissions to public acute hospitals, 0 to 14 years, Adelaide, 1996/97-98/99	197
5.4	Admissions to public acute hospitals, 0 to 14 years, South Australia, 1996/97-98/99	199
5.5	Admissions to private hospitals, 0 to 14 years, Adelaide, 1996/97-98/99	201
5.6	Admissions to private hospitals, 0 to 14 years, South Australia, 1996/97-98/99	203
5.7	Admissions of males, 0 to 14 years, Adelaide, 1996/97-98/99	205
5.8	Admissions of males, 0 to 14 years, South Australia, 1996/97-98/99	207
5.9	Admissions of females, 0 to 14 years, Adelaide, 1996/97-98/99	209
5.10	Admissions of females, 0 to 14 years, South Australia, 1996/97-98/99	211
5.11	Same day admissions, 0 to 14 years, Adelaide, 1996/97-98/99	213
5.12	Same day admissions, 0 to 14 years, South Australia, 1996/97-98/99	215
5.13	Admissions for respiratory system diseases, 0 to 14 years, Adelaide, 1996/97-98/99	217
5.14	Admissions for respiratory system diseases, 0 to 14 years, South Australia, 1996/97-98/99	219
5.15	Admissions for bronchitis, emphysema and asthma, 0 to 14 years, Adelaide, 1996/97-98/99	221
5.16	Admissions for bronchitis, emphysema and asthma, 0 to 14 years, South Australia, 1996/97-98/99	223
5.17	Admissions from injury and poisoning, 0 to 14 years, Adelaide, 196/97-98/99	225
5.18	Admissions from injury and poisoning, 0 to 14 years, South Australia, 1996/97-98/99	227
5.19	Admissions to public acute and private hospitals, 15 to 24 years, Adelaide, 1996/97-98/99	229
5.20	Admissions to public acute and private hospitals, 15 to 24 years, South Australia, 1996/97-98/99	231
5.21	Admissions to public acute hospitals, 15 to 24 years, Adelaide, 1996/97-98/99	233
5.22	Admissions to public acute hospitals, 15 to 24 years, South Australia, 1996/97-98/99	235
5.23	Admissions to private hospitals, 15 to 24 years, Adelaide, 1996/97-98/99	237
5.24	Admissions to private hospitals, 15 to 24 years, South Australia, 1996/97-98/99	239
5.25	Admissions of males, 15 to 24 years, Adelaide, 1996/97-98/99	241
5.26	Admissions of males, 15 to 24 years, South Australia, 1996/97-98/99	243

This page intentionally left blank

List of tables

Chapter & Table		*Page*

List of figures

Executive summary

Introduction

There is now substantial evidence that the wellbeing and healthy development of children and young people are the result of complex interactions of the social, biological and ecological environments in which they live (Stanley et al. 2002). If these are supportive, they provide a foundation for the development of competence and coping skills that underpin learning, behaviour and health throughout life. However, a lack of enabling social and environmental conditions is reflected in poorer developmental and health outcomes.

The purpose of this atlas, now in its second edition, is to provide policy makers, practitioners and communities with information about the current health and wellbeing of South Australian children and young people, from birth to the age of 24 years, and to illustrate the range of factors that are associated with their wellbeing and developmental health outcomes.

Background

The primary aims of the first edition of *A Social Health Atlas of Young South Australians* were to illustrate the spatial distribution of socioeconomically disadvantaged children and young people, and to compare this with the patterns of distribution of major causes of illness and death and use of health services.

This second edition updates much of the information in the first edition and adds a number of new variables. The new variables describe clients of Child and Adolescent Mental Health Services, terminations of pregnancy, the Body Mass Index for four year old children and children and young people admitted to hospital for selected surgical procedures, or on a hospital inpatient booking list.

The patterns of distribution of the population are shown by demographic, social and economic factors (Chapter 3), health status (Chapter 4) and health service use (Chapter 5). The cluster analysis, in Chapter 6, provides summary measures of socioeconomic status and health service for Adelaide and non-metropolitan South Australia.

The correlation analysis (Chapter 6) highlights associations between social and economic factors in relation to health and illness.

It is now possible to show the extent of change over time in levels of socioeconomic status, health status and health service use (Chapter 7). Changes are also shown in the patterns of distribution in death rates by socioeconomic status and in the use of selected health and welfare services by socioeconomic status (Chapter 7).

Findings

This edition of the atlas reveals the existence of considerable disparities across many aspects of the lives of South Australian children and young people. Increasing numbers of children and young people face socioeconomic and other forms of disadvantage, resulting in significant adverse effects on their wellbeing that are likely to continue into adult life. This is particularly relevant in the case of many Indigenous children.

Many of the indicators in this atlas demonstrate that the health and wellbeing of South Australian children and young people has improved. This is most evident in the decline in death rates of infants, children and young people. However, in other areas, outcomes have remained static or worsened in an environment that has been marked by rapid social change. Examples are the marked increase in the proportion of low birthweight babies and of overweight and obese children aged 4 years, as well as increases in both notified and substantiated cases of child abuse and neglect.

Along with the overall improvement in deaths rates, the relative difference in infant death rates and deaths at ages 15 to 24 years between the poorest and most well off areas has decreased substantially. The remaining differentials in death rates of 30% and above are, however, substantial.

Substantial differences (between the poorest and most well off areas) also exist for perinatal outcomes (as indicated by the proportion of low birthweight babies), overweight and obese females aged 4 years and substantiated cases of child abuse and neglect. For each of these indicators, the gap has widened over the years for which data were analysed. However, the gap has narrowed for overweight and obese four year old males in Adelaide; and for South Australia as a whole it is static.

Access to services is also more difficult for children and young people in Adelaide's poorest areas. For example, children and young people in the most disadvantaged areas are over-represented on public hospital booking lists, even when their higher rate of use of those hospitals is taken into account.

While the differential in overall admission rates has been reduced for 0 to 14 year old children (in Adelaide and the non-metropolitan areas), it has increased for those aged 15 to 24 years (in Adelaide). Similarly, the disparity in rates of FAYS clients and of terminations of pregnancy, between the poorest areas and most well off areas in Adelaide, has increased.

The challenge for policy makers, researchers, health practitioners and governments is to find ways to address these health inequalities and the socioeconomic factors which underpin them.

Using *A Social Health Atlas of Young South Australians*

A Social Health Atlas of Young South Australians

This second edition of *A Social Health Atlas of Young South Australians* provides general background information about the issues covered in the atlas, as well as specific maps of selected variables indicating demographic characteristics, health status and health service use at a local area level.

Content

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

1. Introduction
2. Methods
3. Demography and socioeconomic status
4. Health status
5. Utilisation of health and welfare services
6. Correlation analysis
7. Summary

Chapters 1 and 2 provide an overview of the atlas and the approach taken in the analysing and mapping data. These chapters 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 5 provide an introduction to the topic(s) being mapped, as well as the maps and associated commentary.

Chapter 6 shows the results of the correlation analysis. Chapter 7 presents details of the major changes 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 heath service utilisation data mapped in Chapters 4 and 5.

Using the atlas

Some people will use the atlas as a reference source, either going to particular maps (eg. a map of hospital surgical procedures), or using the index to find a particular topic (eg. deaths from injury and violence) 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 regroup the postcodes or 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. 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 the mapping approach used.

Map of Adelaide

Area mapped

The area mapped is the Statistical Division of Adelaide (generally known as the capital city area). The spatial unit mapped is either the postcode or Statistical Local Area (SLA). Postcode areas are shown in italics, to differentiate them from SLAs with the same name.

Additional details, including key maps to assist in the location and identification of particular areas, are in Appendix 1.2; a set of clear film overlays to assist in this process are 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-sex standardised ratio (the process of standardisation is described in Appendix 1.3, Analysis and presentation of data).

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

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

The text concludes with evidence of associations in the data as determined a correlation analysis (described on page 311). Correlation is the degree to which one variable is statistically associated with another. The correlation coefficient is a measure of the strength of this association.

For example, in relation to the data mapped for early school leavers (**Map A**), the text on page 98 states "There was a correlation of substantial significance with the variable for children aged 0 to 14 years living in low income families (a positive correlation of 0.74)." This means that there was a strong association between the distribution of early school leavers and children aged 0 to 14 years living in low income families. The text concludes that "These results, together with the inverse correlations of substantial significance with the IRSD (-0.78), indicate an association at the postcode level between high proportions of people who left school at age 15 years or earlier and socioeconomic disadvantage." That is, in a statistical sense, there is a strong correlation between this variable and the summary measure of socioeconomic disadvantage.

The map opposite (**Map A**) is an example of the map shown most commonly throughout the atlas for Adelaide. It shows data mapped to postcode areas and includes a description of what the shades represent (see boxes on the map).

Where the number of cases (deaths, admissions to hospital, etc.) is relatively small, the absolute numbers are included in the commentary along with the percentages, rates and ratios. The numbers (as well as the percentages, rates and ratios) are available electronic form and should be used in conjunction with the information in this atlas (see Appendix 1.1).

Map of South Australia

Area mapped

The area outside of Adelaide is referred to as the non-metropolitan area of South Australia. The spatial units mapped are SLAs or Health Service Regions: however Adelaide is mapped as one area (ie. not by SLA) to enhance comparisons between the Adelaide and the non-metropolitan areas.

Towns with a population of 1,500 people or more are represented on the maps as circles.

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

Data measures mapped

See comments above concerning Adelaide.

Description

Again, the text associated with the map provides background information on the variable being mapped and describes the pattern of distribution of the variable at the SLA or Health Service Region level. The map overleaf (**Map B**) is an example of the map shown most commonly for South Australia. It shows data mapped to SLAs and includes a description of what the shades represent (see boxes on the map).

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 the five levels of accessibility/remoteness, as determined by the Accessibility/Remoteness Index for Australia (ARIA+) (see **Map B**). This Index is described in more detail in Chapter 2, under the heading Accessibility and Remoteness. In brief, each SLA in South Australia 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.

Map A

People aged 15 to 24 years who left school aged 15 or less, Adelaide, 1996

Standardised ratio: number of people in each postcode compared with the number expected*

The dark green shade is used in areas with the worst rates for the variable in the map. In this map it shows areas with a standardised ratio of 130 or higher, compared with the State rate of 100 (see legend, below).

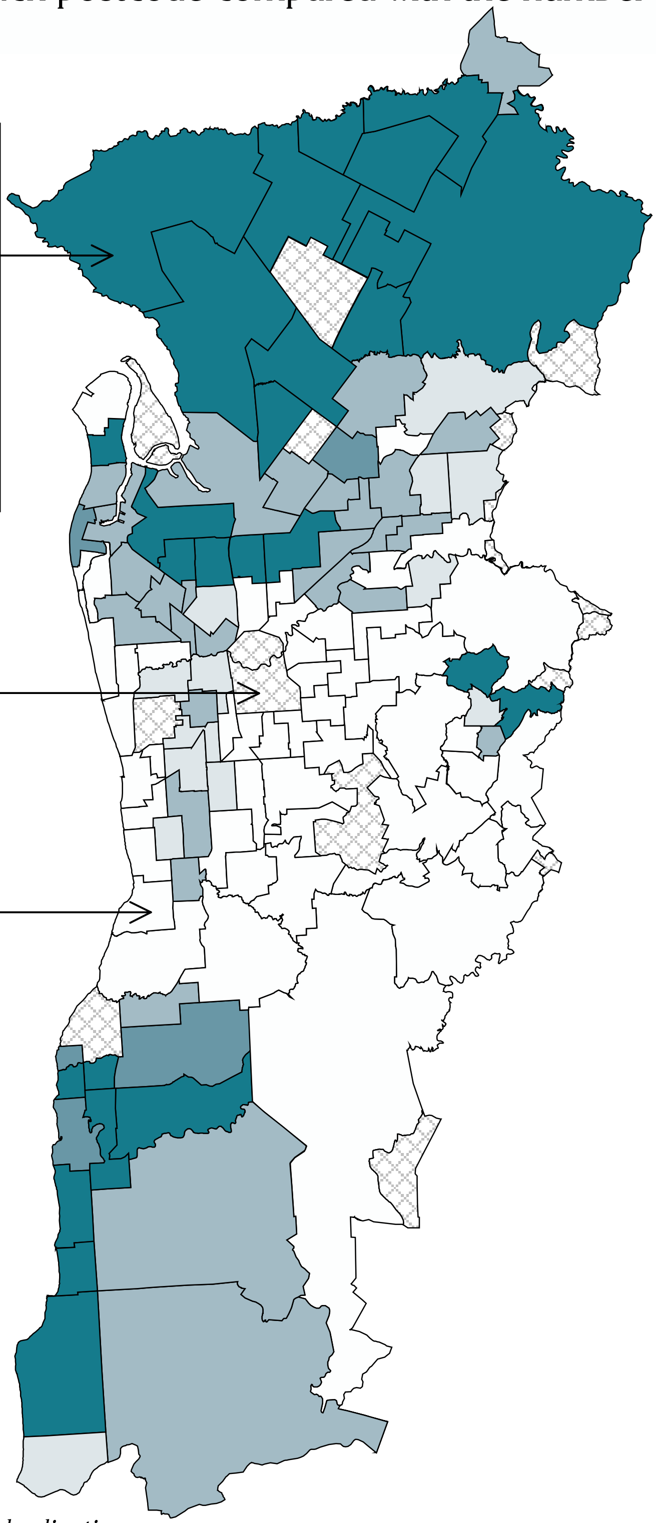
Put another way, at least 30% more people in Virginia had left school at 15 years of age or earlier than on average across the State. This is a poor outcome for the people in Virginia. The actual standardised ratio for Virginia, of 162, is quoted in the text on page 98.

N

The reasons for some areas on the maps having a cross-hatch fill are explained in a footnote below the map.

Areas coloured white are those with the best rates for the variable in the map. In this map it shows areas with a standardised ratio of 69 or lower.

That is, there were at least 30% fewer people in Seacliff who left school at age 15 years or earlier (fewer in comparison with the State average). This is a good outcome for the people in Seacliff.



Standardised Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*
- *data not mapped#*

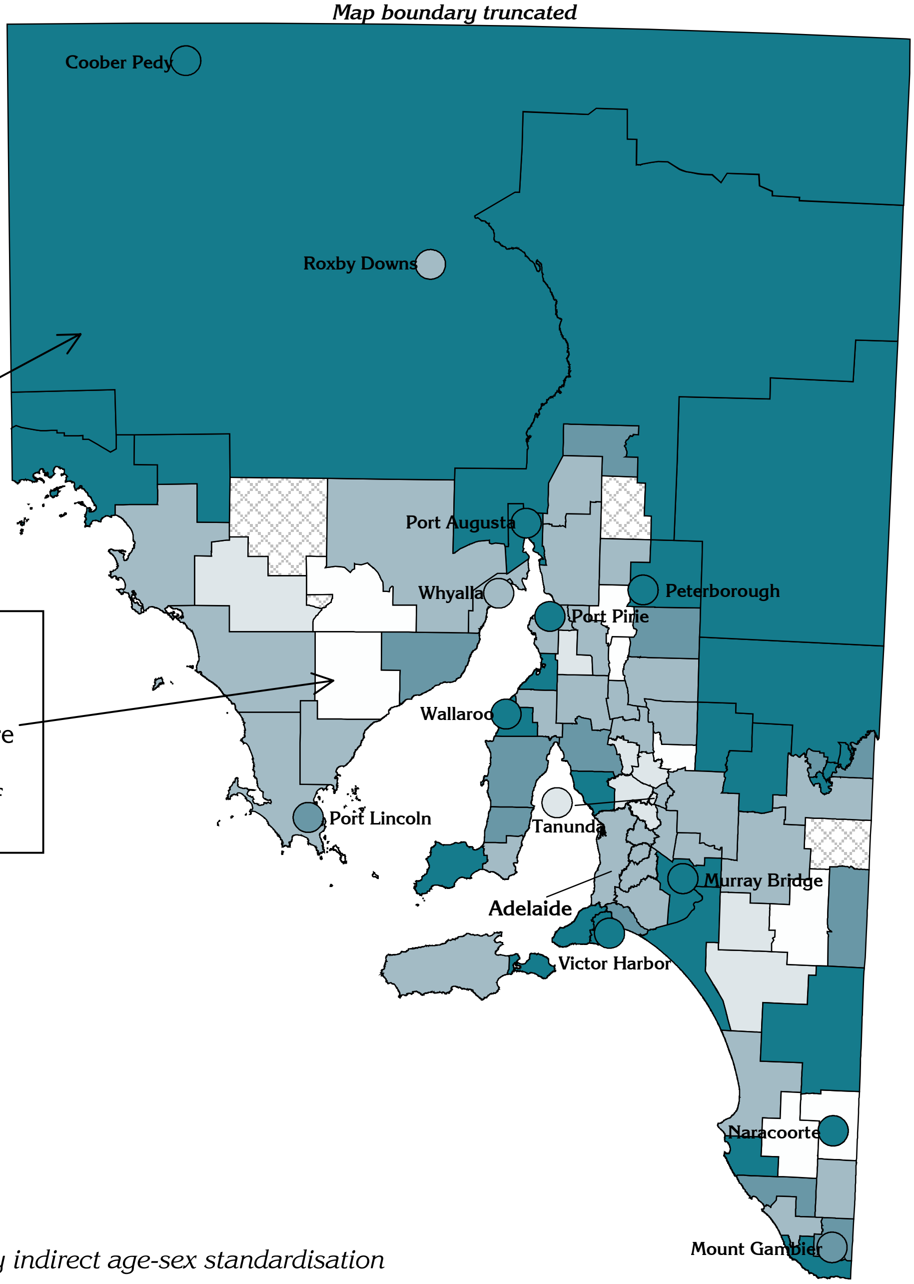
* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Map B
People aged 15 to 24 years who left school aged 15 or less, South Australia, 1996

Standardised ratio: number of people in each Statistical Local Area compared with the number expected*



Indicates that there were at least 30% more cases than were expected from the State rates. Although there were only 166 early school leavers in Unincorporated Far North (see text, page 100), the standardised ratio of 190 shows this to be almost twice the number we would predict on the basis of the rates for the State as a whole.

Indicates that there were at least 30% fewer cases in Cleve than were expected from the State rates. The ratio of 60 (see page 100) shows there to be 40% fewer early school leavers than we would predict on the basis of the rates for the State as a whole.

Standardised ratio (as an index)

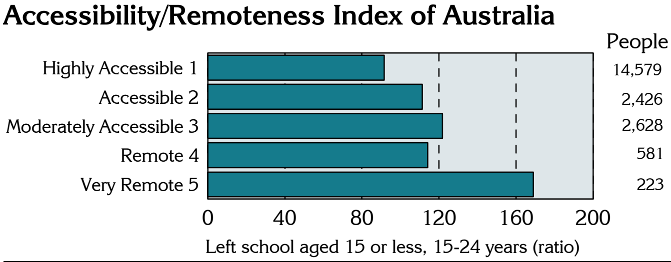
- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

#*Data were not mapped because the SLA population is less than 100 or there were fewer than five expected cases.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



Young people living in the Highly Accessible areas have the highest rate of educational participation. As accessibility decreases, people are increasingly likely to have left school early (with an SR of 169 in the Very Remote areas): the relatively high proportion of Indigenous people in these areas is likely to be an important influence on the rates (see text opposite).

Source: Calculated on ARIA+ classification

Acknowledgements

Funding for the project was provided by the Department of Human Services (DHS).

Many people in DHS contributed by way of providing data and commenting on the final draft. These included:

- o Epidemiology Branch: Annabelle Chan, Paula Green and Rosemary Keane
- o Information Management Services Division: Paul Basso and Jenny Cirillo
- o Family and Youth Services: Werner Buchheister.

Tony Woollacott of the Strategic Planning and Population Health Division, DHS, coordinated the data requests and provided advice throughout the project. Graeme Tucker undertook the cluster analysis and provided the associated commentary. Chris Gascoigne and Bianca Barbaro of this Division also provided valuable information and advice.

Data for the South Australian Certificate of Education published in Chapter 3, Demography and socioeconomic status, were provided by Michael Evans of the Senior Secondary Advisory Board of South Australia.

The data for the Population Census and Estimated Resident Population variables in Chapter 3 were collated by Rachel Aylward, National Centre for Social Applications of GIS (GISCA), The University of Adelaide, with funding from DHS. Chris Wright of GISCA mapped the ARIA+ data by CD (Chapter 2).

Data for the Body Mass Index in Chapter 4, Health Status were provided by Bob Volkmer, Manager, Service Improvement, Child and Youth Health. Immunisation data mapped in this chapter were provided by Brynley Hull of the National Centre for Immunisation Research and Surveillance, Westmead Hospital.

The majority of the data for Chapter 4, Health Status and Chapter 5, Utilisation of Health and Welfare Services were added to the HealthWIZ software program (see Appendix 1.1) for the production of the rates for analysis and mapping.

We also wish to acknowledge the ongoing support of the members of the DHS Child Health Advisory Committee (under the Chairmanship of Professor Don Roberton) whose advocacy and commitment has been instrumental in ensuring the production of this edition of the atlas.

Finally, we wish to emphasise that the views expressed in the atlas and the conclusions drawn are those of the authors, and not necessarily those of the people who have assisted us with its production.

This page intentionally left blank

Glossary and explanatory notes

Admissions

The technical term describing a completed hospital episode is a 'separation'. This includes when the patient is discharged from hospital, transfers to another institution, dies or has a change in type of episode of care.

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.

Cause of death

Causes of death are classified by the Australian Bureau of Statistics to the Ninth (1975) Revision of the World Health Organization'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 Organization has defined as the disease or injury which initiated the train of 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 4 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 5 are shown in Appendix 1.4.

Standardised ratios

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

Socioeconomic disadvantage of area

Socioeconomic disadvantage of area is represented by the Index of Relative Socio-Economic Disadvantage (IRSD). The IRSD is one of five Socio-Economic Indexes for Areas produced by the Australian Bureau of Statistics at recent population censuses. Produced using Principal Components Analysis, it summarises information available from variables related to education, occupation, income, family structure, race (the proportion of Indigenous people), ethnicity (poor proficiency in use of the English language) and housing. The variables are expressed as percentages of the relevant population. The IRSD was calculated at the Census Collection District level and was then calculated for Statistical Local Areas by weighting the scores for the smaller CDs by their population. The IRSD is calculated to show the relativity of areas to the South Australian average for the particular set of variables which comprise it. This average score is set at 1000. Scores below 1000 indicate areas with relatively disadvantaged populations under this measure, and scores above 1000 indicate areas with relatively advantaged populations.

Quintiles

In the Summary, Chapter 7, the data have been grouped into areas of similar socioeconomic status by allocating each postcode (or SLA) in Adelaide to one of five categories (quintiles) based on its Index of Relative Socio-Economic Disadvantage (IRSD) score (see above). Quintile 1 comprises the postcodes (or SLAs) with the highest IRSD scores (most advantaged areas), and Quintile 5 comprises the SLAs with the lowest IRSD score (most disadvantaged areas). The average rate (or standardised ratio or percentage) for each quintile was then calculated. SLAs in the non-metropolitan areas and the whole of the State (Adelaide plus the non-metropolitan areas) were similarly treated.

The quintiles each comprise approximately 20% of the population of children and young people (aged from 0 to 24 years). This process does not provide an exact allocation of population, so the resultant populations are only 'approximately' equal (see **Table 7.4** in Chapter 7).

Rate ratio

Rate ratios are calculated for the data analysed by quintile of socioeconomic disadvantage of area and by remoteness, using the Accessibility Index of Australia (ARIA+). For analysis by quintile of socio-economic disadvantage, the rate ratio shows the extent of variation in percentages or age standardised rates between the quintile under analysis and Quintile 1, the areas with the highest socioeconomic status. For analysis by ARIA+, they show the extent of variation in percentages or age standardised rates between the remoteness class under analysis and the Highly Accessible class.

Areas with the same death rate as in Quintile 1 or the Highly Accessible class will have a rate ratio of one (1.0); areas with a higher death rate will have a rate ratio of more than 1; and areas with a lower death rate will have a rate ratio of less than one. Rate ratios are expressed as a ratio (eg. 1.25), or as a percentage (a rate ratio of 1.25 shows the death rate in the quintile or class to be 25% higher than that in Quintile 1 or the Highly Accessible class, respectively).

Statistical Local Area

The Statistical Local Area (SLA) is a spatial unit within the Australian Standard Geographical Classification (ASGC 1996, 1998), the geographical classification developed by the Australian Bureau of Statistics (ABS) for coding data to areas within Australia. It is a standard geographic area used for many statistical purposes.

Symbols used

C	City
DC	District Council
M	Municipality
RC	Rural City

Abbreviations used

ABS	Australian Bureau of Statistics
ARIA+	Accessibility/ Remoteness Index of Australia
CAMHS	Child and Adolescent Mental Health Services
DFaCS	Department of Family and Community Services
DHS	Department of Human Services
DoHA	Department of Health and Ageing
FAYS	Family and Youth Services
HIC	Health Insurance Commission
IRSD	Index of Relative Socio-Economic Disadvantage
SEIFA	Socio-Economic Indexes for Areas

1 Introduction

Background

Children and young people are often referred to as 'the future of society'. This statement highlights the importance of their wellbeing and healthy development as the foundation for adulthood, and as a preparation for the responsibilities of active citizenship in later life.

There is now substantial evidence that the wellbeing and healthy development of children and young people are the result of complex interactions of the social, biological and ecological environments in which they live (Stanley et al. 2002). If these are supportive, they provide a foundation for the development of competence and coping skills that underpin learning, behaviour and health throughout life. However, a lack of enabling social and environmental conditions is reflected in poorer developmental and health outcomes.

The purpose of this atlas, now in its second edition, is to provide policy makers, practitioners and communities with information about the current health and wellbeing of South Australian children and young people, from birth to the age of 24 years, and to illustrate the range of factors that are associated with their wellbeing and developmental health outcomes.

Wellbeing and healthy development

Wellbeing has been defined as "the state of being or doing well in life; happy, healthy, or prosperous condition; moral or physical welfare (of a person or community)" (OED 2002). In the broadest sense, it describes an everyday resource – the capacity to adapt to, respond to, or control life's challenges and changes (Frankish et al. 1996). The term 'developmental health and wellbeing' is also used to portray the developing human organism's response to experiences and environmental circumstances around them (Keating and Hertzman 1999).

From a range of disciplinary perspectives and research, there is increasing consensus about the principles that underpin the development of competence and wellbeing in children and young people (Shonkoff and Philips 2000):

- The process of development is complicated, and is characterised by unexpected events that occur in the lives of children, young people and their families and within the communities in which they live.
- There is marked heterogeneity among children and young people and their families, and there are wide variations in their abilities at any point in time. Viewing all children's functioning within the context of a simple developmental continuum is, therefore, a limited approach.
- There are many pathways to competence, and specific predictions about particular individuals are difficult to make.
- However, there has been a significant increase in our recognition of the importance of the effect of early life experiences in setting the stage for later behaviour and relationship formation. New research indicates that the social and physical environments of the infant and young child organise the experiences that shape the networks and patterns within the brain (Cynader & Frost 1999). However, this does not mean there is little capacity for change after the period of early childhood. Evidence also shows there is developmental flexibility and resiliency, even for children who grow up in adverse circumstances.
- There is interplay between sources of vulnerability and resilience and their interactive influences on developmental pathways as children move through the early years of life into middle childhood and then on to adolescence (Rutter 1985). Related to this, are the effects of cumulative burdens and buffers, rather than the importance of single risk or protective factors as the most significant determinants of individual pathways and outcomes.

To become productive and contributing adults, children and young people need to live in environments that provide some order and meet their basic physical, emotional and material needs, as well as their developmental and learning requirements (Bronfenbrenner 1979). They prosper best within families and communities that provide security, nurturing, respect and love. Research findings about those children and young people who manage to thrive in spite of apparently negative circumstances also indicate the critical importance of a consistent, caring adult who is able to engage them in an ongoing relationship (Rutter 1985). Other studies have emphasised that children require adults in their immediate environment who are capable of instilling a positive sense of responsibility and passing on social and moral expectations. In addition to sound relationships with adults in their communities, children and young people need freedom from discrimination, opportunities to build self-reliance and confidence, and a sense of justice in their world (McCain & Mustard 1999).

Public discussion often focuses heavily on the nature of 'family', but the most important factor is how family members interact and deliver their fundamental needs. Looking at the function of families leads to the question of whether the community helps or hinders families to fulfil their roles and responsibilities. To be the good parents that most want and hope to be, adults need employment and educational opportunities. To ensure wellbeing for family members, there must be adequate health care, housing, safety, effective schools and quality child care. For optimal child development, families need support from neighbours, schools, community agencies and governments, and opportunities to develop relationships and pursue their interests (Weissbourd 2000).

A lack of resources in any of the essential dimensions decreases a family's ability to fulfil its mission. The effect of poverty supersedes all others (Acheson et al. 1998). Without adequate income, the likelihood of having good health, housing, education or any other opportunities diminishes substantially (Keating & Hertzman 1999). The resulting tension increases the likelihood of instability and stress in relationships among family members, further decreasing a family's ability to maintain a supportive environment for the development of children and young people. Given what is now known about the factors influencing the development of the brain, the pathways that affect learned behaviour and wellbeing and the possible long-term effects of a disadvantaged childhood, there is an urgent need to focus on minimising adverse environments for children and young people.

However, the development of wellbeing and health is not only the result of genetic inheritance and socio-environmental influences on each person. It is as much a population phenomenon as a purely individual one (Keating & Hertzman 1999). There is a strong association between the health of a population and the size of the social differences between members of that population. This has come to be known as the 'gradient effect' (Acheson et al. 1998; Keating & Hertzman 1999). In societies where there are marked social and economic differences between individuals in the population, the overall level of wellbeing and health in the population is lower than in societies where these differences are less pronounced (Keating & Hertzman 1999). Furthermore, this gradient effect exists for a wide range of developmental outcomes – from physical and mental health, to behavioural adjustment, literacy, and mathematical achievement (Keating & Hertzman 1999). The gradient effect is evident whether one looks at differences in current socioeconomic status or in that of the family of origin. These social status effects appear to persist, from birth, through adulthood and into old age (Power & Hertzman 1997).

Evidence is now linking many of these research findings together, those about brain development and behaviour of individuals, and others on lifespan gradient effects in the wellbeing of whole populations. Most significant is the finding that for all areas of development, steep gradients are associated with overall poorer outcomes (Keating & Hertzman 1999). Thus, the underlying factors that determine wellbeing and health are deeply embedded in social circumstances (Acheson et al. 1998). These patterns of population gradients, especially their longitudinal nature, suggest a potentially important role for early experience in shaping coping skills, resiliency and the brain-mediated immune and hormonal responses at the individual level, which can then show up later as effects across populations (Keating & Hertzman 1999).

Recent changes in social conditions

In South Australia, children and young people live within the settings of family and kinship, work, neighbourhood, culture and community that together form society. Over the last two decades, there have been major social changes in the areas of work and employment, resources for families, community supports and the balance between them. As indicated, significant research has led to a better appreciation of the conditions that influence whether children get off to a promising or a difficult start in life. However, the ability to use this knowledge well has been constrained by rapid changes in the social and economic circumstances under which children and young people, and their families, are living (Acheson et al. 1998; Shonkoff & Phillips 2000). There have been marked alterations in the nature and amount of employment engaged in by parents of children, and in opportunities for the employment of young people; greater challenges in balancing work and family responsibilities; significant economic hardship for many families and young people despite overall increases in rates of parental employment and a stronger economy (Gregory 1999); growing numbers of infants and children spending time in child care settings; a greater awareness of the effects of stress on children and young people as a result of serious family problems; and the persistence of significant disparities in health, educational and developmental outcomes across the population (Keating & Hertzman 1999; Glover et al. 1999). The societal transitions and the ensuing disruptions experienced by families and communities have been “sudden, dramatic and of unprecedented scope” (Keating & Hertzman 1999), and appear to be continuing at a similar rate. The long-term impact of a rapidly changing society on children and young people and their families is not yet known. We need to understand better the complex interactions between individuals and their families, the pressures exerted by their environments and social structures, and how these factors will determine the wellbeing and health of future generations of Australians (Nicholson et al. 2002).

The impact of disadvantage

Alongside these changes, it is also concerning to note that the gap between rich and poor has increased in Australia over the last two decades (Hugo & Ambagtsheer 1998). This has been characterised by a growth in high-income groups, and a larger growth in low-income groups, which is thought to be partly due to reduced access to services such as health and education (Hugo & Ambagtsheer 1998). In particular, sole parents and children are more likely now to be living in poverty and susceptible to social isolation, poor nutrition and ill health because of limited resources and fewer support networks (Davis et al. 1998; DCPC 1999).

In South Australia, many children and young people face increasing socioeconomic disadvantage, which has a highly adverse effect on their wellbeing and health, and is likely to continue into adult life. Socioeconomic disadvantage takes many forms. For some, it is the inability to obtain the essentials of life; for others, a matter of low income; for others, a problem of social inequality (Spicker 2002). Defining disadvantage only in terms of poverty or low income minimises the importance of social isolation, access to services, and the quality of housing or parental level of education when considering children and young people’s health and wellbeing (Najman 1993). Such definitions need to extend beyond a lack of economic resources (Mathers 1996), and to encompass many of the serious environmental, structural and social issues faced by children and young people and their families (National Health Strategy 1992; Spencer 1996). Examples of these are under- and unemployment, discrimination and violence, unsupported lone parenthood, unwanted teenage pregnancy, educational under-achievement, admission into state care, child abuse and neglect, failure to thrive, and behavioural and mental health problems.

Overwhelming evidence continues to point to a powerful association between the socioeconomic standing of a family and the health of their children (Nossar 2002), and in Australia, it has been argued that ‘poverty is the single greatest threat to child and community health and wellbeing’ (Jolly et al. 1991). There are many research studies about socioeconomic disadvantage, its long-term implications for the wellbeing of children and young people and their families, and the eventual high costs to society. The relationship between disadvantage and health and wellbeing is particularly crucial for younger children, as they are developmentally more vulnerable and experience deleterious circumstances that are beyond their control (Ambagtsheer and Glover 1998).

The short and long-term consequences of socioeconomic disadvantage for children, young people and society are well documented (McLeod and Shanahan 1993; Turrell et al. 1999). Socioeconomic disadvantage impairs physical growth, cognitive development and social and emotional functioning (Hill and Sandfort 1995; Korenman et al. 1995). The incidence, duration and chronicity of childhood poverty also have multiple negative effects on children and young people’s educational ability and achievement, and later adult productivity (as measured by wage rates and hours worked), while increasing the likelihood of adult welfare dependency (Duncan 1994; Lichter 1997). Research also indicates that being born into a relatively disadvantaged family increases the probability of accumulating risks associated with that disadvantage. Adversity experienced early in the life course (before the age of seven) has the strongest impact on the formation of individual resources in later life. Subsequent experiences of adversity then add to the deterioration of already reduced resources (Schoon et al. 2001).

Indicators of disadvantage are numerous, and have been associated with factors such as infant and maternal mortality and morbidity, low birthweight and poor physical growth, developmental delay, discrimination and racism, disability, learning and behavioural problems, mental health issues, parental smoking habits and parental disability. They also include lack of parental education, lack of safety of the home environment, and problems with families’ access to and use of services. However, this does not mean that all parents who are socioeconomically disadvantaged will raise children with these difficulties. A complex relationship exists between the factors that contribute, such as low socioeconomic status, low income or occupational class, and the resulting implications for children and young people and their families. This inter-relationship is not yet fully understood. However, there is much that can be done, for improved quality of early life carries benefits into adult life (for example, in terms of improved health risk particularly in relation to chronic diseases (Fonagy 2001)). Not only do the conditions of early childhood help to set the conditions for wellbeing and health in later life but, conversely, the better the quality of the population produced by the improved childhood conditions, the greater the productivity of the society concerned (Fogel 1994). As indicated, research suggests that those countries with a more egalitarian distribution of income and an investment in the years of childhood have better health and wellbeing outcomes for their populations. Therefore, policies that aim to reduce health, educational and developmental inequalities should also address disparities in income distribution (Power & Hertzman 1997).

Further research into the complex pathways that underlie disadvantage and its effects on wellbeing will provide more possibilities for prevention, many of which may be more effective than the proximal solutions which are often too close to the problem to influence it significantly (Nossar 2002). For example, the most effective preventive strategies for improving low birthweight and infant death rates for Indigenous mothers may be to tackle the disempowerment, despair, discrimination and dislocation of Indigenous communities, rather than initiating specific health behaviour programs targeted at these women, who may feel further victimised and undermined (Stanley et al. 2002). Issues such as these are profoundly important to the development of effective solutions: where best to put efforts and resources to make the greatest improvements and enable reductions in inequalities (Stanley et al. 2002).

Changes in indicators of wellbeing

In South Australia over the last twenty years, there have been significant improvements in many indicators of wellbeing in the population overall – for example, continuing increases in life expectancy, falling perinatal and infant mortality rates, and reductions in mortality rates from many diseases as a result of improved living conditions, technological advances (such as better treatments for heart disease) and specific environmental interventions (such as road safety initiatives). However, not everyone has shared equally in these benefits. In the late 1990s, the life expectancy of Indigenous South Australians was estimated to be almost 15 years less than the general population, at 60.1 years for males and 67.6 years for females. This indicates that life expectancies for Indigenous people in this State are still many years behind those for non-Indigenous people. Large inequalities in death rates from numerous causes also persist for other disadvantaged populations in South Australia (Glover et al. 1999).

Many indicators show that the wellbeing of children and young people has improved (AIHW 2002). However, in other areas, evidence suggests that outcomes have remained static or have declined, which is a concerning trend in an affluent country such as Australia. For example, mental health problems now affect up to 20 per cent of young people (Sawyer et al. 2000), and, when persistent, are associated with poor educational outcomes, relationship difficulties, and high rates of welfare dependence, delinquency and criminality (Nicholson et al. 2002). Suicide rates continue to be among the highest in the developed world, especially for young men in rural areas. Particular groups of children and young people (such as Indigenous children and youth, refugee children and young people being held in immigration detention facilities and other young migrants from war-affected countries, children in protective care, juvenile offenders, young homeless people and those who leave school early) continue to have poorer outcomes, particularly in the areas of health, development and education.

Chronic health problems such as asthma, obesity, arthritis and myopia are affecting growing numbers of children and young people, and preventable injuries and harmful behaviours (such as smoking and substance use) remain prevalent, despite the introduction of a range of national prevention initiatives (Nicholson et al. 2002). Once more, these problems are distributed unequally within the Australian population and are more prevalent for children disadvantaged by low income, poor parental education, rural location, and unsupported single parent and Indigenous family status (Nicholson et al. 2000; Turrell et al. 1999). The increases have been so substantial that the levels of morbidity can only be tackled by preventive strategies, as the health, education and psycho-social care systems cannot meet the demand for treatments and services, and, in any case, for many of these conditions, we lack effective solutions (Stanley et al. 2002). The rapid changes in the social and demographic structures of populations, communities and the environment, add further complexity and a sense of urgency. All have the potential to adversely affect developmental health and wellbeing (Keating & Hertzman 1999). Simplistic models that ignore the multilevel and complex nature of pathways, and policies and interventions that focus on a limited number of proximal "risk factors" at some point along these pathways, are not going to provide the necessary and urgently needed solutions (Stanley et al. 2002).

Some of the indicators associated with disadvantage and, possibly, with poorer outcomes for the wellbeing of children and young people are outlined below.

Aboriginality

Compared with other Australians, Aboriginal people and Torres Strait Islanders are disadvantaged with regard to a broad range of socioeconomic indicators, including education, employment, income and housing, and are therefore at greater risk of ill health and poorer outcomes (ABS &AIHW 2001). There is substantial evidence that the health of Indigenous children is significantly worse than that of non-Indigenous children (ABS & AIHW 2001). In South Australia between 1997 and 1999, the mortality rate among Indigenous infants remained nearly twice as high as the rate for non-Indigenous infants (ABS 1997). Deaths among Indigenous children aged 1 to 14 years were 2.5 times those for other Australian children. There is overwhelming evidence that the increased prevalence of diseases such as trachoma, chronic ear infections, rheumatic fever and the greatly increased perinatal mortality rate reflect the poorer socioeconomic circumstances of Indigenous children (Jolly et al. 1991; ABS & AIHW 2001).

Mortality and ill health

Reduced growth in foetal life is associated with increased mortality and morbidity in the first year of life, and throughout childhood (Vik et al. 1996). People who had low birthweight, or who are undernourished at birth, may be at increased risk of some diseases (non-insulin dependent diabetes, hypertension, coronary heart disease) in later life (Barker 1998). These associations cannot be explained by confounding variables operating in subsequent adult life. Furthermore, factors related to maternal vitality (such as their own birthweight, growth in childhood, nutrition, socioeconomic position, and behavioural risk-factor profile in adulthood) affect both birthweight in their offspring and maternal disease risk (Lawlor et al. 2002).

Reduced foetal growth is more common in deprived areas (Barker 1994). This and other perinatal risk factors most predictive of adverse perinatal outcomes indicate that a link can be drawn between these factors and the socioeconomic position of the women for whom these events are recorded (Lawlor et al. 2002). For instance, there is an association between the risk of adverse perinatal outcomes and single, teenage and Aboriginal women (Ambagtsheer and Glover 1998). The areas with higher risk of adverse perinatal outcomes are those to the north and west of Adelaide and the outer southern suburbs, that is, those with the highest level of factors closely associated with poverty (Taylor et al. 1995).

There is a range of health problems that affect children and young people disproportionately. Two of these – accidental injury and mental health – are among the six National Health Priority Areas (NHPAs) identified by the Commonwealth Department of Health and Ageing (DoHA), and State and Territory governments (Vimpani et al. 2002). The NHPAs provide a focus for national collaboration on specific chronic diseases that have the potential for health gain and improved outcomes for consumers; that pose a significant burden of disease; and that have the support of all jurisdictions. The other four NHPAs are cardiovascular health, diabetes mellitus, cancer control and asthma. The highest burden of disease (a measure of life years lost due to premature mortality and years of healthy life lost due to disability) for Australian children is a result of acute and chronic respiratory diseases and mental disorders (AIHW 2002).

Injuries continue to be the leading causes of death among children, and one of the main causes of illness. The most common reasons for hospitalisations following injury are falls, pedal cyclist injuries and accidental poisoning. Injury also disproportionately affects young people – in particular, young males. Accidents are the leading cause of death in those aged 12 to 24 years (60 deaths per 100,000 population). Prevalence of injuries in young people is higher than in any other age group, and (apart from the 75 years and older group) death and hospitalisation rates are higher than for any age group. Injury deaths have dropped by around 60 per cent in two decades largely as a result of falling motor vehicle accident deaths (AIHW 2002). However, deaths from motor vehicle and other transport accidents still remain overwhelmingly the most common cause of accidental injury and death. Death from injury is around four times more common in young males than young females.

Mental health is another National Health Priority Area, and mental disorders disproportionately affect young people. They are frequently associated with longstanding impairment and emotional and behavioural problems, and are therefore of significant relevance to future wellbeing. In the National Survey of Mental Health and Wellbeing (ABS 1998), the prevalence of mental disorders was 27 per cent in young adults aged 18 to 24 years, higher than in any other adult age group. Among young males, the most common disorders were substance abuse disorders, affecting 22 per cent of those aged 18 to 24 years. For males aged 18 to 24 years, the most common forms of substance dependence were alcohol dependence (12 per cent) and cannabis dependence (6.8 per cent). For females, point prevalence rates of depression were 14 per cent, with rates of ten per cent for both anxiety and substance abuse disorders. Eating disorders are primarily an adolescent disorder with an onset rarely after the age of 20 years. The prevalence of anorexia nervosa is around 0.5 per cent, and that of bulimia nervosa around 1 per cent, of young women aged 15 to 25 years.

Among children aged 4 to 12 years, 15.0 per cent of boys and 14.4 per cent of girls have a number of emotional and/or behavioural problems. Some children also experience more serious mental disorders; for example, among children aged 6 to 12 years, 19.3 per cent of boys and 8.8 per cent of girls are reported to have attention-deficit hyperactivity disorder (Sawyer et al. 2000). Fourteen per cent of children and adolescents aged 4 to 17 years in Australia have mental health problems (Sawyer et al. 2000). There is a higher prevalence of child and adolescent mental health problems among those living in low-income, step/blended and sole-parent families. Adolescents with mental health problems report a high rate of suicidal ideation and other health-risk behaviour, including smoking, drinking and drug use (Sawyer et al. 2000).

Among young people, mortality patterns associated with mental disorder have shifted in recent decades (Vimpani et al. 2002). Australia's male suicide rates have been consistently high over the past decade, with 1997 rates for males aged 12 to 24 years being 24 suicides per 100,000, the fifth highest in the world. The highest rates in any age group are for males in their early to mid twenties (40 suicides per 100,000 per year). Mortality due to drug dependence has also increased markedly in the past 20 years in males and is now at the rate of six deaths per 100,000 in the 12 to 24 year age group.

There are a number of other behaviour risks for children and young people, many of which have major implications for their future health. Tobacco use is the most significant preventable cause of future disease-related morbidity and mortality (Vimpani et al. 2002). The proportion of young Australians using tobacco has remained consistently high. In 1998, 16 per cent of those aged 14 to 19 years reported that they were regular smokers, with no difference in rates between males and females. Rates for those aged 20 to 24 years were 31 per cent. These rates are similar to those reported in the mid-1970s and are particularly disappointing in the light of an apparent downward shift in youth smoking rates in the mid-1980s (Hill et al. 1999). Given the particular health risks associated with smoking for females, the high rates of tobacco use among young women are of great concern. In the 1999 Australian Secondary Students Alcohol and Drug Survey, 13 per cent of children aged 12 to 14 years reported smoking tobacco and 24 per cent reported consuming alcohol in the week prior to the survey. Of children aged 12 to15 years, 29 per cent of boys and 23 per cent of girls reported having taken an illicit drug at least once (AIHW 2002).

Alcohol is reportedly widely used by young people as a recreational drug from the age of 15 years onwards. It has been estimated that 1.4 per cent of males aged 16 to 24 years drink more than five standard drinks every day and a further 11.2 per cent, on most days. The comparable figures for females are 0.1 per cent and 1.1 per cent. Binge drinking also appears to have become a commonly accepted part of the youth subculture. Marijuana is the illicit drug most commonly used by young Australians (Hill et al. 1999). According to the 1998 National Drug Strategy Household Survey, which gathered information from over 10,000 people aged 14 years and over, 34.6 per cent of 14 to 19 year-olds reported recent use – up significantly from 28.7 per cent in 1995. Amphetamines were used recently by 11.5 per cent, hallucinogens by 11 per cent, ecstasy by 8 per cent, and sedatives by fewer than five per cent of those aged 16 to 24 years respectively. The proportion using heroin recently was low (1.4 per cent), in contrast to the common perception that heroin is the main illicit drug affecting young people.

There has been increasing concern about the rising levels of overweight and obesity in children and young people in Australia, not only because of the health consequences in childhood and adolescence but also because of the greater risk of obesity and chronic disease in adulthood (Magarey et al. 2001).

In South Australia, data collected by Child and Youth Health indicate that a significant proportion of four year old children in South Australia are obese and overweight. In 2000-01, 16.2 per cent of males and 19.9 per cent of females in this age group were overweight or obese. Furthermore, there was an increase in the proportion of overweight and obese four year old children from 1995 to 2002, from 12.9 per cent to 21.5 per cent for females; and from 10.6 per cent to 18.4 per cent for males.

Similar trends have been noted in other Australian studies (Booth et al. 2001), where the prevalence of overweight and obesity among all children and adolescents has been estimated to be between 19 per cent and 23 per cent. In 1995, the proportion of overweight or obese children and adolescents aged 2 to 17 years was estimated to be 21 per cent for boys and 23 per cent for girls (Booth et al. 2001). A more recent study found that about 25 per cent of children aged 7 to 18 years in Sydney and Melbourne were overweight, practising sedentary lifestyles and consuming a diet high in fat and low in the intake of fruit and vegetables (Booth et al. 2001).

The extent of overweight and obesity is related to technological, social, economic and environmental changes that have reduced physical activity and increased food access and passive energy consumption. A study of fitness levels in Australian children from 1985 to 1997 reported that these have declined, suggesting a decrease in physical activity (Dollman et al. 1999). Increases in sedentary activities, greater use of the motor car for transport, decreases in physical activity, and an increase in the consumption of high energy foods and beverages are likely to underlie the current trend. The prevalence of obesity in children has also risen greatly over the past two decades worldwide (Ebbeling et al. 2002). However, the Australian prevalence rates are high by international standards (Magarey et al. 2001) and, therefore, represent a significant public health concern.

Asthma is one of the most common diseases in Australia, affecting up to 25 per cent of children (Peat et al. 1994). Morbidity due to asthma is significant for children and young people, with high levels of symptoms, Accident and Emergency Department attendances and hospital admissions. Asthma is the second most common reason for admission to a hospital bed in South Australia, with a rate in children aged 0 to 4 years of 1,189 per 100,000 population in 1997-98. Internationally, from a survey of over half a million children from 48 countries, Australia ranks third highest in prevalence of current wheeze for 13 to 14 year olds and second-highest for 6 to 7 year olds (Williams et al.1999). Australia's high ranking for asthma prevalence is supported by data for asthma mortality. A comparison of available data from eleven developed countries showed Australia had the highest mortality rate due to asthma in 1990 (Robertson et al. 1995). The total annual cost to the community associated with asthma management in Australia was estimated in 1989 as $627 million, or $769 per asthmatic person (Toelle et al. 1995). These costs are likely to have increased since then because of the increases in medication costs and in asthma prevalence.

Disability

To date, there is relatively little data available on children and young people with a disability. In 1998, it was reported that 7.0 per cent of children aged 0 to 4 years, 10.8 per cent of children aged 5 to 14 years and 9.4 per cent of young people aged 15 to 24 years had one or more disabilities (ABS 1999). In South Australia, the areas of Salisbury, Noarlunga and Tea Tree Gully have been estimated to have the highest absolute numbers of children aged 5 to 15 years with a disability (Ambagtsheer and Glover 1998). This data was included in the first edition of the atlas and has not been re-published here. In 1998, the most common disabling conditions were intellectual and other mental disorders and respiratory diseases. The majority of children with a disability attended school (97 per cent), with most of these being enrolled in a mainstream school (AIHW 2002).

Children with disabilities are disadvantaged in many areas of their lives, particularly in the area of access to mainstream human services (Children's Interests Bureau 1994). Parents of children with disabilities may have difficulty in obtaining affordable childcare. As a result, it may be necessary for parents to make alternative arrangements, resulting in one parent being unable to return to the workforce, thus affecting family income. A family's financial disadvantage may be further exacerbated by an extra burden of cost and care for the child who has the disability. A review of family support services undertaken in 1998 by the South Australian Intellectual Disability Services' Council revealed that the median household income of the one hundred families interviewed was significantly lower than the Australian Bureau of Statistics' reported median.

Child abuse and neglect

In general, the geographic distribution of substantiated reports of child abuse (particularly physical abuse and neglect) follows the pattern of socioeconomic disadvantage shown in other indicators such as housing, education, employment and income. The areas immediately north-west of Adelaide, the outer northern and outer southern suburbs appear to have the highest rates for children aged 0 to 14 years. This effect may be due, in part, to a greater likelihood for families who are disadvantaged to be reported to welfare authorities, although some research indicates that there is an association that exists independently, the result of economic and other significant stressors on parents (Kruttschnitt et al. 1994; Hood 1998).

For those children and young people who experience out-of-home care because of abuse and neglect, education has been identified as the crucial factor for determining positive adult outcomes (Jackson 2001). However, research has consistently shown that the majority of children in care fall behind at school, seldom achieve good qualifications, and are much less likely than their peers to go on to further or higher education (Martin & Jackson 2002), They often come from an environment of abuse and neglect and as a consequence, are more likely to enter the care system already suffering from learning, emotional and behavioural difficulties. It appears that once these children enter the care system, the primary focus has been on meeting their physical and emotional needs. The impact of continual movement between schools as a result of multiple care placements means that problems faced by these children and young people at school fail to be addressed, and are compounded as the child grows older (CREATE Foundation 2002). As a result, they may fail to achieve a good educational outcome, which in turn will have long-term implications for their adult life. Addressing their educational needs has not been recognised as an important factor in the overall wellbeing of these children (CCYP 2001).

Homelessness

Children in homeless families and homeless young people are affected adversely in many ways by the crisis of homelessness and the complex issues that have led to it. For many families and young people, homelessness results from domestic violence, family breakdown, drug and alcohol addiction, gambling and a lack of affordable accommodation. Homeless children and young people may suffer associated behavioural disturbances, higher than average frequencies of asthma, ear infections, skin problems, incomplete immunisation and developmental delay. They are also at major risk of educational disadvantage. Medical assistance tends to be sought on an 'acute needs' basis rather than through health maintenance and prevention, and families cite transport and treatment costs as barriers to accessing health and other services (Efron et al. 1996). Recent research estimated the number of homeless single people, aged less than 25 years, as 1,238 in Adelaide and 1,054 in non-metropolitan South Australia (DHS 2001b). It seems likely that levels of family homelessness will continue to increase as a result of sustained high unemployment, poverty, the lack of affordable housing and the high levels of family conflict and violence (Horn 1996).

Limitations in the coverage of the atlas

This edition of the atlas is composed of available data for South Australian children and young people from birth to the age of 24 years. The information has been collated from across sectors and from a variety of sources. However, there are some significant gaps. These reflect either a lack of data, the inability to access data that has been collected or a lack of available data at a small area level. This has resulted in a less than complete picture of the wellbeing of children and young people in South Australia.

Particular deficiencies emphasise the paucity of information about health services that are provided for children and young people. For example, there are data pertaining to acute hospital admissions and the reasons for those admissions but only for the total number of admissions, not for individuals. This means that one child with severe asthma may have had multiple hospital admissions, and thus is counted more than once. A similar situation arises for data on consultations with general practitioners, which are also based on occasions of service, not on data for individuals. There are also no data for specialist medical practitioner consultations that are provided within publicly funded hospitals.

There are limited data about health services that are used by children and young people in South Australia. For example, most children and young people will not experience a hospital admission over a 12-month period – and are more likely to require an acute 'primary care' service (including services provided by general practitioners and other health professionals) or a community-based service. However, there are few data about attendances at Accident and Emergency Services or hospital outpatient departments. Furthermore, there are limited available data about the extent or nature of the services established to provide services to children and young people. This means that data about the wellbeing of children and young people receiving prevention and early intervention services, health and other screening services and specific youth services are not included here. Furthermore, at a state level, the access and usage of services by a range of disadvantaged children and young people cannot be analysed. These deficiencies have significant implications for the planning, monitoring, resourcing and evaluation of health services for children and young people in South Australia over the longer term.

With respect to other services, there are also areas where data are unavailable for analysis. Examples include child care and data for children and young people with disabilities including the nature of services provided to them. However, the atlas documents considerable information about the demography and socioeconomic position of children and young people, various aspects of their health status, their use of a range of services and their area of residence.

Issues specific to age groups

There has been a decline since 1962 in the proportion of children aged 0 to 14 years within the Australian population. However, children form a higher than average proportion of the Aboriginal and Torres Strait Islander population and of the populations in rural and remote areas.

Infants and young children aged 0 to 4 years

The majority of pregnancies and confinements in Australia do not result in mortality or severe illness. However, pregnancy, childbirth and infancy remain a period of significant vulnerability. Problems in the first few days of life, and those associated with the health of the mother, can adversely affect an infant's immediate and future wellbeing and development (AIHW 2002). During pregnancy, the health of infants can be affected by a number of factors, such as maternal behaviours (for example, smoking, medication and other substance use, and excessive alcohol intake), injury and violence, and some health conditions affecting the mother, such as specific infections and diabetes. Maternal nutrition is being increasingly recognised as another important consideration. Health conditions linked to poor nourishment of the foetus include coronary heart disease, hypertension and non-insulin dependent diabetes in later adult life. There is also good evidence that an adequate intake of folate, a B-group vitamin, by the mother before and during early pregnancy, can prevent up to 70 per cent of neural tube birth defects (spina bifida and related conditions) and possibly, other non-neural tube defects (Lumley et al. 2002).

Infant deaths and risk factors relating to the perinatal period are presented in Chapter 4. In South Australia, there has been a dramatic decline in the infant mortality rate over the decade, 1989 to 1999. This is consistent with an overall decrease in the death rate for all children and young people over the same period, but reflects a more significant reduction. Much of the decline can be attributed to the substantial fall in deaths due to Sudden Infant Death Syndrome (SIDS) following the introduction of the educational campaign in 1990 aimed at reducing the prevalence of risk factors for SIDS, including prone sleeping (DHS 2001a). In 2000, there were only five post-neonatal deaths from SIDS compared with an annual average of 38 in the period 1986-90 (DHS 2001a).

Unfortunately, in spite of recent improvements, there remains a very significant disparity between the infant mortality rates for babies of Indigenous mothers (11.2 per 1,000 live births) and those of non-Indigenous mothers (4.2 per 1,000 live births) (DHS 2001a). There is also regional variation evident across the metropolitan and non-metropolitan areas of the State. This reflects identified factors such as parental smoking, alcohol and substance use, co-sleeping when intoxicated, physical abuse and domestic violence, and poor socioeconomic circumstances (DHS 2001a).

The risk factors surrounding birth and the subsequent four weeks that are most predictive of an adverse perinatal outcome are Aboriginal maternal race; single marital status; high parity; previous stillbirth; previous neonatal death; previous pregnancy termination; few antenatal visits; young maternal age; obstetric complications; complications of labour/delivery; homebirth; low birthweight; pre-term birth; low Apgar score; time to establish breathing; congenital abnormality; and perinatal death (Taylor et al. 1995). A number of these factors occur more frequently or are associated with women who are socioeconomically disadvantaged. For the purposes of this atlas, a summary perinatal score has been developed for each postcode (see further on page 166). Postcodes were considered to be high risk for adverse perinatal outcomes if ten or more individual risk factors had a poorer outcome in comparison with the South Australian average. Postcode areas considered to be most at risk for adverse perinatal outcomes have been mapped for each of the three periods for which the analysis was undertaken – 1981-86, 1990-92 and 1995-97. Over time, there has been a reduction in the number of high-risk postcodes, which indicates a significant improvement in outcomes for mothers and babies in these areas. However, the presence of some postcode areas in all three of the analyses indicates that the overall progress made in outcomes in the State as a whole has not been reflected, nor are these areas experiencing any significant improvements in maternal or perinatal outcomes.

Most live births of infants occur between 37 and 41 weeks of gestation. These births are described as full-term. Infants that are born before 37 weeks are referred to as pre-term. In 1999, approximately nine out of ten (91 per cent) live births in Australia were of full-term babies born between 37 and 41 weeks of gestation (AIHW 2002). The mean birthweight of live births was 3,373 grams (Nassar et al. 2001). In 1999, approximately seven per cent of all babies (17,208 births) were born weighing less than 2,500 grams (including very and extremely low birthweight babies). Of all births, two per cent were of babies of very low birthweight (<1,500 g) and one per cent of extremely low birthweight (<1,000 g). The mean birthweight of all babies of Indigenous mothers in 1999 was 3,149 grams. This was 211 grams less than the Australian average of 3,360 grams in 1999. A relatively high proportion (13 per cent) weighed less than 2,500 grams at birth – almost double the proportion of low birthweight babies nationally (AIHW 2002). Weight at birth is determined primarily by genetic inheritance, but factors such as poor maternal nutrition, maternal stress or smoking can constrain that growth. Growth constraints force the foetus to adapt, and these adaptations may become permanent features that modify tissue functions and possibly disease risk in later life (Barker 1995). Pre-term birth and being small-for-gestational age (two aspects of low birthweight) are both associated with increased morbidity in the infant, and also with parental factors such as maternal smoking and low socioeconomic status (Sommerfelt et al. 2000).

Optimal growth and development in the prenatal period and early childhood are critical to good health over an individual's lifetime. The period of life from birth to four years is one of rapid growth and development, but infants and young children remain developmentally vulnerable. They have no control over their physical and social environments. Their wellbeing and developmental health are largely determined by the living conditions, knowledge and attitudes and lifestyles of the adults who care for them. This vulnerability is exemplified by the rate of substantiated cases of child abuse and neglect. In Australia in 1999-2000, rates were highest for young infants under one year of age, with male infants having the highest rates of all children aged 0 to 14 years (7.1 per 1,000 male infants and 6.6 per 1,000 female infants) (AIHW 2002). Infants aged less than one year are consistently the age group at highest risk for homicide in Australia (Strang 1993). This is due to both their physical fragility and their absolute dependence. In South Australia for the period 1997-2000, the mortality rate for infants under one year from interpersonal violence was 22.0 per 100,000 population, compared with a rate of 7.5 per 100,000 for the population overall.

A large proportion (35 per cent) of all infant hospitalisations is for conditions originating in the perinatal period (AIHW 2002). Disorders related to length of gestation and foetal growth (37.9 per cent), respiratory and cardiovascular disorders (24.8 per cent) and haemorrhagic (bleeding) and haematological (blood) disorders of the foetus and newborn (11.7 per cent) accounted for 74.4 per cent of hospitalisations for conditions originating in the perinatal period in 1999-2000. The remaining 25.6 per cent of hospitalisations for conditions originating in the perinatal period were for birth trauma, digestive disorders and endocrine and metabolic disorders.

The major reasons for hospitalisation in 2000 in South Australia for the age group 0 to 4 years were otitis media, followed by asthma and prematurity (DHS 2001b). Of the admissions to hospital for preventable external causes, the reasons were falls, exposure to mechanical forces[1] and accidental poisoning. The main surgical procedure undertaken for children aged 0 to 4 years in 2000 was a myringotomy with the insertion of tympanostomy tubes; this is a surgical treatment for persistent otitis media with fluid accumulation behind the eardrum. For many surgical procedures, the probability of having surgery depends on where one lives, an occurrence referred to as "small-area variation" (Wennberg & Gittlesohn 1982). The implication of variations in rates, which cannot be explained by differences in disease prevalence, is that people in low-use areas may be receiving too little care and those in high-use areas may be receiving too much or inappropriate care. Area variation is thought to occur because of differences in community characteristics and methods of health care delivery, including the number, type and opinions of medical practitioners (Paul-Shaheen et al. 1987). Examples of small area variation can be seen clearly in the mapping of myringotomy, and tonsillectomy with and without adenoidectomy, from page 266 onwards.

[1] This includes exposure to inanimate and animate forces i.e. to objects, and to people or animals.

Children aged 5 to 14 years

This period of childhood marks the transition to school and the laying down of a foundation for learning and education that will be significant throughout life. For children to learn optimally, they need good health, to be able to learn and to have supportive and secure family and learning environments. As indicated, many studies have found a strong association between family socioeconomic status and child wellbeing (Jolly 1990). Family income, parental employment status and/or parental education are all strongly associated with one another and are used as indicators of socioeconomic status. In the previous edition of the atlas, the proportions of students in primary and secondary schools who were funded by the SA Government's School Card Scheme were mapped. The mapped distribution of this indicator was consistent with the pattern of socioeconomic disadvantage. Unfortunately these data are no longer accessible at the postcode level.

Children aged 5 to 14 years are hospitalised at lower rates than those aged 0 to 4 years, reflecting their different patterns of ill health and injury. Otitis media and asthma are the two major reasons for hospitalisation, followed by tonsillitis. However, the rates for hospitalisation for external causes are significantly higher, particularly the rates for falls, exposure to mechanical forces and transport accidents. Myringotomy and tonsillectomy/ adenoidectomy were the two principal surgical procedures for all children aged 5 to 14 years (DHS 2001b).

For Indigenous children in this age group, tooth decay was the principal reason for hospitalisation of males, followed by otitis media and tonsillitis. For all these conditions, the rates of hospitalisation were significantly higher than the rates for all males in the same age group. For Indigenous females aged 5 to 14 years, the principal reason for hospitalisation was otitis media, followed by tooth decay and skin infections. Similarly, the rates of hospitalisation for these conditions were well above those for all female children in the same age group (DHS 2001b). The major external cause for hospitalisation for Indigenous males aged 5 to 14 years was falls, at a rate that was similar to that for all males in the age group. However, for the other external causes of exposure to mechanical forces, transport accidents and exposure to smoke, flames and hot substances, there were also significant differences in the rates compared to those for all males aged 5 to 14 years (DHS 2001b). These disparities again highlight the substantial level of disadvantage suffered by Indigenous children in South Australia.

Young people aged 15 to 24 years

The onset of adolescence heralds another transition phase for young people, a time for the developing of independence and a move towards adulthood. The World Health Organization (WHO 1975) has defined adolescence as marked by 'progression from appearance of secondary sex characteristics (puberty) to sexual and reproductive maturity; development of adult mental processes and adult identity; and, transition from total socioeconomic dependence to relative independence'. In South Australia, this generally refers to the period from 12 to 24 years of age.

For many young people, it is the time that marks the end of secondary level education, and the entrance to employment and/or further education and training. However, for an increasing number of disadvantaged youth, unemployment and reduced life opportunities are more likely. There is an association between unemployment and psychological and physical ill health in young people aged 15 to 24 years (Mathers and Schofield 1998), and evidence suggests a strong association between youth unemployment and youth suicide (Morrell et al. 1998). Unemployment in this age group is associated with psychological symptoms, such as depression and loss of confidence, and there is also some evidence for an association with raised blood pressure. Finally, the prevalence of lifestyle risk factors (cannabis use and, less consistently, tobacco and alcohol consumption) is higher in unemployed compared with employed young people (Morrell et al. 1998). Proportions of people aged 15 to 24 years who were unemployed, as well as full-time students, those who left school aged 15 years or less, and those who are Indigenous or were born in non-English speaking birthplaces have been mapped and appear in Chapter 3.

As indicated, adolescence involves physical and emotional developments that have an impact on behaviour: puberty, changing body shape, new sexual feelings and risk-taking urges (Wilhelm & Clarke 1998). During this life stage, young people are more likely to engage in greater risk-taking behaviours (such as experimentation with alcohol, tobacco and illicit substances, unprotected sexual intercourse or driving at excessive speed in motor vehicles or motorbikes). This is reflected in their higher mortality and morbidity rates from external causes (particularly transport accidents, assaults and suicide), and higher rates of hospitalisation for the termination of pregnancy, and for conditions such as eating disorders, mental health disorders and those associated with childbirth (DHS 2001b).

While the rates for young people for admission to hospital are generally lower than those of children (with the exception of pregnancy-related diagnoses for females aged 18 to 24 years), the rates for hospital admissions for external causes are higher for the 15 to 24 year age group, particularly for males. In 2000, the major external causes for young people were exposure to mechanical forces and transport-related accidents. For Indigenous young people, the rates for hospital admission for transport-related accidents and assault were substantially higher than those for the total population (DHS 2001b).

Interpersonal violence, which includes child abuse, rape and sexual assault, domestic violence, and physical assault, threatens the safety and security of many young people and consequently, affects their wellbeing. In the year 2000, assault was the most significant external cause for admission to hospital for Indigenous males and females aged 18 to 24 years. Assault was also the most frequent crime committed against children and young people accounting for 40.2 per cent of all assaults recorded in South Australia in 2000 (ABS 1999).

Pregnancy during the teenage years carries with it increased risks of a poor perinatal outcome and adverse effects on the future wellbeing of both the mother and the child. In Australia in 1999, the teenage birth rate was 18.1 per 1,000 women aged 15 to 19 years (ABS 2000). This is a lower rate than that reported in other developed English-speaking countries such as New Zealand (29.8 per 1,000) and the United States (51.1 per 1,000), but much higher than in Japan (3.9 per 1,000) and many Western European countries which have rates below 10 per 1000 (ABS 2000). In order to estimate teenage pregnancy rates, statistics on teenage terminations of pregnancy as well as births are needed. In South Australia in 2000, the teenage pregnancy rate was 40.8 per 1,000 women aged 15 to 19 years which is similar to that in the United Kingdom and New Zealand, but much higher than in many Western European countries (van der Klis et al. 2002). Births to South Australian teenaged women are associated with social disadvantage and relatively poor perinatal outcomes, although these have improved (van der Klis et al. 2002). Current strategies are aimed at reducing the incidence of unplanned teenage pregnancy and improving the required support for pregnant teenagers.

Gambling is an increasingly frequent activity for young people. In South Australia, some of the highest incidences of gambling-related problems occur in the 18 to 24 year old age group (Delfabbro & Winefield 1996).

Significant numbers of young people are also recipients of housing rental assistance and rent relief, and, at 30 June 2000, of all those people waiting for public housing, 23.1 per cent were young people (DHS 2001b). The Supported Accommodation Assistance Program (SAAP) was established in 1985 to consolidate a number of Commonwealth, State and Territory government programs assisting homeless people and women and children escaping domestic violence. SAAP provides recurrent funding for salaries and other operational costs associated with the provision of housing and support for people who are experiencing homelessness or are at risk of homelessness. In 1999-2000, over one third (35.5 per cent) of the Supported Accommodation Assistance Program (SAAP) clients in South Australia were aged 15 to 24 years (AIHW 2000). Overall, 147 people out of every 10,000 aged 18 or 19 years became SAAP clients. The next highest rate of use was by 15 to 17 year-olds, among whom 120 people out of every 10,000 became clients (AIHW 2000). People aged 15 to 24 years were much more likely to go to SAAP agencies than people in other age groups.

Conclusion

Many indicators demonstrate that the wellbeing of Australian children and young people has improved (AIHW 2002). However, in other areas, evidence suggests that outcomes have remained static or have declined, in an environment marked by rapid social change. This edition of the atlas reveals that considerable disparities are evident across many aspects of the lives of South Australian children and young people. Increasing numbers of children and young people face socioeconomic and other forms of disadvantage, resulting in significant adverse effects on their wellbeing that are likely to continue into adult life. This is particularly relevant in the case of many Indigenous children. Children and young people from the most socioeconomically disadvantaged families manifest the poorest health; have higher rates of acute rather than preventative service utilisation; and have more chronic health problems, higher injury rates and poorer dental health (Mathers 1996).

In order to address the existing inequalities, comprehensive longitudinal research studies and accurate demographic information collections will be essential to examine the wellbeing of children and young people and the relationship with a range of socioeconomic determinants, and to identify effective interventions and community-based solutions.

2 Methods

Measurement of socioeconomic status

Although the socioeconomic status of individuals and of population groups is accepted as a risk factor for ill health, the major Australian data collections of health status and use of health and welfare services do not include use of any direct measure of socioeconomic status. Measures used include education levels, occupation and occupational status, or income.

In the absence of a direct measure of socioeconomic status in the health datasets, the socioeconomic characteristics of the area of residence of the population can be used as a proxy measure. In this atlas, the health status and health service utilisation data are compared *at the small area level* with the measures of socioeconomic status (either through a comparison of the maps, or by reference to the correlation analysis). The socioeconomic status of the area becomes the proxy measure of socioeconomic status for the population of the area.

There are a number of deficiencies associated with this approach. These include that:

- the data for an area represent the average of the characteristics or events (deaths, hospital admissions) for the population of the area: as the population of many of the areas for which data are available is quite large, this can conceal the existence of areas with higher or lower rates;
- there is considerable movement of the population between areas over time, potentially weakening the value of the data for small area analysis: see comments under Major limitations, Usual residence, page 19;
- the use of the socioeconomic status of an area (as measured by the characteristics of the population of the area) can hide the existence of any 'area' or 'locality' effect in the data: that is, where aspects of the location itself are impacting on health, whether through structural factors (such as lack of transport) or environmental factors (such as poor air quality), such that the area itself can be considered a risk factor.

Selection of indicators

The variables used as indicators within broader topics have been chosen because they can be used to illustrate patterns of socioeconomic status, health status and utilisation of health services at a small area level. The indicators of socioeconomic status represent a broad cross-section of data variables that are generally used to illustrate socioeconomic disadvantage. Indicators of health status that can be reproduced at a small area level are to some extent limited by the lack of available measures. Deaths, perinatal risk factors (including low birthweight babies) and child abuse and neglect are the indicators that are available and have been used in the atlas. The choice of indicators to describe patterns of use of health and welfare services at the small area level is limited to hospital episodes, FAYS clients, immunisation status of one year old children, use of community health/ community mental health services and services provided by general medical practitioners.

Data presentation

In maps

Two maps are shown for most variables in the atlas. The first is a map at the postcode or Statistical Local Area (SLA) level for Adelaide, represented by the Adelaide Statistical Division. The SLA is described under the heading of Area mapped/Boundary issues.

The second map is of the whole of the State, by SLA or Country Health Region, but with Adelaide mapped as one area. This enables comparisons to be made of the percentages, ratios, etc. in Adelaide with those in the non-metropolitan areas. Populations living in urban centres can have different characteristics to those living in less settled areas, and frequently have different health status and exhibit different patterns of use of health services. Where it has been possible to identify urban centres with populations of 1,500 or more, they are shown on the whole of State map as circles. Unfortunately the town is not a distinct and identifiable unit within the structure of ASGC. Thus, only urban centres that are incorporated local government areas (and are therefore represented in the ABS classification as SLAs) can be identified in the datasets and separate details published for them. More details of the urban centres mapped and the process of their identification are on page 18, under the heading Urban centres identifiable in the South Australian data.

The majority of maps in this atlas reflect the distribution of the population for whom the particular event is recorded (eg. hospital episode, death) by location of their 'usual residence', as coded from their address, in the various statistical data collections. The validity of this approach is discussed in more detail under the heading Major limitations, Usual residence, page 19. The maps in Chapter 3 reflect the distribution of the population by a mixture of address locations. The variables for single parent families, low income families, dwellings rented from the South Australian Housing Trust and dwellings without a motor vehicle are mapped to the address of usual residence of the population who were 'at home' on Census night. This is because the data for these variables are only available for people recorded in the Census at their usual address. The remaining variables in Chapter 3 reflect the population counted on Census night and include visitors, people in hospitals and gaols, etc; and exclude usual residents who were absent from the dwelling on that night.

By remoteness

There have been increasing concerns over a number of years about the difficulties faced by Australians living in rural and remote areas of Australia in accessing services that most Australians take for granted. A parallel concern has been the extent to which the health of people living in these areas is poorer than that of those living in areas with greater accessibility to health, welfare and other services. Government in particular has been interested in finding out more about the circumstances and needs of these populations, and in targeting assistance accordingly (DHAC 1999).

This led the (then) Department of Health and Aged Care (DHAC) to sponsor a project to obtain a standard classification and index of remoteness which would allow the comparison of information about populations based on their access, by road, to service centres (towns) of various sizes. Note that although by specifying towns of various sizes the index implicitly takes account of the education, health, welfare, etc. services likely to be located in towns of those sizes, there is no explicit use in the development of the index of what services should exist. That is, distance is the sole measure of access. The outcome of that project was the Accessibility/ Remoteness Index of Australia (ARIA) (DHAC 1999), based on a methodology developed by the National Centre for Social Applications in GIS (GISCA).

More recently, the Australian Bureau of Statistics (ABS) addressed the concept of remoteness, with a view to including it in its classification of areas. The ABS work, also undertaken with GISCA, used ARIA as the underlying methodology for the determination of remoteness.

The new classification, described by the ABS as a 'Remoteness Structure', is referred to as ARIA+ (ie. ARIA plus, ABS 2001), and is an update and refinement of the original ARIA.

ARIA+ measures access in terms of remoteness along a road network from 11,914 populated localities to five categories of service centres (service centres with more than 250,000 persons; with 48,000 to 249,999 persons; with 18,000 to 47,999 persons; with 5,000 to 17,999 persons; and with 1,000 to 4,999 persons). An adjustment is made for localities situated on islands (including Tasmania).

For each locality, the distance to each of the five categories of service centre is converted to a ratio to the mean. To remove the effect of extreme values, a threshold of three is applied to each component and then the five component index values are summed. This produces a continuous variable with values between 0 (high accessibility) and 15 (high remoteness). Index values for an expanded locality and point database of 42,648 localities are then interpolated to produce an index value for 1km grids and averages calculated for larger areas such as postcodes or SLAs.

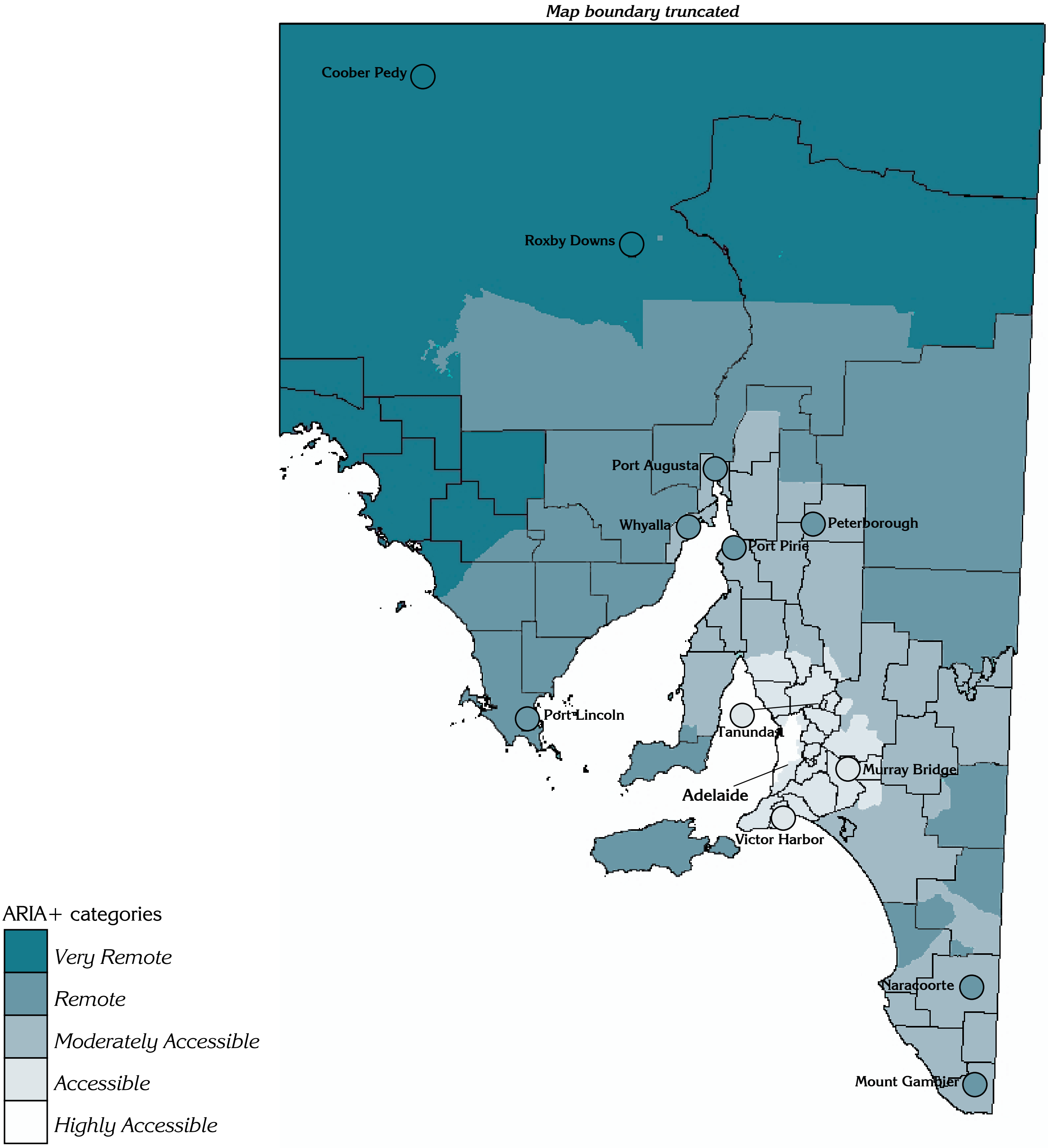
A continuous index is ideally suited to some forms of research; however many other uses require discrete categories. To meet these other uses, the ARIA index values have been grouped into five categories: Very Accessible, Accessible, Moderately Accessible, Remote, Very Remote. The categories were chosen on the basis of natural breaks in the data, balance across categories and broad comparability with the earlier RRMA classification.

Map 2.1 shows the ARIA+ Index for each SLA in South Australia.

The ARIA+ index for each SLA in non-metropolitan South Australia is shown in Appendix 1.2 (SLAs in Adelaide all have an ARIA Index of 1). For each variable in the atlas, details were calculated of the average percentage, ratio etc. for each of the five ARIA categories described above. For example, for children living in single parent families, the average percentage of all such families in SLAs in category 1 (Very Accessible) was calculated and shown in a graph beneath the whole of State map, together with the average percentage in each of the other four categories. The ARIA index thereby provides a summary measure of the characteristics of the population, for each of the variables mapped, categorised by accessibility to the largest populated centres.

Map 2.1
Accessibility/Remoteness Index of Australia (ARIA+), for SLAs in South Australia, 1996

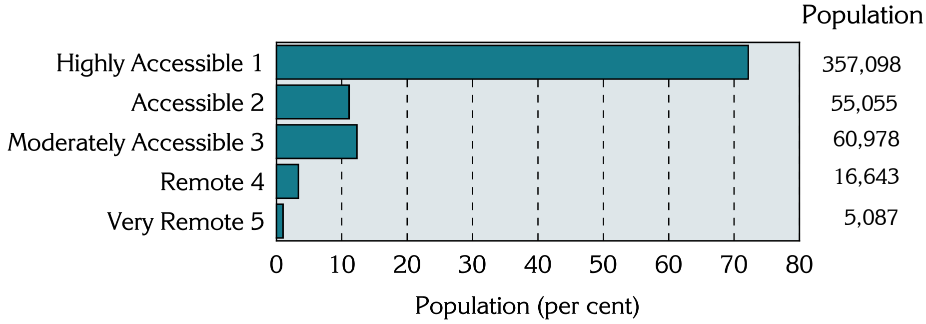
ARIA Index in each Statistical Local Area



Source: Map provided by The National Centre for Social Applications of GIS, University of Adelaide, using the Accessibility/Remoteness Index of Australia as described in *Department of Health and Aged Care*, Occasional Paper Series No. 6, Revised Edition.

Figure 2.1 shows the distribution of the population across Australia by ARIA+. The population used here is the Estimated Resident Population by Statistical Local Area (SLA) at 30 June 1999. Almost three quarters (72.2%) of South Australia's children and young people live in areas classed as Highly Accessible, 11.1% live in areas in the Accessible class, 12.3% in Moderately Accessible, 3.4% in Remote and 1.0% in Very Remote.

Figure 2.1: Population aged 0 to 24 years by ARIA+, Australia, 1999



Source: Calculated on Estimated Resident Population, June 1999, ABS Cat. No. 3235.0 (ABS 2000), using a concordance supplied by ABS

By socioeconomic disadvantage of area

As well as presenting the data in maps and by the ARIA+ remoteness classification, the data have also been grouped into quintiles of approximately equal population, based on the Index of Relative Socio-Economic Disadvantage (IRSD) score for the SLA as calculated from data collected at the 1996 Population Census[1]. Quintile 1 comprises the SLAs with the highest IRSD scores (highest socioeconomic status, or most advantaged, areas) and Quintile 5 comprises the SLAs with the lowest IRSD scores (lowest socioeconomic status, or most disadvantaged, areas). Each quintile comprises approximately 20% of the total population in the areas under analysis (eg. Adelaide or non-metropolitan South Australia). Once grouped in this way, the analysis has been repeated to calculate the various rates, ratios, percentages to show variations between the populations in each of the quintiles. Data grouped in this way are presented in Chapter 7.

The data

General issues

Data describing the characteristics of the population mapped in Chapter 3, *Demography and socioeconomic status* are largely from the 1996 Census of Population and Housing and 1998 Estimated Resident Population (ERP) data.

The data mapped in other chapters are recorded for a range of periods: for deaths and child abuse and neglect, it is for the four years from 1996 to 1999; for perinatal risk factors and low birthweight babies it is for the three years from 1995 to 1997; for hospital admissions, it is for the three years from 1996/7 to 1998/9; for general medical practitioner services, it is 1998; for Family and Youth Services it is for 1999; for use of community health and community mental health services, it is for the three years from 1997 to 1999; and 2001, for immunisation status. In a number of instances, data for a number of years have been combined to increase the number of cases available for the analysis. This gives the rates and ratios produced from the analysis greater statistical power at the small area level.

However, the lack of data for a common period introduces a problem with the choice of boundaries to use in mapping the various topics, as boundaries also change over time, and comparability is lost. For example, if three new SLAs are formed out of two existing SLAs, then the earlier data (for the two SLAs) are only comparable with the aggregate of the three new areas. Obviously, the availability of a common set of boundaries over time would assist in making the datasets comparable, but this is not always possible. The deaths' data, covering the four years from 1996 to 1999, have been coded using a number of versions of the ASGC and have be aggregated in such a way as to be comparable with data coded to 1996 boundaries (Census data). Similarly, the 1996/97 to 1998/99 hospital admissions' data are coded to the 1996 classification and can also be generally compared with the deaths' data and the 1996 Census data.

[1] The IRSD is one of five Socio-Economic Indexes for Areas (SEIFA) produced by the Australian Bureau of Statistics from data collected in the 1996 Census. Further details of the construction of this index are in the Glossary.

The way in which boundary changes in South Australia have been addressed in this atlas is discussed in more detail below, under the heading of *Area mapped/Boundary issues*.

Data quality

Postcode areas

The main issues with regard to data quality arise from the lack of a generally accepted Australian standard for the classification of spatial data, in particular, spatial data for small areas.

A majority of data collections conducted by agencies other than the ABS use the postcode area as the spatial unit for their data. The postcode is, in most instances, a cost-effective indicator of the geographical location of a person's usual residence, as it is universally included as part of the address of usual residence in administrative and statistical data collections. It is, in effect, self-coded, unlike the SLA code which is determined either manually or electronically by examining the address. Another advantage of the postcode include that, in Adelaide, it is a generally smaller unit than the SLA and can therefore be used to describe smaller and more homogeneous population groupings. Its disadvantages include that it is the postcode of a person's postal address, not necessarily the postcode of their usual residence. This is only a problem to the extent to which the population of an area has a postal address which is different from their usual residence address. This is likely to be of greater concern in urban fringe and country areas, and appears to affect some data for postcode areas to the east of the city in the Adelaide Hills, around *Summertown*, *Carey Gully* and *Basket Range*. In addition, some CDs in this area are very large (relative to the postcodes) resulting in a higher level of misallocation of population under the method used by the ABS (described below).

The postcode used in this atlas is that available from the particular statistical collection. For the Census data it is not the actual postcode, but a postal area, derived by allocating whole Census Collection Districts to approximate postcodes. For all other data, it is the postcode reported in the records of the particular statistical collection. The use of the postal area as the denominator (ie. population data) when calculating percentages or rates, and the postcode area for the numerator (eg. dependent children, immunisation) can results in there being more people with the characteristic than there are people in the denominator population. It is likely that a mismatch in definition of the areas is the cause for this difference.

The postcodes in metropolitan Adelaide for which data have not been mapped are:

- *Parafield Airport* (5106), *Adelaide Airport* and *GPO Private Boxes* (5001) and *Export Park Private Boxes* (5950), which do not have residents;
- postcode areas with a population of less than 100 persons;
- postcode areas which lie across the Adelaide boundary, but which are predominantly (based on population counts) outside Adelaide; and,
- for data variables describing personal characteristics, *Adelaide* and *North Adelaide* (postcode 5000 and 5006), as there are generally more people recorded in these postcodes on Census night than are usual residents (in part because of the predominance of hotels and the inclusion of patients in a number of public and private hospitals and inmates of the remand centre). For data variables describing family and dwelling characteristics, the postcode data have been mapped, as these characteristics are only provided from the Census for usual residents. The family and dwelling data is, in effect, usual resident data.

A list of postcodes excluded under these various categories is included in **Appendix 1.2**.

In the non-metropolitan areas of the State, SLAs rather than postcodes were mapped, as the postcode boundaries reflect the postal areas, which are not necessarily the areas where people who use those postcodes live. When mapped, the geographic areas they delineate are not always useful, as some pick up separate small communities along a main road – a mail run.

Analysis and presentation

Measures mapped

Most measures were produced using age-sex standardisation. The major exceptions are the measures mapped in Chapter 3, which are generally percentages. Where this is not so, the text describes the basis of calculation of the measure.

Where it was considered that variations in the age and/or sex distribution of the population for any variable could affect the analysis, the data have been standardised. Standardisation, which largely removes variations in rates between areas where such variations arise solely as a result of age and/or sex structure (see Appendix 1.3 for more details), was applied to the majority of the variables describing the health status and the utilisation of health services.

By mapping the data as percentages, rates or ratios, the distribution of the population or event, and variations in that distribution, can be easily seen across the areas mapped. These variations are important in highlighting areas of, for example, high service use, high death rates or low provision of services. However, in using the data, it is important to recognise that while the same percentage or standardised ratio value may apply in two areas, the areas may differ greatly in population size, which may have implications for health service delivery or program planning. For example, an area with a highly elevated rate of hospitalisation and a relatively small population may be of lesser concern than an area with a moderately high rate of hospitalisation and a very large population, because of the larger number of people affected. As it has not been possible at the scale of these atlases to show on the map both relative values (percentages, rates and ratios) and absolute values (number of people, events etc.), users should bear this caution in mind and refer to the absolute values listed in the associated tables. This aspect is discussed in more detail under the heading *Reading the maps*, below.

Area mapped/Boundary issues

The majority of data are mapped at the postcode level for Adelaide and the SLA[2] level for non-metropolitan areas. However, because of the relatively small number of deaths, the spatial unit used for Adelaide in mapping deaths data is the SLA and for non-metropolitan areas is the Health Region.

The SLA is, in a majority of cases, based on (and equal to) local government areas. This gives rise to a number of concerns, including the wide variability in size (both of area and population) and the lack of control that the ABS has over changes in these boundaries.

Area name changes

The boundaries of some SLAs have changed extensively over the periods for which the data have been collected and coded. In some cases this can be handled by the amalgamation of two or more areas, thus enabling comparisons to be made. For example, boundary changes to the SLAs of Central Yorke Peninsula and Minlaton in 1998 meant that, to be comparable, the population data need to be analysed for the combined area.

In other cases, boundary changes were such that combining areas was not a satisfactory option, because the combinations necessary were so extensive as to reduce the value of the correlation analysis, or of other comparisons of the data. Where this occurred, the 1998 population data were re-coded to the SLA boundaries in existence in 1996. In this way, the correlation analysis could be undertaken on a set of boundaries common to all the datasets.

Urban centres identifiable in the South Australian data

Just as the demographic characteristics and health profiles of Australians vary between residents of the major cities and non-metropolitan areas, they also vary within the non-metropolitan areas between residents of the urban centres and those living in more rural and remote locations. SLAs have deficiencies as a spatial unit to describe urban centres outside of the capital cities and other major urban centres. For example, of the 35 urban centres in South Australia with a population of 1,500 or more, only four can be identified in the SLA classification. That is, only four of these urban centres were also SLAs in their own right; the others formed only part of an SLA, with the SLA comprised of the urban centre (and possibly more than one urban centre) and other people living in smaller localities, as well as rural populations.

To increase the number and range of urban centres for which data could be published, a set of rules was established. These rules are discussed in detail in Appendix 1.2. Briefly, they allow for an urban centre with a population of 1,500 or more to be mapped where it comprised 80.0% or more of the SLA in which it was located. This resulted in 12 of the 35 urban centres in South Australia being mapped. Details of the urban centres mapped, as well as those not mapped, are in Appendix 1.2 (**Table A3**).

These urban centres (referred to as towns in the discussion of the maps and data in the atlas) are shown as circles on the maps. In cases where the area of the SLA is larger than the area of the circle, the underlying SLA can be seen on the map and both are mapped in the same shade. Where the location of the circle in its correct geographic position would have hidden details of another SLA, the circle has been located off the map, with a line

[2] In 1996, the SLA was generally equivalent to a local government area, with additional codes allocated to areas outside local government areas (eg. unincorporated areas in non-metropolitan South Australia) and to local government areas which have been split for statistical purposes (the only instance is Enfield, split into Part A (eastern) and Part B (western).

adjoining the circle and the correct geographic location.

Other supporting information

Wherever possible, the introductory notes to each topic provide background information to the topic (eg. hospital admissions) as well as the individual variables mapped (eg. hospital admissions for respiratory system diseases). This background information may include definitions, details of collection methods, references to other analyses relevant to the variable being mapped and details of the age distribution of the population represented in the data.

Major limitations

Data availability

Despite the generally high quality of health data in Australia, there are identifiable gaps and deficiencies, as documented by AIHW (1998): these include: *The quality of Indigenous health statistics*; *Data requirement for national health priority areas*; *Health Surveys*; *Public health information*; and *Health service outcomes and quality of health care*. Data for small area analysis are also deficient.

Details of data limitations, with an emphasis on small area data, are included in the introductions to Chapters 4 and 5. In addition to these collection specific limitations, three important overall limitations of the data for undertaking small area analysis are discussed below. These are the geographic areas to which small area data are classified, the measurement of socioeconomic status and data linkage.

Usual residence

The maps in this atlas reflect the distribution of the population (with various characteristics) by location of their 'usual residence'. For some people their current usual residence will have been the same for many years while, for many, it will be only a recent address: it is not possible to distinguish in the statistics between long and short term residents. *The analysis assumes, therefore, that the populations mapped in each area usually reside in those areas, or in other areas sharing similar characteristics*. This is a common assumption in analyses of this nature, and a reasonable assumption for the majority of the data analysed.

An analysis (Glover et al 2002) of data in the Western Australian Data Linkage System – where data are available of the number of admissions per individual, over time – showed that, four out of five people admitted to hospital more than once in a five year period had not moved (out of the Collection District of their address at the first admission) by the time of their second admission. For those who did move, while there was movement between areas right across the socioeconomic profile, most movement was to areas in adjacent quintiles of socioeconomic disadvantage of area.

Reading the maps

The atlas employs a choropleth mapping technique for all maps. Under this technique, areas (such as postcode areas or SLAs) are shaded according to the total value, percentage or rate for that area. As a consequence of this generalisation, variation within the area is concealed. The larger the areal unit, the greater the degree of generalisation, and for this reason the values shown on the maps for large postcodes or SLAs, in particular those which are sparsely and irregularly populated, must be treated with caution.

An alternative technique commonly used by geographers to combat this problem is to present data in proportional circles, with the size of the circle representing the absolute value of the variable and the fill representing the relative value.

This method was not used because it would have been difficult to achieve a satisfactory result given the map scales used in this atlas, and therefore the small size of many of the mapped areas.

The choropleth maps are based on data expressed as percentages of an appropriate denominator, or as indirectly standardised rates. For example, children living in single parent families are mapped as a percentage of all children and the unemployed as a percentage of the total labour force. It is, therefore, important to recognise that in a postcode or SLA with a small total population, a high percentage of a particular sub group will only represent a small absolute number, and that in a postcode or SLA with a large population it will represent a large absolute number. Similarly, a highly elevated standardised rate may relate to a large or small absolute number of cases. These comments are of particular relevance to the larger SLAs in the north of the State. The map commentaries draw attention to contrasts in relative values revealed in the maps, with occasional reference to the absolute values.

This page intentionally left blank

3 Demography and socioeconomic status

Introduction

Socioeconomic disadvantage is a unique determinant of inequalities in health: evidence for this is presented in Chapter 1.

A number of data variables from the 1996 Population Census have been mapped in this chapter to highlight variations in socioeconomic disadvantage at the small area level. The results of the correlation analysis, shown in Chapter 6, provide a measure of the strength of the association at the small area level in the distribution of the population with similar characteristics. The correlation analysis also draws attention to associations between the measures being discussed (eg. high rates of deaths of males aged 15 to 24 years, or high rates of admissions to hospital for respiratory system diseases) and the indicators of socioeconomic disadvantage mapped in this chapter.

Background

Population and distribution

In 1998, one third (33.4%) of South Australia's population was estimated to be aged 0 to 24 years (496,268 people; 254,582 males and 241,686 females). This is a decline of 3.0% (15,164 people) since 1991, a trend which is expected to continue, with the population dropping to 31.1% of the total population in 2006 (475,900 people) and 29.3% (453,300 people) in 2021.

Of the 496,268 people aged from 0 to 24 years living in South Australia, almost three quarters (72.6%, 360,259) were residents of Adelaide (**Table 3.1**). The proportion of the population located in the metropolitan area in each of the five-year age groups ranged from 69.0% at ages 5 to 9 years to 79.6% at ages 20 to 24 years.

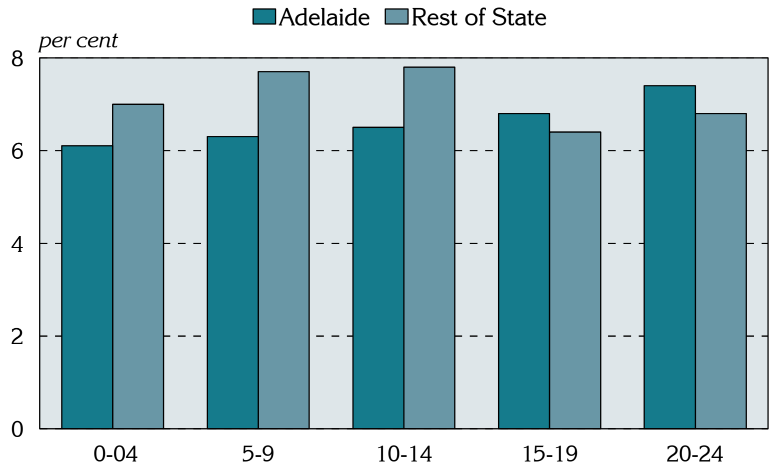
Figure 3.1 shows the age profile of the South Australian population for each five-year age group from 0 to 24 years. In Adelaide, 6.1% of the population was aged 0 to 4 years, the proportion of the population over the next four age groups rose steadily, from 6.3% (5 to 9 years) to 7.4% (20 to 24 years). In the non-metropolitan areas, there were higher proportions of children aged from 0 to 14 years, with the highest proportion in the 10 to 14 year age group (7.8%). The proportion of the population decreased to 5.2% in the 20 to 24 age range.

Table 3.1: Population distribution, by age and area of residence, South Australia, 1998

Section of State	0-4	5-9	10-14	15-19	20-24	0-24	Total
Adelaide							
number	66,906	68,673	70,476	73,662	80,542	360,259	1,088,349
per cent (row)	6.1	6.3	6.5	6.8	7.4	33.1	100.0
per cent (column)	70.4	69.0	69.5	74.3	79.6	72.6	73.2
Rest of State							
number	28,071	30,868	30,984	25,444	20,642	136,009	398,945
per cent (row)	7.0	7.7	7.8	6.4	5.2	34.1	100.0
per cent (column)	29.6	31.0	30.5	25.7	20.4	27.4	26.8
South Australia							
number	94,977	99,541	101,460	99,106	101,184	496,268	1,487,294
per cent (row)	6.4	6.7	6.8	6.7	6.8	33.4	100.0
per cent (column)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: ***Estimated Resident Population*, 1998, ABS Cat No. 3235.4**

Figure 3.1: Population distribution, by age and area of residence, South Australia, 1998



Source: ***Estimated Resident Population*****, 1998, ABS Cat No. 3235.4**

Within Adelaide, the highest proportion of people aged 0 to 24 years was recorded in the Northern region, with 36.4% of the population in this age range (**Table 3.2**). The lowest proportion was recorded in the Western Subdivision (29.5%), followed by the Eastern Subdivision (30.9%).

In the Northern region, the population aged 0 to 24 years was evenly spread across each of the five year age groups analysed, with approximately 7% in each category. The proportion of the population in the Eastern region increased steadily, from 4.9% in the 0 to 4 year age group to 8.6% at ages 20 to 24 years.

Of the non-metropolitan regions, the Yorke and Lower North Region had the lowest proportion (30.2%) of people aged 0 to 24 years and the Northern Region had the highest (36.1%). The age profile was relatively consistent across the Subdivisions, with the highest proportions generally in the 5 to 14 year age groups, and the lowest among people aged 20 to 24 years.

Table 3.2: Population distribution, by age and Region, South Australia, 1998

Region		0-4	5-9	10-14	15-19	20-24	0-24	All ages
Adelaide								
Northern	- number	24,843	24,823	25,077	24,236	24,585	123,564	339,713
	per cent	7.3	7.3	7.4	7.1	7.2	36.4	100.0
Western	- number	11,801	11,446	11,037	12,142	15,412	61,838	209,786
	per cent	5.6	5.5	5.3	5.8	7.3	29.5	100.0
Eastern	- number	10,872	11,567	11,979	14,742	19,031	68,191	220,735
	per cent	4.9	5.2	5.4	6.7	8.6	30.9	100.0
Southern	- number	19,390	20,837	22,383	22,542	21,514	106,666	318,115
	per cent	6.1	6.6	7.0	7.1	6.8	33.5	100.0
Rest of State								
Outer Adelaide	- number	6,975	8,287	8,602	6,963	5,178	36,005	107,729
	per cent	6.5	7.7	8.0	6.5	4.8	33.4	100.0
Yorke and Lower North	- number	2,666	3,265	3,306	2,452	1,639	13,328	44,103
	per cent	6.0	7.4	7.5	5.6	3.7	30.2	100.0
Murray Lands	- number	4,937	5,187	5,090	4,258	3,657	23,129	68,450
	per cent	7.2	7.6	7.4	6.2	5.3	33.8	100.0
South East	- number	4,607	4,693	4,890	4,256	3,695	22,141	62,776
	per cent	7.3	7.5	7.8	6.8	5.9	35.3	100.0
Eyre	- number	2,434	2,629	2,696	2,123	1,624	11,506	32,968
	per cent	7.4	8.0	8.2	6.4	4.9	34.9	100.0
Northern	- number	6,452	6,807	6,400	5,392	4,849	29,900	82,919
	per cent	7.8	8.2	7.7	6.5	5.8	36.1	100.0

Source: ***Estimated Resident Population*****, 1998, ABS Cat No. 3235.4**

Geography

A detailed description of the social geography of Adelaide is contained in Chapter 3 of *A Social Health Atlas of South Australia, Second Edition* (Glover et al, 1996). That description by Dr Clive Forster provides a useful background for understanding the demographic context in which children and their families live, and child and youth services operate in South Australia.

It is important to note that Adelaide is characterised by great diversity between areas with respect to their socioeconomic characteristics. In relation to the 'young' population of Adelaide, it is particularly important to stress that the demographic characteristics of a suburb are strongly related to the stage in the life cycle of the suburb which it is currently experiencing (Hugo 1986). In terms of these divisions across the metropolitan area, categorisation into inner, middle and outer suburbs is a useful means of analysis.

The inner suburbs, comprising the City of Adelaide itself in addition to the inner ring of suburbs around the City, are quite youthful in terms of their age structure due to the influence of gentrification and to the availability of private rental accommodation. Often, although not always, these suburbs are the more affluent. The middle suburbs, those around five to fifteen kilometres from the CBD, are greatly diverse both in ethnic and socioeconomic terms. The outer, or fringe suburbs, have long been characterised by a youthful age structure, although changes in the life cycle of the suburbs have meant that the age structure is changing as families become older.

Note

Throughout the commentaries, Adelaide's inner, middle and outer suburbs are defined by postcodes in and around the following Statistical Local Areas:

Inner Suburbs

Adelaide, Kensington and Norwood, St Peters, Prospect, Thebarton, Unley, Walkerville.

Middle Suburbs

Brighton, Burnside, Campbelltown, Enfield, Glenelg, Henley and Grange, Marion, Mitcham, Payneham, Port Adelaide, West Torrens, Woodville.

Outer Suburbs

East Torrens, Elizabeth, Gawler, Happy Valley, Munno Para, Noarlunga, Salisbury, Stirling, Tea Tree Gully, Willunga.

Non-metropolitan South Australia

In 1998, just over one third (34.1%) of the non-metropolitan population was aged from 0 and 24 years (136,009 people).

South Australia's non-metropolitan areas face a number of issues which do not generally affect those living in metropolitan areas. Briefly, these include:

- a steady decline in employment in agricultural industries;
- problems of access and mobility in relation to education, health and welfare service provision;
- the loss of much of its skilled young potential populace, through migration to the city or other states in search of better employment and educational opportunities; and
- a high proportion of the Indigenous population (who have a range of health care needs which differ from those of the non-Indigenous population).

It is important to bear these factors, in addition to the earlier points regarding data interpretation, in mind when viewing the demographic maps of non-metropolitan South Australia.

Data issues

Data quality of Indigenous population counts

As noted in Chapter 2, Methods, the data describing the health status and utilisation of health services by Aboriginal people and Torres Strait Islanders are generally of poor quality. It has become clear with the release of results from the 1996 Census that population data are also less than ideal.

Table 3.3 shows the population of Indigenous South Australians over the ten-year period from 1986 to 1996. The number of people who identified themselves as Aboriginal people or Torres Strait Islanders increased by 6,153 people, from 14,291 at the 1986 Census to 20,444 at the 1996 Census (an increase of 43.1%).

Of the total increase, over half was recorded in Adelaide, an increase of 61.2% over the ten years. The increase in the non-metropolitan areas was weaker, at 30.6%.

Such increases are not explained by the relatively higher fertility rates among Indigenous people, nor are they explained by a decline in mortality of Indigenous Australians. Rather, it appears that Indigenous Australians have been increasingly prepared to identify themselves as such on the Census form. The question remains as to what proportion of the actual population of Indigenous Australians these current levels of identification represent.

Table 3.3: Population of Indigenous South Australians, 1986 to 1996

	Adelaide	Rest of State	South Australia
Numbers			
1986	5,825	8,466	14,291
1991	6,948	9,284	16,232
1996	9,387	11,057	20,444
Per cent change			
1986 to 1991	19.3	9.7	13.6
1991 to 1996	35.1	19.1	25.9
1986 to 1996	61.2	30.6	43.1

Source: Calculated from unpublished data supplied by ABS special data services

ABS SEIFA Index of Relative Socio-Economic Disadvantage

At each Census since the 1986 Census, the ABS has produced a number of indexes which measure different aspects of the socioeconomic conditions of the populations of geographic areas (ABS 1998). These summary measures, the Socio-Economic Indexes for Areas (SEIFA), combine into one index a range of information relating to the social and economic characteristics of the populations in small areas.

One of these, the Index of Relative Socio-economic Disadvantage (IRSD), summarises the information available from variables related to education, occupation, income, family structure, race (the proportion of Indigenous people), ethnicity (poor proficiency in use of the English language) and housing. The index reflects the extent of disadvantage represented by, for example, the proportion of low income families, of those with relatively low educational attainment and of high unemployment in the area being examined. The variables are, therefore, similar to those presented in the remainder of this chapter. While the index number is a useful measure of socioeconomic disadvantage, users should realise its limitations.

For example, while it represents the results of a particular set of statistical analyses on a set of variables from the 1996 Census, changing the variables could change the particular index values calculated (although the relativities between the areas for these variables are, in general, likely to remain). It also has a wide range of uses, such as in the allocation of resources or as a shorthand description of populations living in an area, but is not a universal answer to all such needs.

The IRSD was calculated at the smallest geographic level for which data are available from population Censuses – the Census Collection District (CD) – and was then calculated for the larger areas in the atlas (postcodes, Statistical Local Areas and regions) by summing the population weighted scores at the CD level in each of the larger areas.

The IRSD is calculated to show the relativity of areas to the Australian average for the particular set of variables which it comprises. This average score is set at 1000. In this atlas, data mapped at the SLA level have been re-weighted so that South Australia is the average, with a State score of 1000. Areas with relatively less disadvantaged populations (ie. those of higher socioeconomic status) have an index number of above 1000 and those with relatively greater disadvantage (ie. of lower socioeconomic status) have an index number of less than 1000. It is unfortunate that the IRSD uses high index scores to indicate advantage, when it would be intuitively expected that high index scores would indicate disadvantage, as implied by the name of the index. The text and maps for the IRSD are on pages 118 to 121.

Given that the IRSD is presented in this way, statistically significant *inverse correlations* between the IRSD and other variables indicate a positive association between the distribution of those variables and the disadvantaged population at the postcode level. Statistically significant *positive correlations* indicate an association between the particular variable(s) and areas comprising relatively advantaged populations. This is a difficult concept to grasp, so an example may assist. In the case of the variable for children living in single parent families in Adelaide (page 46), there is an inverse correlation (-0.89) with the IRSD. Thus, at the postcode level in Adelaide there is a strong *negative* association between high proportions of single parent families and high IRSD index scores. This can be restated as there being a strong *positive* association with socioeconomic disadvantage (ie. low index scores).

Readers should note that the IRSD has been calculated on the total population only, and is not available for specific age groups.

Children aged 0 to 4 years, 1998

Adelaide

In 1998 there were estimated to be 66,906 children aged 0 to 4 years living in the Adelaide, comprising 6.1% of the total population. Over the period from 1991 to 1998, the number of children in this age group was estimated to have decreased by 1,781 children (2.6%).

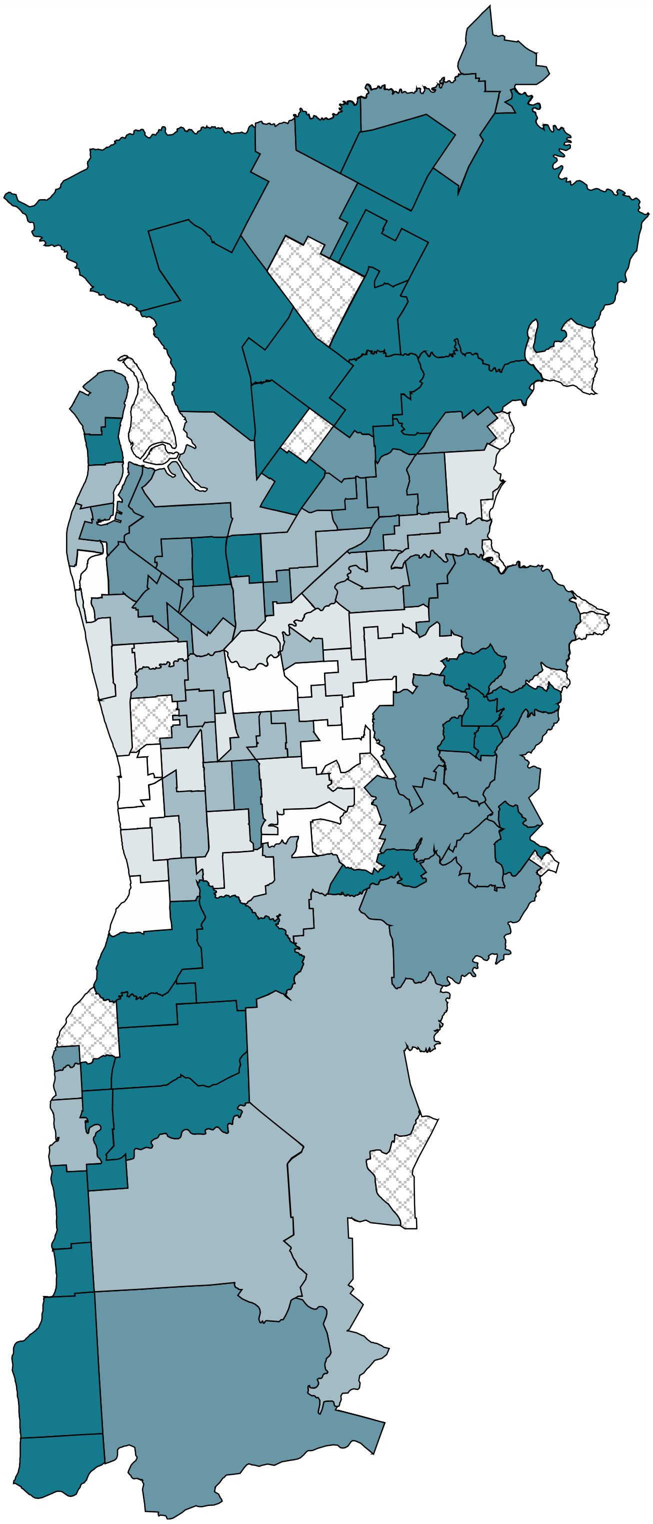
The outer postcode areas at the metropolitan fringe generally contain the highest proportions of children aged 0 to 4 years (**Map 3.1**); postcodes recording the highest proportions included *Smithfield* (9.9%), *Angle Vale* (9.6%), *Salisbury* (9.6%), *Burton* (9.4%), *Golden Grove* (8.9%), *Parafield Gardens* (8.9%), *Elizabeth North* (8.8%), *Munno Para* and *Wynn Vale* (both 8.5%) in the north; *Maslin Beach* (9.7%), *Old Noarlunga* (9.0%), *Hackham* and *Aldinga* (both 8.6%) in the south; and *Summertown* (8.5%) in the Adelaide Hills.

Postcodes with relatively low proportions of children in the 0 to 4 year age group were located in the inner south-eastern and coastal areas of Adelaide. The lowest proportions were found in the west, in *West Lakes* and *West Lakes Shore* (both with 3.4%) and *Novar Gardens* (3.5%) and in the south-west in *Seacliff* (3.4%) and *Somerton Park* (3.6%).

The largest numbers of children aged 0 to 4 years were generally found in postcode areas located in the outer north and south. These included *Salisbury* (3,654 children), *Smithfield* (1,947), *Elizabeth North* (1,689), *Salisbury East* (1,598), *Elizabeth* (1,580), *Golden Grove* (1,293), *Parafield Gardens* (1,158) and *Modbury North* (1,052) in the north; and, to the south, *Morphett Vale* (2,726), *Happy Valley* (2,270), *O'Halloran Hill* (1,754) and *Hackham* (1,226).

There was a correlation of meaningful significance at the postcode level with the variable for people who left school at age 15 years or earlier (0.56).

Map 3.1
Children aged 0 to 4 years, Adelaide, 1998
as a percentage of the total population in each postcode area



Per cent aged 0 to 4 years

- *7.0% or more*
- *6.0 to 6.9%*
- *5.0 to 5.9%*
- *4.0 to 4.9%*
- *fewer than 4.0%*
- *data not mapped**

**Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.*

Source: ERP, 1998, ABS Cat No. 3235.4 ***Details of map boundaries are in Appendix 1.2***

Children aged 0 to 4 years, 1998

Non-metropolitan South Australia

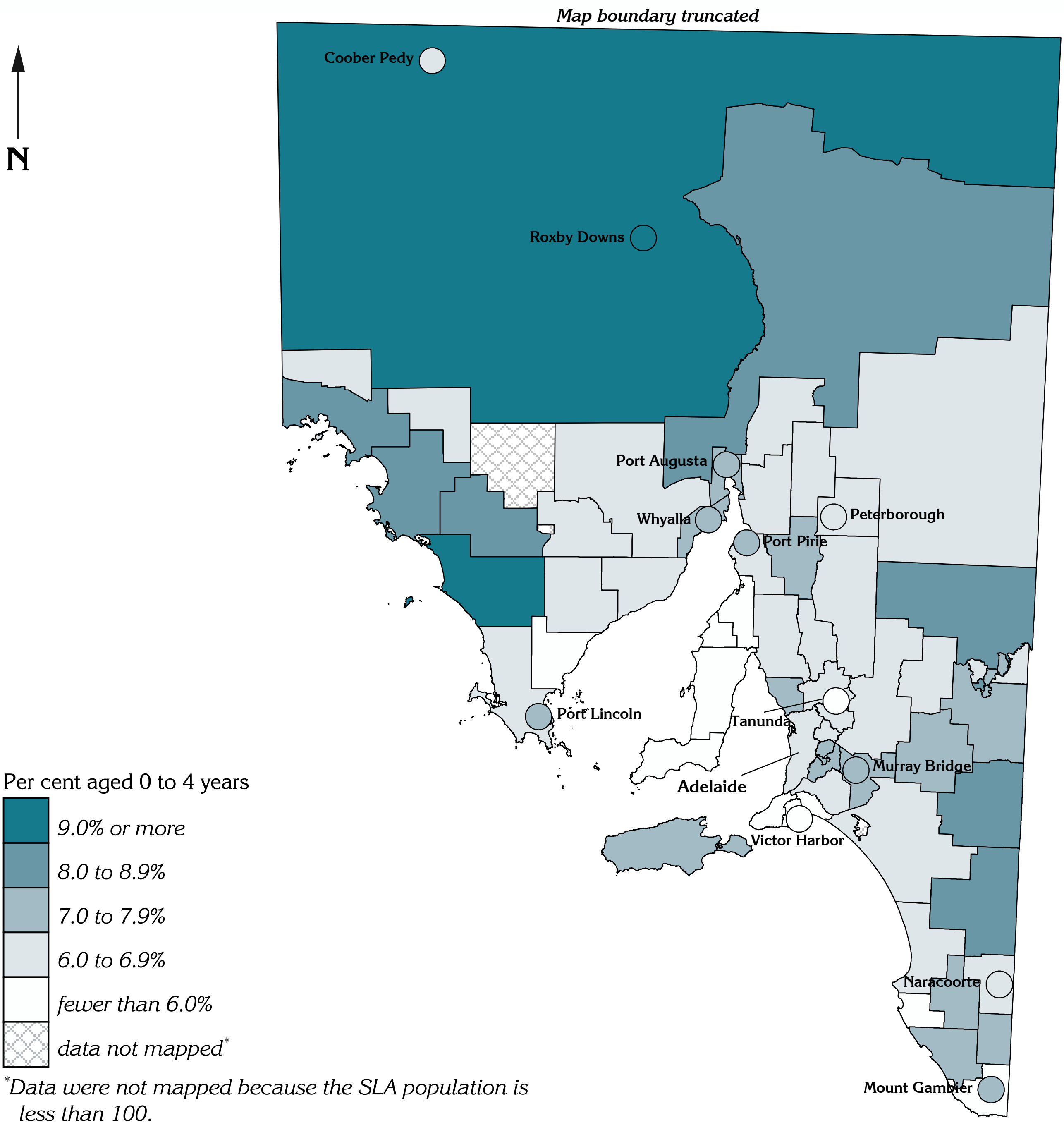
There were estimated to be 28,071 children aged from 0 to 4 years in the non-metropolitan areas of South Australia in 1998, 7.0% of the non-metropolitan population. This was slightly higher than the corresponding figure for the metropolitan population (6.1%). Between 1991 and 1998, the number of children in this age group fell by 1,616 children (a decline of 5.4%).

There was a fairly uniform distribution of 0 to 4 year olds across the State (**Map 3.2**), with high proportions in the SLAs of Roxby Downs (13.1%, 453 children), Elliston (10.0%), Unincorporated Far North (9.6%), Unincorporated Flinders Ranges (8.9%), Ceduna (8.6%), Unincorporated Riverland and Tatiara (both 8.5%), Southern Mallee (8.2%), Le Hunte (8.1%) and Streaky Bay (8.0%). The lowest proportions tended to be in SLAs located closer to the metropolitan area, with the lowest in Victor Harbor (4.7%), Alexandrina-Coastal and Yankalilla (both 5.3%) and Barossa-Tanunda (5.4%). Relatively low proportions were also found in Tumby Bay (5.1%) and Yorke Peninsula-South (5.3%).

The largest numbers of children were again in the settled areas, with 1,835 children in Whyalla, 1,816 in Mount Gambier, 1,282 in Murray Bridge, 1,096 in Port Augusta, 1,088 in Mount Barker-Central and 1,040 in Port Pirie-City.

Correlations of meaningful significance at the SLA level were found with the variables for Indigenous people aged 0 to 14 years (0.55) and 15 to 24 years (0.51).

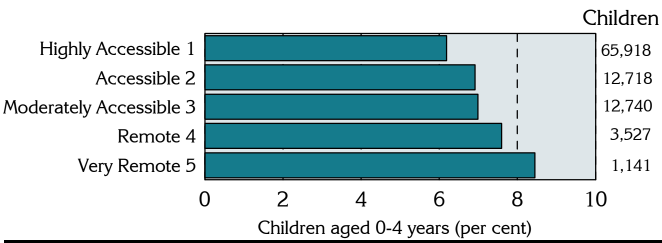
Map 3.2
Children aged 0 to 4 years, South Australia, 1998
as a percentage of the total population in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100.

Source: ERP, 1998, ABS Cat No. 3235.4 *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of children aged 0 to 4 years shows a strong relationship with remoteness, increasing steadily across the ARIA+ classes from 6.2% in the Highly Accessible areas to 8.4% in the Very Remote areas. Conversely, the numbers of children drop rapidly across the remoteness classes.

Source: Calculated on ARIA+ classification

Children aged 5 to 9 years, 1998

Adelaide

In 1998, there were an estimated 68,673 children aged from 5 to 9 years living in Adelaide, 6.3% of the metropolitan population. The number of children in this age group is estimated to have fallen by 1,659 between 1991 and 1998, a decrease of 2.4%. The percentage of the total population in this age group also decreased marginally over the time period, from 6.8% in 1991 to 6.3% in 1998.

As noted for children aged 0 to 4 years, high proportions of the 5 to 9 year old population were recorded in the outer metropolitan fringe areas, particularly to the north and south, and to a lesser extent in the outer eastern hills postcode areas (**Map 3.3**). The highest proportions occurred in the northern postcodes of *Munno Para* (10.3%), *Smithfield* (10.2%), *Wynn Vale* (9.7%), *Angle Vale* (9.5%), *Burton* (9.4%) and *Parafield Gardens* (9.0%); in the south at *O'Halloran Hill* (9.4%) and *Old Noarlunga* (9.3%); and in the Adelaide Hills at *Summertown* (10.1%), *Stirling Forward* (covering *Heathfield* and *Mylor*, 9.4%) and *Uraidla* (9.1%).

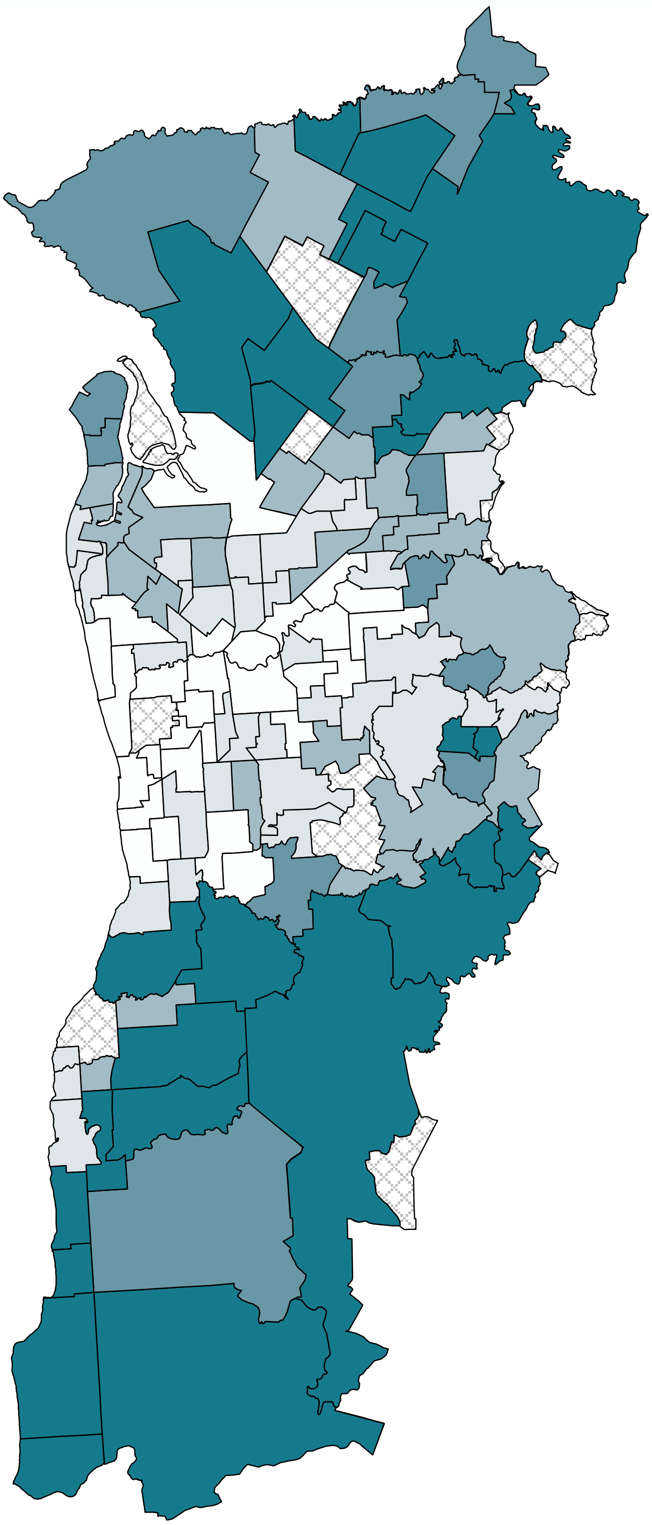
The lowest proportions of this age cohort were largely in postcode areas in and around the city and to the south-west. They included *Adelaide* (with 0.9%), *North Adelaide* (2.3%), *Gepps Cross* (2.6%), *Norwood* (3.4%), *Novar Gardens* (3.9%), *Oaklands Park and Glenelg* (both 4.1%).

The largest numbers of 5 to 9 year olds were found in the outer suburban postcode areas of *Salisbury* (3,213 children), *Smithfield* (1,997), *Salisbury East* (1,686), *Elizabeth North* (1,584) and *Elizabeth* (1,433) in the north and *Morphett Vale* (2,701), *Happy Valley* (2,688) and *O'Halloran Hill* (2,012) in the south.

There was no consistent evidence in the correlation analysis of an association at the postcode level between high proportions of children aged 5 to 9 years and socioeconomic status.

Map 3.3
Children aged 5 to 9 years, Adelaide, 1998
as a percentage of the total population in each postcode area

N



Per cent aged 5 to 9 years

8.0% or more

7.0 to 7.9%

6.0 to 6.9%

5.0 to 5.9%

fewer than 5.0%

*data not mapped**

**Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.*

Source: ERP, 1998, ABS Cat No. 3235.4 ***Details of map boundaries are in Appendix 1.2***

Children aged 5 to 9 years, 1998

Non-metropolitan South Australia

In 1998, there were an estimated 30,868 children aged from 5 to 9 years living in the non-metropolitan areas of South Australia, comprising 7.7% of the non-metropolitan population. As for children aged 0 to 4 years, the non-metropolitan percentage of 5 to 9 year olds was higher than that in Adelaide. Between 1991 and 1998, the number of 5 to 9 year olds in the non-metropolitan areas of South Australia was estimated to have fallen by 764 children (2.4%).

The highest proportions of children aged from 5 to 9 years were in the northern and western parts of the State (**Map 3.4**). These were the SLAs of Roxby Downs (10.9%, 376 children), Unincorporated Far North (10.2%), Unincorporated Flinders Ranges (9.8%), Ceduna (9.7%), Lucindale (9.4%), Elliston (9.1%), Cleve and Flinders Ranges (both 9.0%).

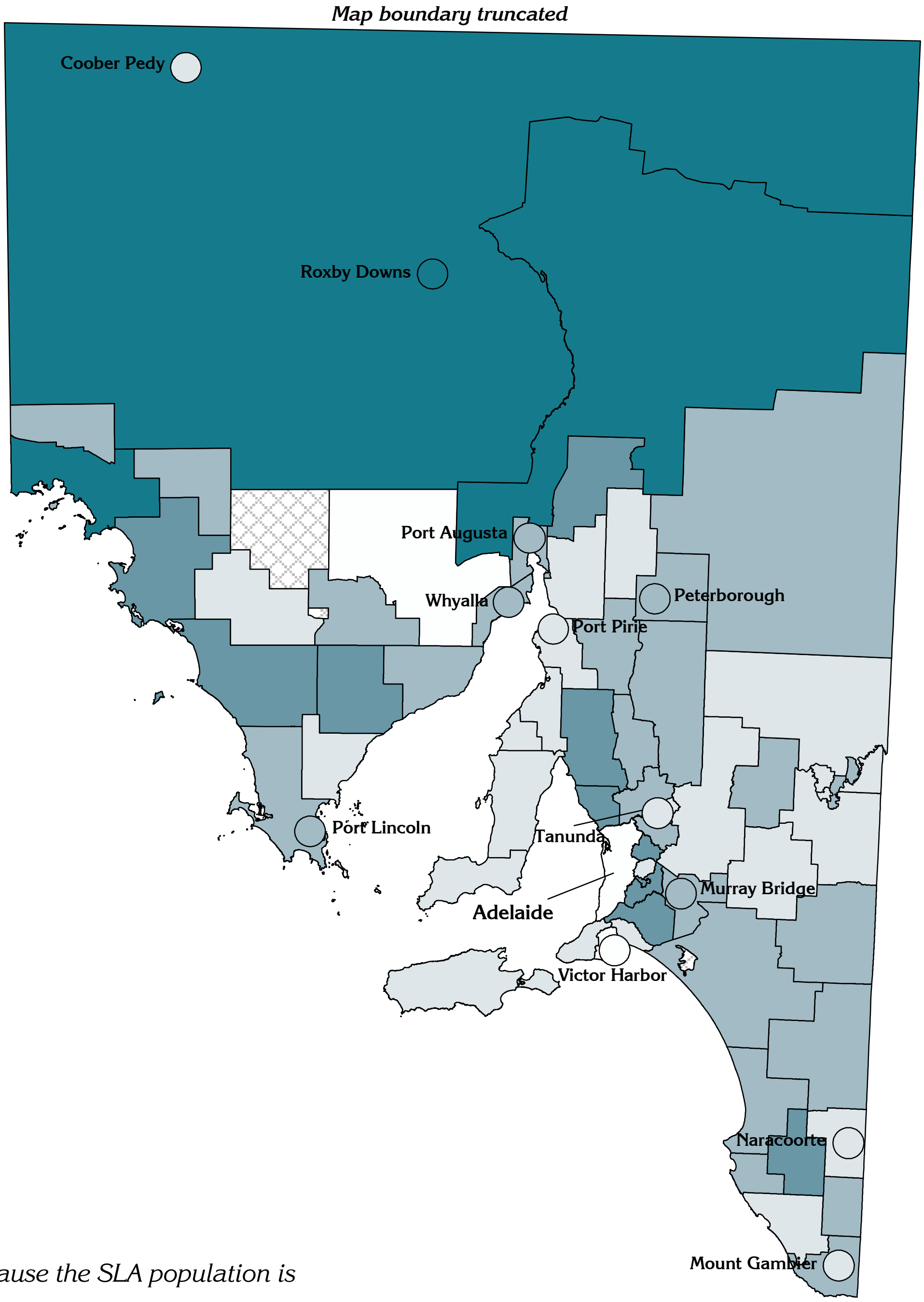
Lower than average proportions were found in SLAs scattered throughout the State, with small concentrations in the Yorke Peninsula and Riverland areas. These included Unincorporated Whyalla (5.2%), Victor Harbor (5.8%), Yankalilla and Barossa-Angaston (both 6.5%).

The largest numbers of children at these ages were estimated to live in the towns and settled areas of Whyalla (1,974 children), Mount Gambier (1,640), Mount Barker-Central and Murray Bridge (both 1,254), Port Augusta (1,180) and Port Pirie-City (1,041).

There was no consistent evidence in the correlation analysis of an association at the SLA level between high proportions of children aged 5 to 9 years and socioeconomic status.

Map 3.4
Children aged 5 to 9 years, South Australia, 1998
as a percentage of the total population in each Statistical Local Area

N



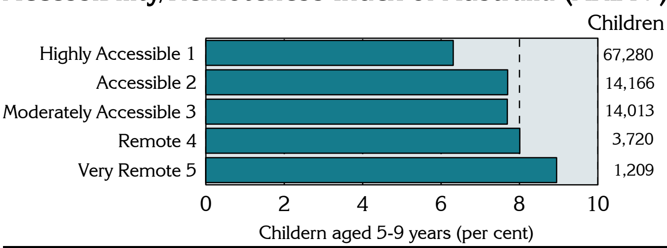
Per cent aged 5 to 9 years

- *9.5% or more*
- *8.5 to 9.4%*
- *7.5 to 8.4%*
- *6.5 to 7.4%*
- *fewer than 6.5%*
- *data not mapped**

**Data were not mapped because the SLA population is less than 100.*

Source: ERP, 1998, ABS Cat No. 3235.4 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of children aged 5 to 9 years increases steadily with increasing remoteness, from 6.3% in the Highly Accessible ARIA+ areas to 8.0 in the Remote areas, before increasing to 8.9% in the Very Remote areas. The number of children at these ages drops markedly across the remoteness classes.

Source: Calculated on ARIA+ classification

Children aged 10 to 14 years, 1998

Adelaide

In 1998, there were 70,476 children aged from 10 to 14 years living in Adelaide, comprising 6.5% of Adelaide's population. While this represents an increase of 1,705 children (2.5%) over the 1991 figure, their proportion of the total population decreased slightly, from 6.7% in 1991 to 6.5% in 1998.

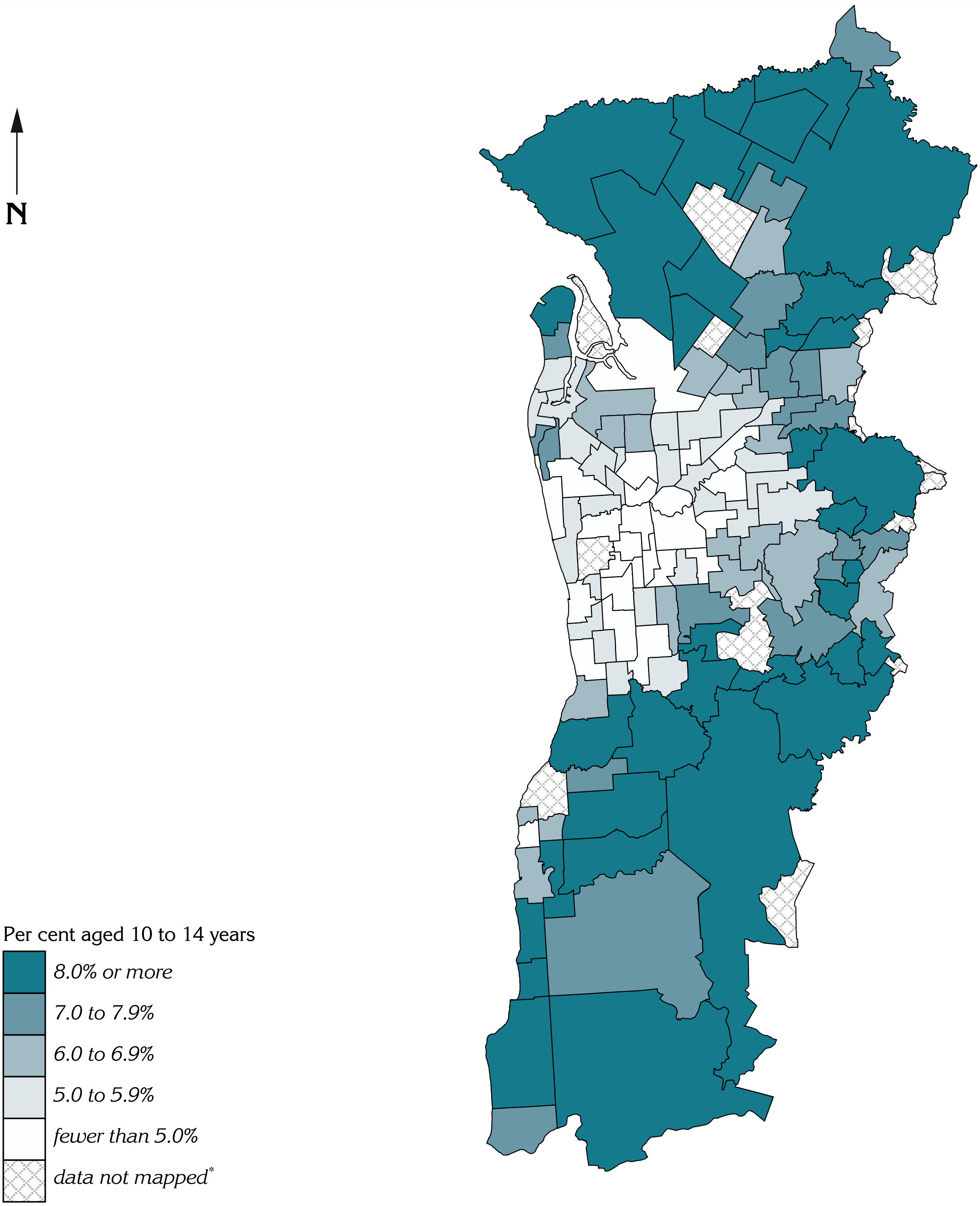
The highest proportions of 10 to 14 year olds were located in Adelaide's outer suburbs, in a broad band to the north, south and east of the city (**Map 3.5**). This included the northern postcode areas of *Angle Vale* (11.0%), *MacDonald Park* (9.6%), *Wynn Vale* (9.6%), *Burton and Parafield Gardens* (both 9.3%) and *Smithfield* (9.1%); in the Adelaide Hills at *Piccadilly* (12.7%), *Montacute* (10.7%), *Norton Summit* (9.8%), *Upper Sturt* (9.4%), *Blackwood Forward* (including *Blackwood* and *Clarendon*, 9.3%) and *Aldgate* (9.0%); and in the south at *Maslin Beach* (9.9%), *Happy Valley* (9.7%), *Willunga* and *O'Halloran Hill* (both 9.3%).

Lower than average proportions were predominantly in postcode areas located in and around the city and to the south-west, in *Adelaide* (with 1.7%), *North Adelaide* (2.5%), *Gepps Cross* (2.8%), *Thebarton* (3.6%), *Norwood* (3.7%) and *Netley* (3.9%).

The northern and southern postcode areas had the largest numbers of children at these ages. In the north, these included *Salisbury* (3,076 children), *Salisbury East* (1,803) and *Smithfield* (1,789); and, in the south, *Happy Valley* (3,061), *Morphett Vale* (2,727) and *O'Halloran Hill* (1,990).

There was no consistent evidence in the correlation analysis of an association at the postcode level between high proportions of children aged 10 to 14 years and socioeconomic status.

Map 3.5
Children aged 10 to 14 years, Adelaide, 1998
as a percentage of the total population in each postcode area



*Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.

Source: *ERP, 1998, ABS Cat No. 3235.4* — *Details of map boundaries are in Appendix 1.2*

Children aged 10 to 14 years, 1998

Non-metropolitan South Australia

In 1998, there were 30,984 children aged from 10 to 14 years in the non-metropolitan areas of South Australia, comprising 7.8% of the non-metropolitan population. The number of 10 to 14 year olds in non-metropolitan South Australia was estimated to have risen by 1,586 (5.4%) from 1991 to 1998.

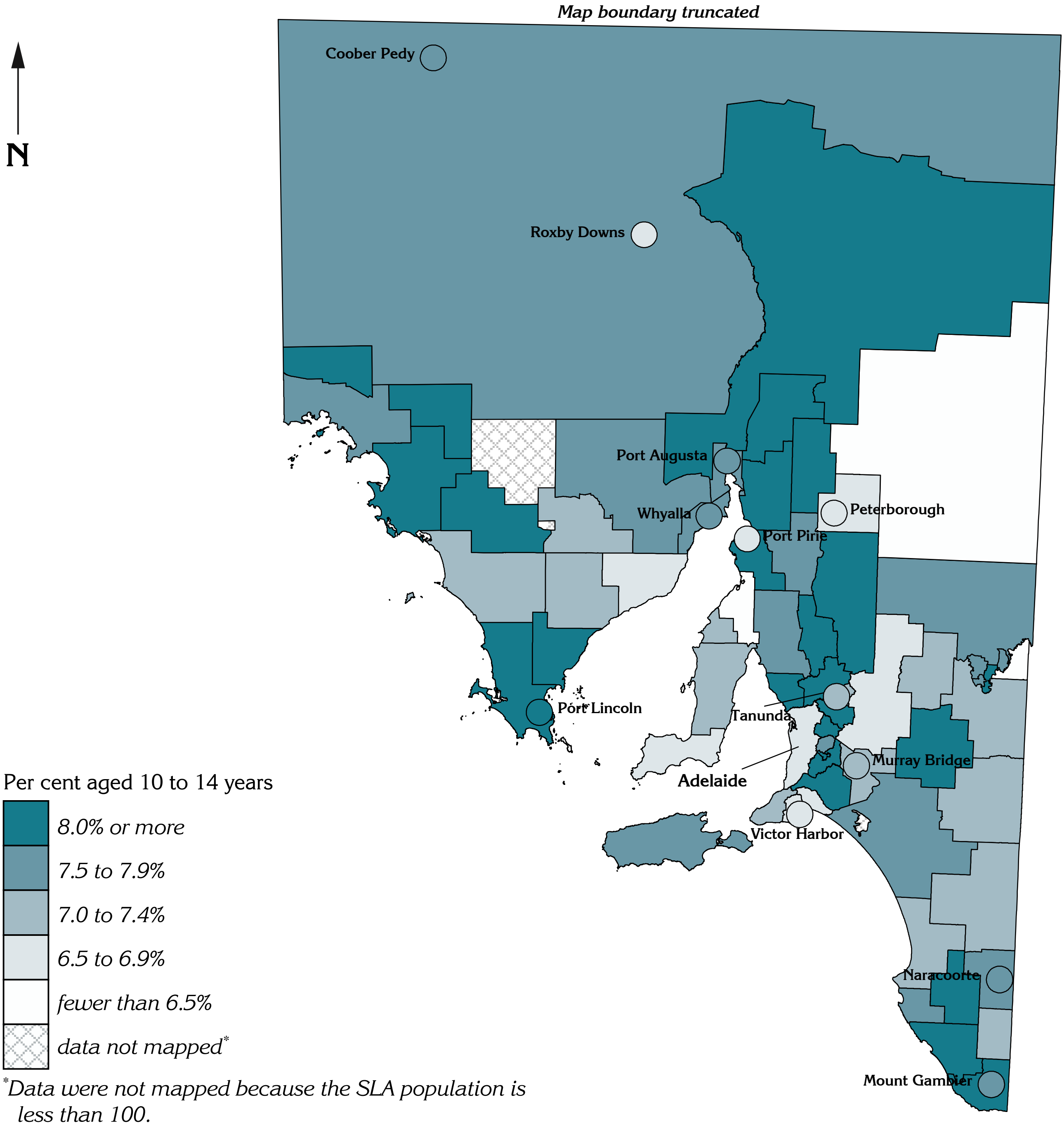
Relatively high proportions of 10 to 14 year olds were primarily in SLAs located to the north of Adelaide, but were also found in SLAs on the Eyre Peninsula and in the South East (**Map 3.6**). Unincorporated West Coast (10.9%), Lucindale (9.6%), Mallala (9.5%), Karoonda-East Murray (9.4%), Port Pirie-City and Kapunda and Light (both 9.3%), Orroroo/Carrieton (9.2%) and Adelaide Hills-North (9.0%) all had relatively high percentages.

SLAs with the lowest proportions of 10 to 14 year olds were mainly on the Yorke and Fleurieu Peninsulas and to the east of Adelaide.

The largest numbers of children aged 10 to 14 years in the non-metropolitan areas of South Australia were estimated to be in the towns and urban fringe areas of Whyalla (1,870 children), Mount Gambier (1,763), Murray Bridge (1,191), Mount Barker-Central (1,140), Port Augusta (1,097), Port Lincoln (1,083) and Port Pirie-City (1,000).

There was no consistent evidence in the correlation analysis of an association at the SLA level between high proportions of children aged 10 to 14 years and socioeconomic status.

Map 3.6
Children aged 10 to 14 years, South Australia, 1998
as a percentage of the total population in each Statistical Local Area



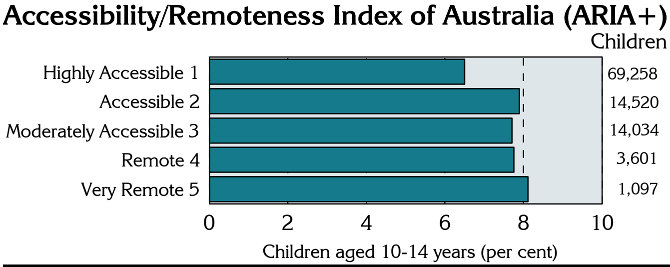
Per cent aged 10 to 14 years

- *8.0% or more*
- *7.5 to 7.9%*
- *7.0 to 7.4%*
- *6.5 to 6.9%*
- *fewer than 6.5%*
- *data not mapped**

**Data were not mapped because the SLA population is less than 100.*

Source: ERP, 1998, ABS Cat No. 3235.4 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The highest proportions of children aged 10 to 14 years were estimated for the Very Remote (8.1%) and Accessible (7.9%) areas. The lowest proportion was in the Highly Accessible areas (6.5% of the population). As for the younger ages, the number of children decreases markedly across the remoteness classes.

Source: Calculated on ARIA+ classification

Proportion of population aged 0 to 14 years, 1998

Adelaide

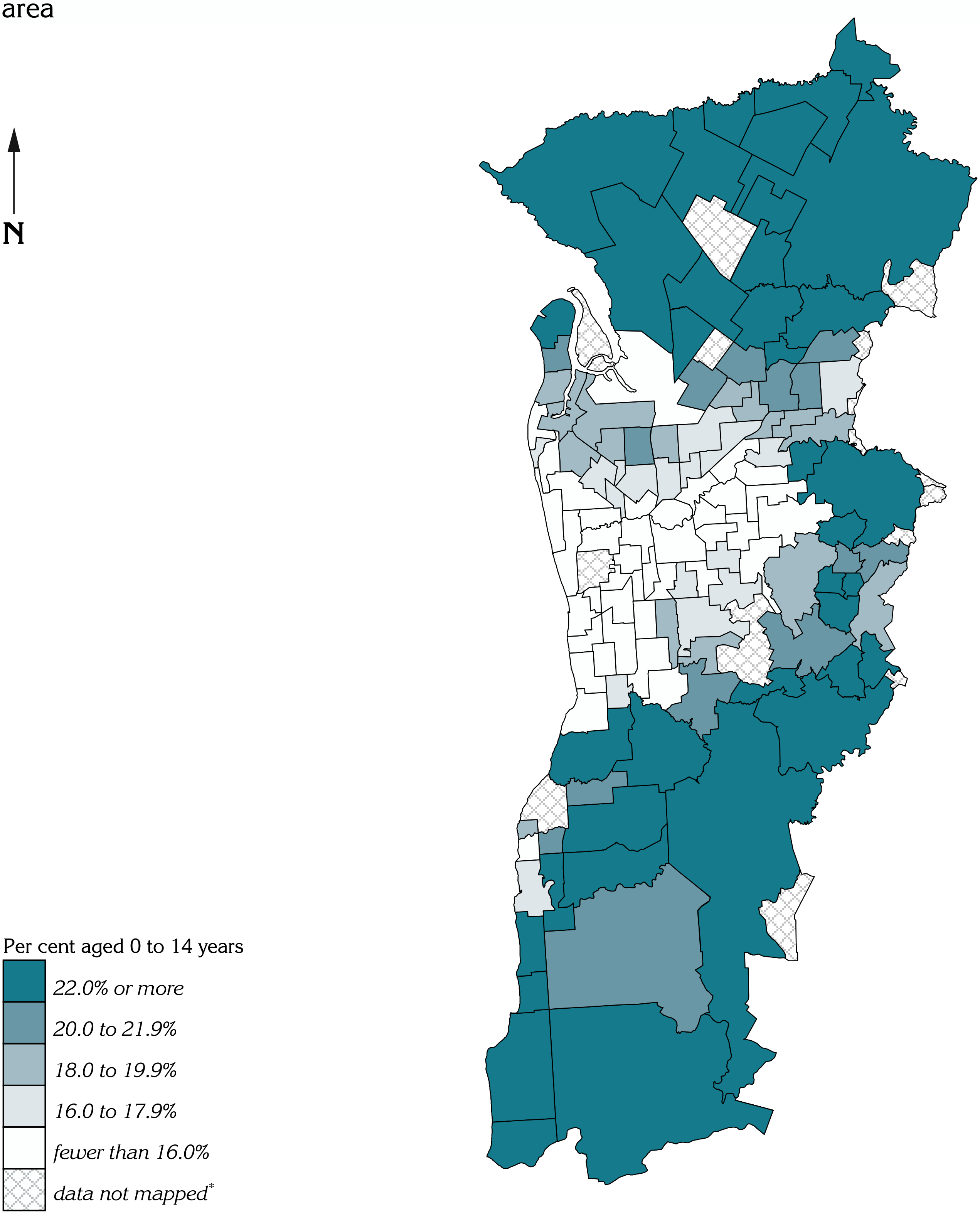
In 1998, there were estimated to be 206,055 children aged from 0 to 14 years, comprising 18.9% of Adelaide's population. The number of children in this age group decreased by 1,735 (0.8%) between 1991 and 1998: the proportion also decreased over this period (down from 20.2% in 1991).

The pattern of distribution of the 0 to 14 year old population in Adelaide mirrors the general distribution of its population sub-groups discussed previously. The highest proportions of 0 to 14 year olds were in outer suburban postcode areas, including *Angle Vale* (30.1%), *Smithfield* (29.2%), *Burton* (28.1%), *Wynn Vale* (27.8%), *Parafield Gardens* (27.1%), *Munno Para* (27.0%) and *Golden Grove* (26.5%) to the north; *Maslin Beach* (28.3%), *Old Noarlunga* (27.0%) and *O'Halloran Hill* (26.8%) in the south; and *Piccadilly* (26.6%) and *Summertown* (26.5%) in the hills.

The postcodes with the lowest proportions in this age group were generally located in and around the city and in the inner eastern and western suburbs (**Map 3.7**); in the inner city areas of *Adelaide* (with 4.4%), *North Adelaide* (9.2%) and *Norwood* (11.0%); in the north in *Gepps Cross* (11.0%); in the west at *Glenelg* (11.9%), *Thebarton* (13.3%), *Novar Gardens* and *Hindmarsh* (both 13.4%); and in the east at *Marden* (12.8%).

There was no consistent evidence in the correlation analysis of an association at the postcode level between high proportions of children aged 0 to 14 years and socioeconomic status.

Map 3.7
Proportion of population aged 0 to 14 years, Adelaide, 1998
Children aged 0-14 years as a percentage of the total population in each postcode area



**Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.*

Source: ERP, 1998, ABS Cat No. 3235.4 ***Details of map boundaries are in Appendix 1.2***

Proportion of population aged 0 to 14 years, 1998

Non-metropolitan South Australia

There were an estimated 89,923 children aged from 0 to 14 years living in the non-metropolitan area of South Australia in 1998, comprising 22.5% of the total non-metropolitan population. Between 1991 and 1998, the number of children in this age group decreased by 794 (0.9%). Their proportion of the total non-metropolitan population also decreased slightly, from 24.1% in 1991 to 22.5% in 1998.

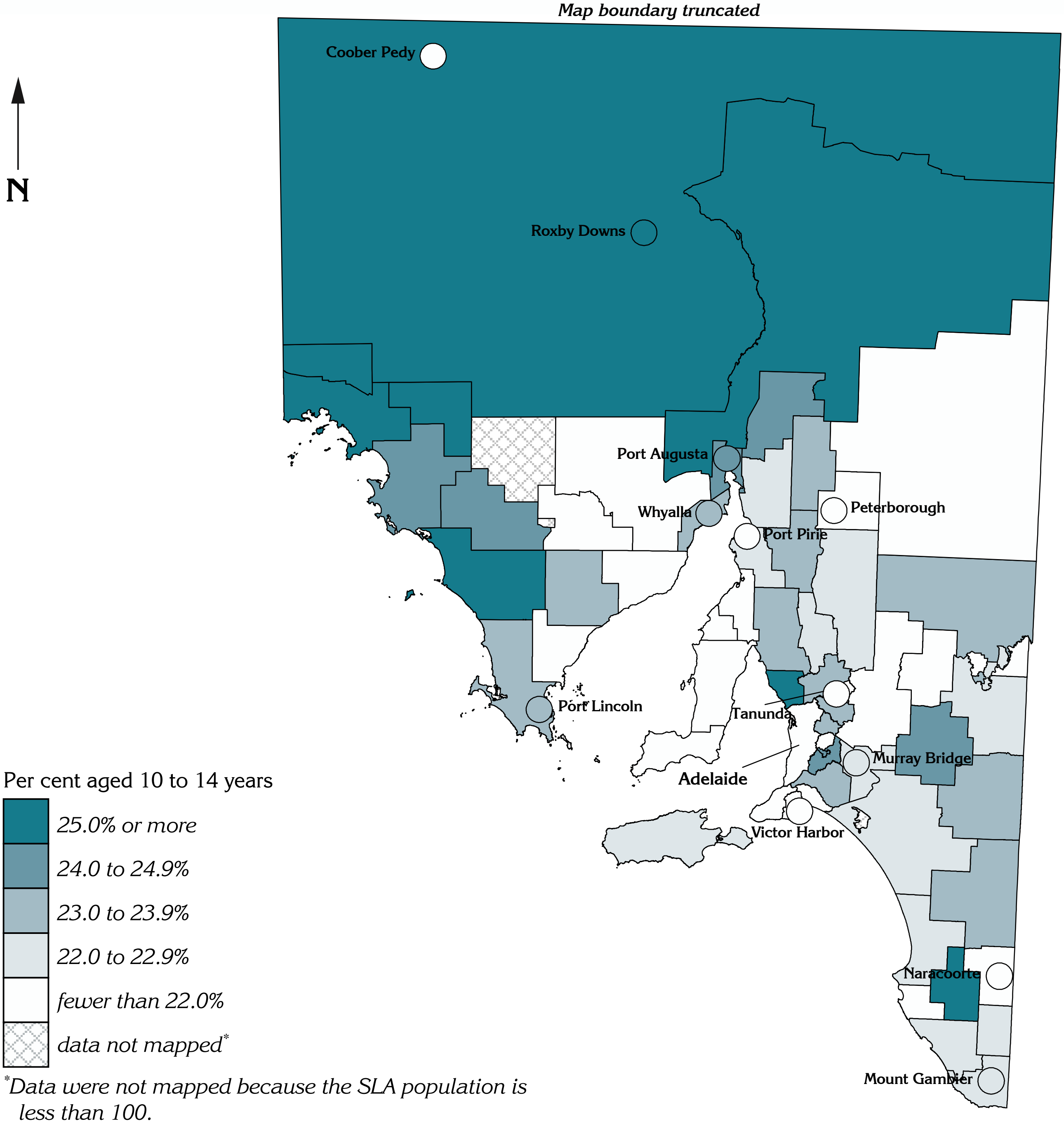
The highest proportions of the 0 to 14 year old population in non-metropolitan South Australia were in SLAs located mainly on the west coast of the Eyre Peninsula and in the far north of the State (**Map 3.8**). The highest proportions were recorded in the SLAs of Roxby Downs (30.6%), Unincorporated Far North (27.8%), Unincorporated Flinders Ranges (27.1%), Elliston (26.3%), Ceduna (26.1%), Lucindale (26.0%), Mallala (25.8%), Unincorporated West Coast (25.4%), Streaky Bay and Mount Barker-Balance (both 24.8%), Mount Barker-Central (24.5%), Le Hunte (24.3%), Flinders Ranges (24.2%), Karoonda East Murray (24.1%) and Port Augusta (24.1%).

Relatively low proportions of 0 to 14 year olds were recorded in SLAs distributed throughout the State, and most notably on the Yorke Peninsula and in areas on the fringe of Adelaide. Proportions below 19% were recorded in the SLAs of Victor Harbor (with 17.1%), Yorke Peninsula-South (18.5%), Barunga West (18.6%), Alexandrina-Coastal (18.7%) and Unincorporated Pirie (18.9%).

There was no consistent evidence in the correlation analysis of an association at the SLA level between high proportions of children aged 0 to 14 years and socioeconomic status.

Map 3.8
Proportion of population aged 0 to 14 years, South Australia, 1998

as a percentage of the total population in each Statistical Local Area

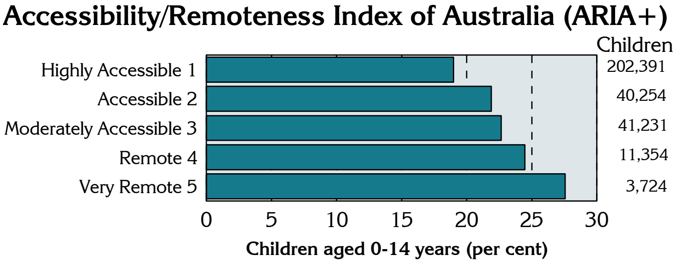


*Data were not mapped because the SLA population is less than 100.

Source: ERP, 1998, ABS Cat No. 3235.4

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of children aged 0 to 14 years increased steadily with increasing remoteness, ranging from 19.0% in the Highly Accessible areas to 27.6% in the Very Remote areas.

Source: Calculated on ARIA+ classification

Number of children aged 0 to 14 years, 1998

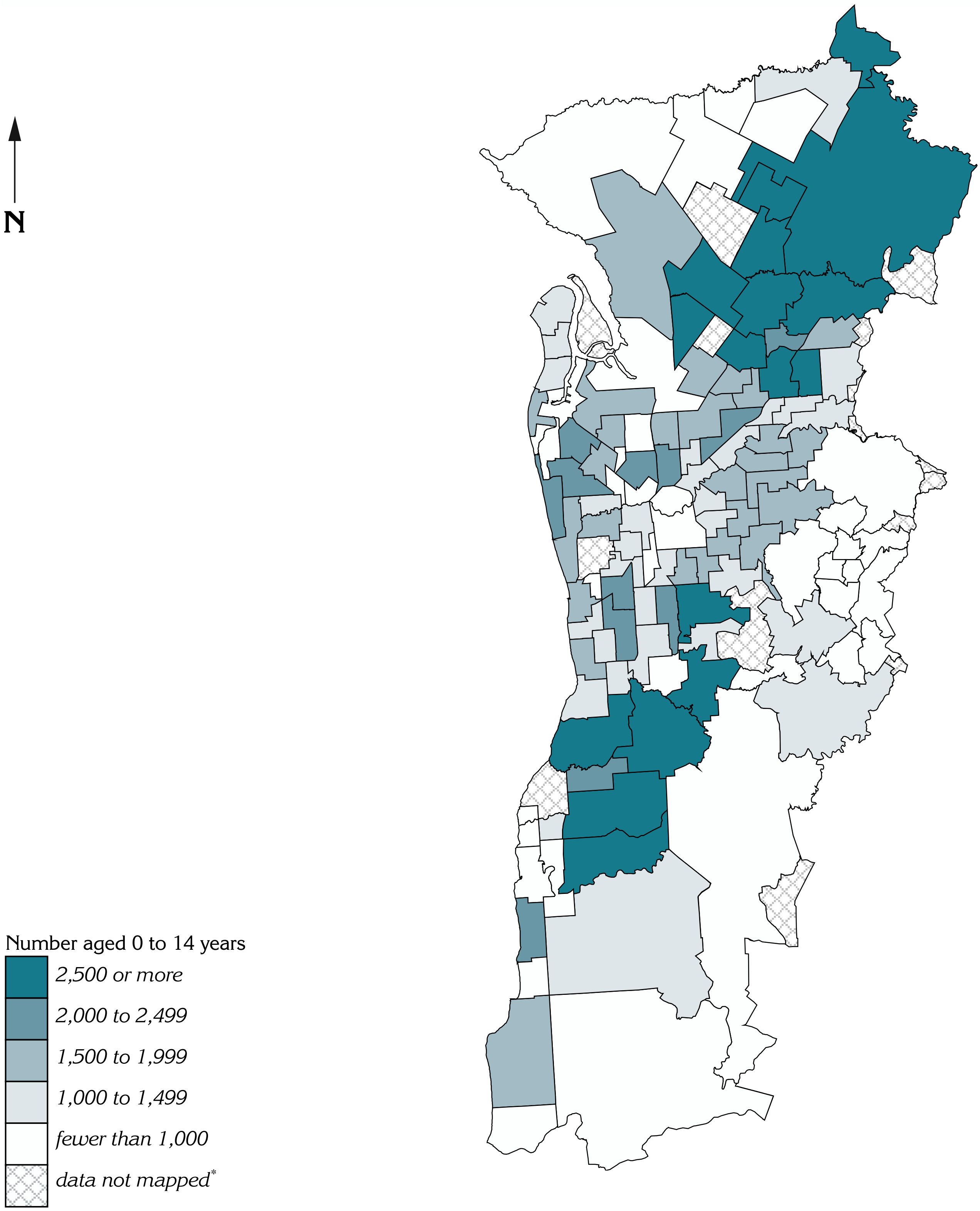
Adelaide

There were an estimated 206,055 children aged from 0 to 14 years in Adelaide in 1998, 1,735 (0.8%) fewer children than in 1991.

The distribution of 0 to 14 year olds by postcode reflects that of the population sub-groups under 15 years of age. The largest numbers of children in this age group were generally located in outer suburban fringe areas (**Map 3.9**); in the north in *Salisbury* (9,943 children), *Smithfield* (5,733), *Salisbury East* (5,087), *Elizabeth North* (4,737), *Elizabeth* (4,348), *Golden Grove* (3,832), *Parafield Gardens* (3,545), *Modbury North* (3,387), *Gawler* (3,305) and *St Agnes* (3,168) and in the south in *Morphett Vale* (8,154), *Happy Valley* (8,019), *O'Halloran Hill* (5,756) and *Hackham* (3,666).

In contrast, the lowest numbers were largely found in postcode areas in the Adelaide Hills (9 of the 10 postcodes with the lowest numbers were located in this region), such as *Basket Range* (with 52 children), *Ashton* (66), *Greenhill* (96), *Norton Summit* (111), *Uraidla* (129), *Montacute* (135), *Piccadilly* (142), *Summertown* (150) and *Carey Gully* (168). It is important to note, however, that the number of children aged 0 to 14 in any area is largely a function of the total population in each postcode in addition to other considerations such as the population density of the area and its proximity to the city.

Map 3.9
Number of children aged 0 to 14 years, Adelaide, 1998
total population in each postcode area



*Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.

Source: ERP, 1998, ABS Cat No. 3235.4 **Details of map boundaries are in Appendix 1.2**

Number of children aged 0 to 14 years, 1998

Non-metropolitan South Australia

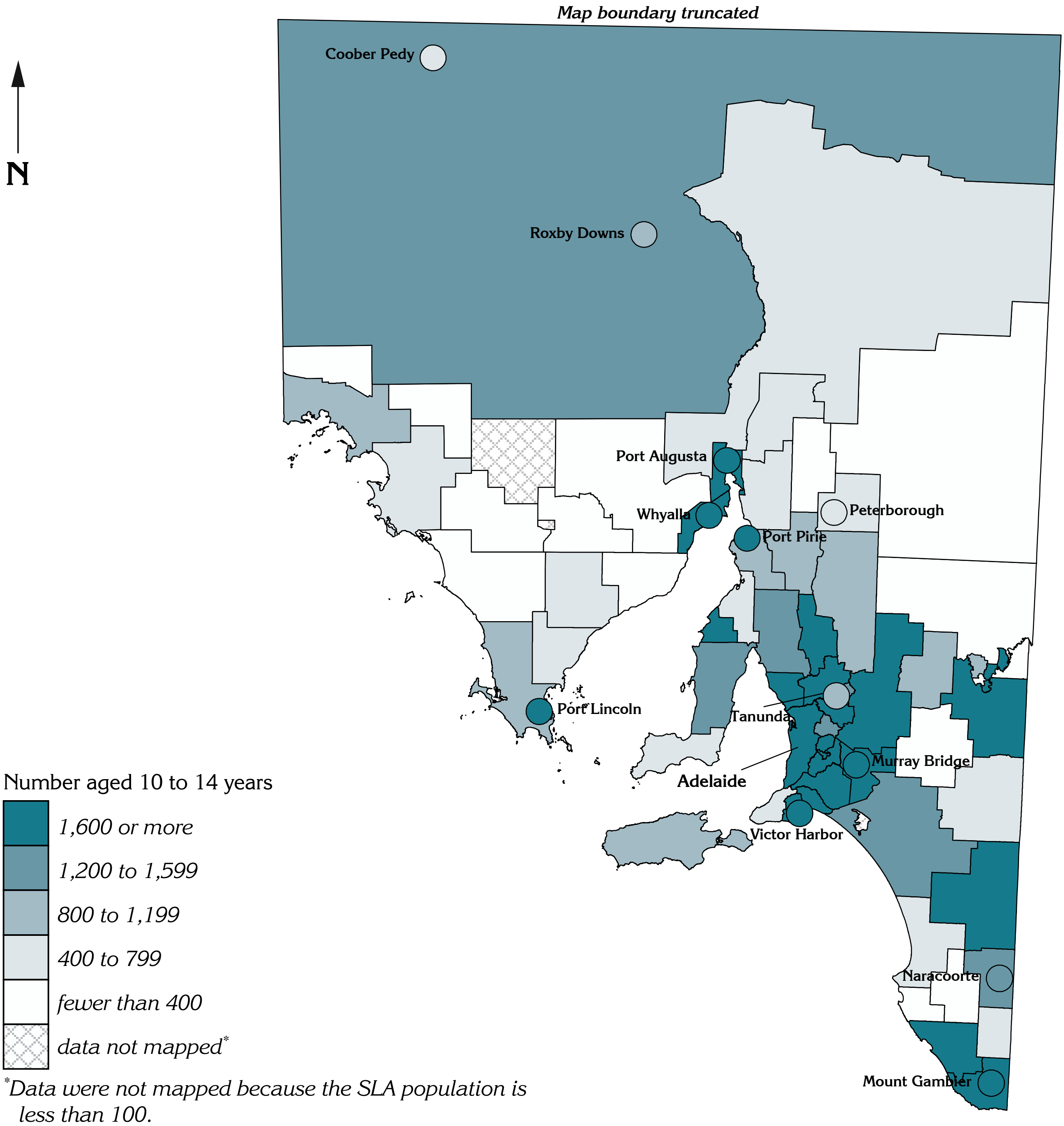
There were an estimated 89,923 children aged from 0 to 14 years living in the non-metropolitan areas of South Australia in 1998. Between 1991 and 1998, the number of children in this age group decreased by 794 (0.9%).

Large numbers of children in the 0 to 14 age group were located in the towns and at the fringe of the metropolitan area (**Map 3.10**), in Whyalla (5,679 children), Mount Gambier (5,219), Murray Bridge (3,727), Port Augusta (3,490), Mount Barker–Central (3,365), Port Pirie-City (3,164), Port Lincoln (2,961), Wattle Range-West (2,363), Kapunda and Light (2,142) and Tatiara (2,045).

Areas with low total population counts also tended to record low numbers of children in the 0 to 14 year age group. These included the Unincorporated areas of Riverland (38 children), Whyalla (49), Pirie (69) and West Coast (159).

Map 3.10
Number of children aged 0 to 14 years, South Australia, 1998

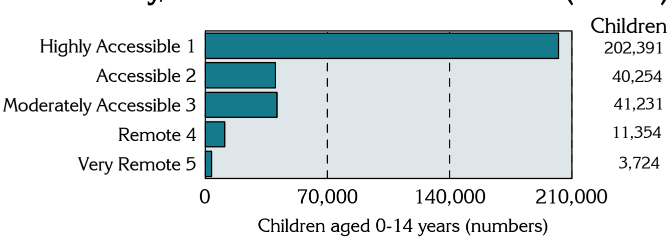
total population in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100.

Source: ERP, 1998, ABS Cat No. 3235.4 — *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



The largest numbers of children aged 0 to 14 years were in the Highly Accessible areas (202,391 children). The number then decreased sharply to 41,231 in the Moderately Accessible areas and to 3,724 in the Very Remote areas.

Source: Calculated on ARIA+ classification

Children aged 0 to 14 years living in single parent families, 1996

Adelaide

There were 37,982 children aged 0 to 14 years living in single parent families at the 1996 Census, comprising 18.4% of the metropolitan 0 to 14 year old population. Since 1991, this figure has increased by 6,650 children (21.2%).

The distribution of 0 to 14 year old children living in single parent families forms a distinctive spatial pattern across Adelaide, with the highest proportions in a strip of postcodes running from the outer northern suburbs to the outer southern suburbs, including much of the inner north, north-west and south-west (**Map 3.11**). Many of the areas recording high percentages of children living in single parent families reflect the distribution of SA Housing Trust dwellings, highlighting the high proportion of single parent families living in this type of accommodation. The highest proportions were found to the north and north-west of the city at *Ferryden Park* (38.3%), *Blair Athol* (35.4%), *Osborne* (33.9%), *Port Adelaide* (33.4%), *Woodville North* (30.5%), *Greenacres* (30.2%), *Hindmarsh* (28.8%) and *Enfield* (28.8%); in the outer north at *Elizabeth North* (31.8%) and in the south at *Maslin Beach* (29.9%), *Christie Downs* (29.1%), *O'Sullivan Beach* (29.1%), *Old Noarlunga* (28.9%) and *Darlington* (28.8%).

In contrast, relatively low proportions of 0 to 14 year old children living in single parent families were found in the Adelaide Hills and inner southern and south-eastern postcode areas. The lowest proportions were in *Montacute* (6.0%), *Carey Gully* (6.1%), *Stirling* (6.4%) and *Ashton* (6.5%).

Postcodes with the largest numbers of children living in single parent families were largely located in the outer northern and southern suburbs. In the north these postcodes included *Salisbury* (2,081 children), *Elizabeth North* (1,510), *Elizabeth* (1,216), *Smithfield* (1,045), *Salisbury East* (855) and *Parafield Gardens* (847) and in the south, *Morphett Vale* (1,646), *Happy Valley* (942) and *Hackham* (849).

There were correlations of substantial significance at the postcode level with the variables for children aged 0 to 14 years living in low income families (0.91), dwellings with no motor vehicles (0.88), SA Housing Trust rented dwellings (0.81) and unemployed females aged 15 to 24 years (0.73).

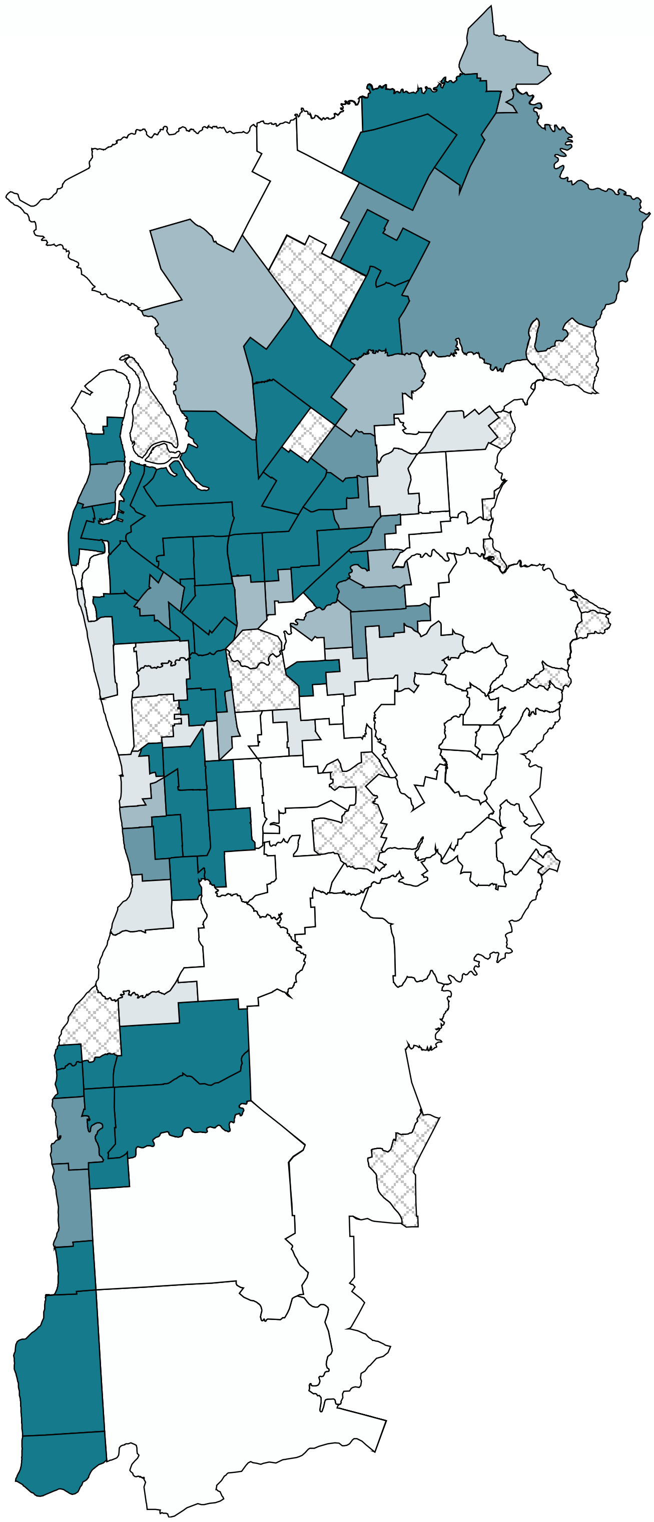
The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of substantial significance recorded with the variables for high income families (-0.80), female labour force participation (-0.73) and managers and administrators, and professionals (-0.73).

These results, together with the inverse correlation of substantial significance with the IRSD (-0.89), indicate the existence of an association at the postcode level between high proportions of children living in single parent families and socioeconomic disadvantage.

Map 3.11
Children aged 0 to 14 years living in single parent families, Adelaide, 1996

as a percentage of all 0 to 14 year olds in each postcode area

N



Per cent of children living in single parent families

- *20.0% or more*
- *18.0 to 19.9%*
- *16.0 to 17.9%*
- *14.0 to 15.9%*
- *fewer than 14.0%*
- *data not mapped**

**Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Children aged 0 to 14 years living in single parent families, 1996

Non-metropolitan South Australia

In the non-metropolitan areas of South Australia in 1996, there were 12,799 children aged 0 to 14 years living in single parent families, comprising 14.3% of the total 0 to 14 year old population. This figure was lower than the corresponding metropolitan proportion of 18.4%.

The highest proportions of children living in single parent families were mainly in towns and in the SLAs surrounding Adelaide (**Map 3.12**). SLAs with the highest proportions included Unincorporated Riverland (29.8%, but with just 14 children), Unincorporated Whyalla (28.1%), Peterborough (M) (21.8%), Whyalla (21.6%), Port Pirie (21.2%), Wallaroo (21.0%), Port Augusta (20.1%), Browns Well (19.6%), Port Lincoln (19.6%) and Murray Bridge (19.5%).

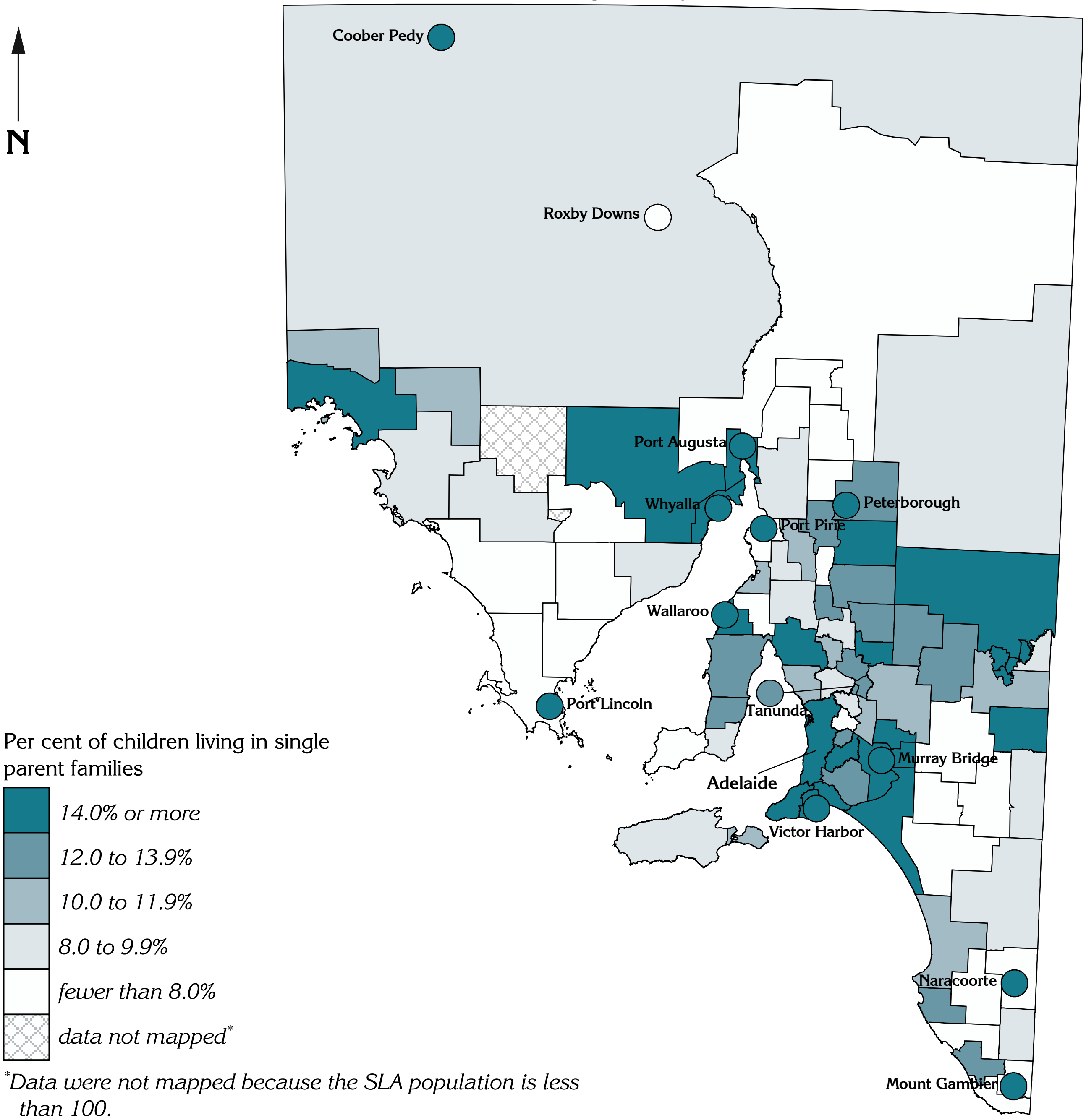
In comparison, relatively low proportions of children living in sole parent families were recorded in SLAs throughout the Murray Mallee and much of the South-East; in the north of the State; or on Eyre Peninsula. The lowest proportions were in Carrieton (with 0.0%), Roxby Downs (1.1%), Hawker (2.7%), Spalding (3.3%), Bute (3.8%), Orroroo (4.4%), Unincorporated Flinders Ranges (4.4%), Karoonda-East Murray and Naracoorte (DC) (both 4.7%).

The largest numbers of children at these ages were, as would be expected, in the towns, in Whyalla (1,239 children), Mount Gambier (978), Murray Bridge (716), Port Augusta (693) and Port Pirie (637).

There were correlations of substantial significance at the SLA level with the variables for children aged 0 to 14 years living in low income families (0.78), SA Housing Trust rented dwellings and dwellings with no motor vehicles (both 0.72). These results, together with the inverse correlation of substantial significance with the IRSD (-0.73), indicate an association at the SLA level between high proportions of children living in single parent families and socioeconomic disadvantage.

Map 3.12
Children aged 0 to 14 years living in single parent families, South Australia, 1996

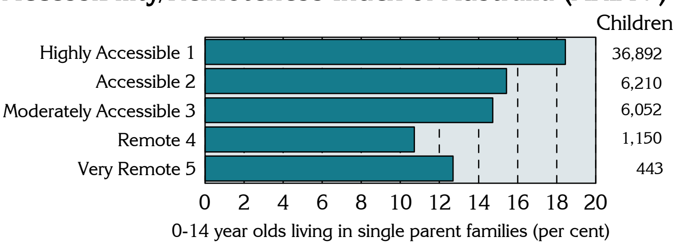
as a percentage of all 0 to 14 year olds in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from ABS 1996 Census | *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



The most accessible areas had the highest proportions of single parent families (18.5% in the Highly Accessible areas and 15.4% in the Accessible areas), with 14.7% in the Moderately Accessible areas. The lowest proportion was recorded in the Remote areas (10.7%), with a higher 12.7% in the Very Remote areas.

Source: Calculated on ARIA+ classification

Children aged 0 to 14 years living in low income families, 1996

Adelaide

In 1996, there were 37,417 children aged 0 to 14 years living in low income families (defined here as families with weekly incomes of less than $400), comprising 18.1% of all children living in the metropolitan area. The use of children living in low income families as a measure of economic hardship should be employed with caution however, as a family's actual wealth depends upon a number of factors such as family size, age structure and, importantly, housing tenure and costs.

Children aged 0 to 14 years and living in low income families were largely in postcode areas located in the city's inner north and west, as well as in the outer north and south (**Map 3.13**). The distribution of children in this group is closely linked to the distribution of different types of housing tenure across Adelaide, with high proportions tending to live in areas with high proportions of public housing and/or areas of cheaper private rental housing. Specifically, relatively high proportions of children living in low income families were located in the inner northern and western areas of *Ferryden Park* (47.2%), *Woodville North* and *Blair Athol* (both 36.9%), *Osborne* (35.8%), *Hindmarsh* (34.1%) and *Port Adelaide* (28.6%); in the north in *Elizabeth North* (35.8%) and *Elizabeth* (29.5%); and in the south in *Old Noarlunga* (31.9%), *Christie Downs* (29.6%), *O'Sullivan Beach* (29.3%), *Christies Beach* (29.2%) and *Sellicks Beach* (29.1%).

There were low proportions of children living in low income families in postcodes in the Adelaide Hills and south-eastern suburbs, with the lowest proportions recorded at *Montacute* (with 4.5%), *Stirling* (5.2%), *Glen Osmond* (5.9%), *Unley* (6.0%) and *Aldgate* (6.5%).

The largest numbers of 0 to 14 year old children living in low income families in the outer northern and southern suburbs, in *Salisbury* (2,337), *Elizabeth North* (1,701), *Elizabeth* (1,259), *Smithfield* (1,096) and *Parafield Gardens* (1,017) in the north, and in *Morphett Vale* (1,538) in the south.

There were correlations of substantial significance at the postcode level with the variables for children aged 0 to 14 years living in single parent families (0.91), dwellings with no motor vehicles (0.85) and SA Housing Trust rented dwellings (0.83); people aged 15 to 24 years who were unemployed (a correlation of 0.77 for males and 0.75 for females); and people who left school at age 15 year or earlier (0.77).

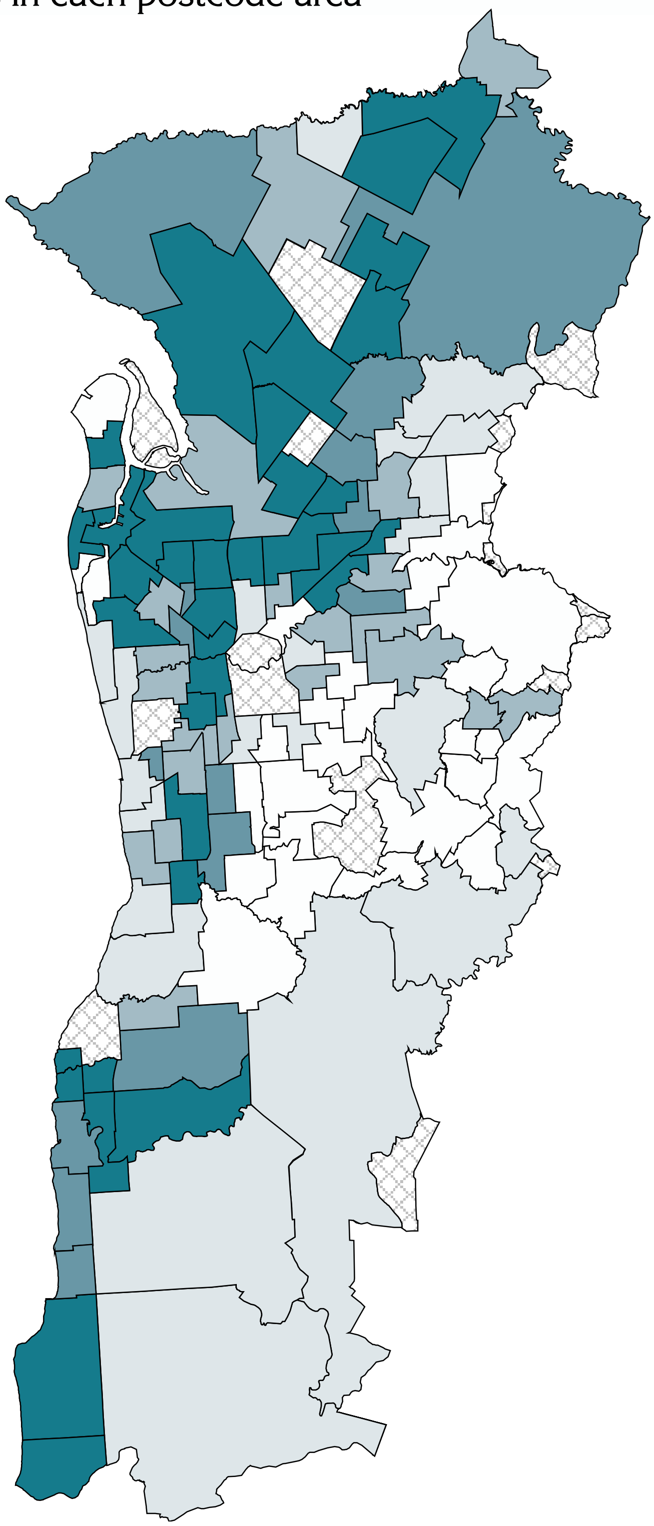
The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of substantial significance recorded with the variables for high income families (-0.89), female labour force participation (-0.84) and managers and administrators, and professionals (-0.76).

These results, together with the inverse correlation of substantial significance with the IRSD (-0.95), indicate an association at the postcode level between high proportions of children living in low income families and socioeconomic disadvantage.

Map 3.13
Children aged 0 to 14 years living in low income families, Adelaide, 1996

as a percentage of all 0 to 14 year olds in each postcode area

N



Per cent of children living in low income families

- *22.0% or more*
- *18.0 to 21.9%*
- *14.0 to 17.9%*
- *10.0 to 13.9%*
- *fewer than 10.0%*
- *data not mapped**

**Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Children aged 0 to 14 years living in low income families, 1996

Non-metropolitan South Australia

In 1996, almost one fifth (19.1%) of children aged from 0 to 14 years living in non-metropolitan South Australia lived in families with weekly incomes of less than $400, a total of 17,154 children. This was only slightly higher than the corresponding Adelaide figure of 18.1%. It is important to bear in mind, however, that there tends to be a higher rate of under-reporting of income in rural areas due to the relatively higher proportion of people who are self-employed in occupations such as farming.

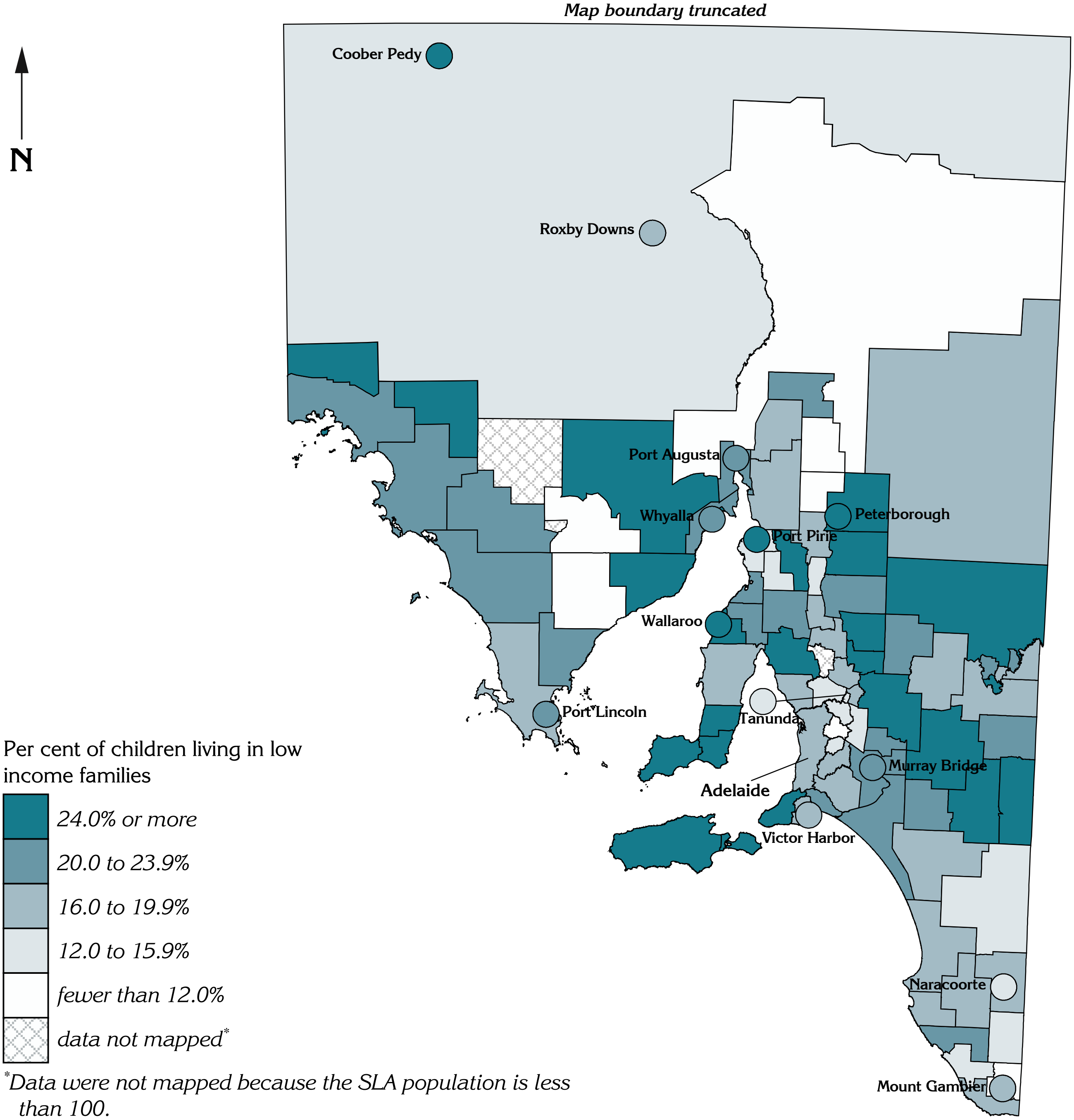
High proportions of children living in low income families were recorded in SLAs scattered throughout the State (**Map 3.14**). The highest proportions were observed at Peterborough (M) (40.1%), Unincorporated West Coast and Unincorporated Whyalla (both 32.8%), Wallaroo (31.8%), Warooka (30.0%), Dudley (29.4%), Coober Pedy (29.0%), Hallett (28.4%), Northern Yorke Peninsula (28.3%), Eudunda (27.5%), Kingscote and Peterborough (DC) (both 26.8%) and Port Pirie (26.7%). In contrast, the lowest proportions of children in this group were recorded at Roxby Downs (with 0.5%), Carrieton (7.5%), Mount Gambier (DC) (7.8%), Unincorporated Flinders Ranges (8.7%) and Orroroo (9.8%), all with under 10.0%.

The largest numbers of 0 to 14 year olds living in low income families were in towns, including Whyalla (1,190 children), Mount Barker (928), Mount Gambier (C) (862), Murray Bridge (831), Port Pirie (803), Port Augusta (779) and Port Lincoln (637).

A correlation of substantial significance at the SLA level was found with the variable for children aged 0 to 14 years living in single parent families (0.78). Correlations of meaningful significance were recorded with the variables for children aged 0 to 14 years living in dwellings with no vehicles (0.56), and unemployed males (0.69) and females (0.66) aged 15 to 24 years. The inverse correlation with the IRSD (-0.75) also indicates a positive association between high proportions of children living in low income families and socioeconomic disadvantage.

Map 3.14
Children aged 0 to 14 years living in low income families, South Australia, 1996

as a percentage of all 0 to 14 year olds in each Statistical Local Area



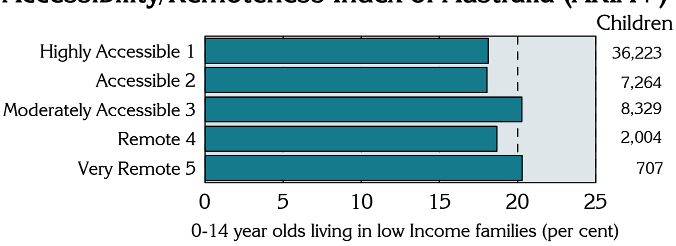
Per cent of children living in low income families

- *24.0% or more*
- *20.0 to 23.9%*
- *16.0 to 19.9%*
- *12.0 to 15.9%*
- *fewer than 12.0%*
- *data not mapped**

**Data were not mapped because the SLA population is less than 100.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Both the Moderately Accessible and Very Remote areas had 20.3% of families receiving low incomes. The lowest proportions were in the Accessible (18.0%) and Highly Accessible (18.1%) ARIA+ classes.

Source: Calculated on ARIA+ classification

Children aged 0 to 14 years living in SA Housing Trust rented dwellings, 1996

Adelaide

In Adelaide in 1996, there were 19,895 children aged from 0 to 14 years living in housing rented from the SA Housing Trust, comprising 9.6% of Adelaide's children aged from 0 to 14 years.

The spatial distribution of children aged 0 to 14 years living in dwellings rented from the SA Housing Trust generally follows, as expected, the distribution of these dwellings across Adelaide. This means that high proportions of children in this group were generally located in the outer northern and south-western metropolitan postcode areas and in a tight band across the inner north-western suburbs of Adelaide (**Map 3.15**).

Areas with very high proportions of these children were located to the north and west of the city in *Ferryden Park* (73.7%), *Osborne* (46.5%), *Woodville North* (40.3%), *Blair Athol* (40.0%), *Enfield* (26.5%) and *Greenacres* (25.0%); to the outer north in *Elizabeth North* (36.1%), *Elizabeth* (30.2%) and *Parafield Gardens* (19.9%), in the north-east in *Klemzig* (23.3%) and to the south in *Old Noarlunga* (34.0%), *Park Holme* (26.9%), *Christie Downs* (26.0%) and *Hackham* (20.3%).

Many postcode areas had no, or very few, children in this category. These included most of the hills suburbs, as well as the eastern and south-eastern sector of the metropolitan area and selected suburbs along the coastline.

The northern suburbs are the location for the largest numbers of children in this group; postcodes with very high numbers include *Elizabeth North* (1,717 children), *Salisbury* (1,364), *Elizabeth* (1,289), *Smithfield* (836) and the southern postcode area of *Morphett Vale* (805).

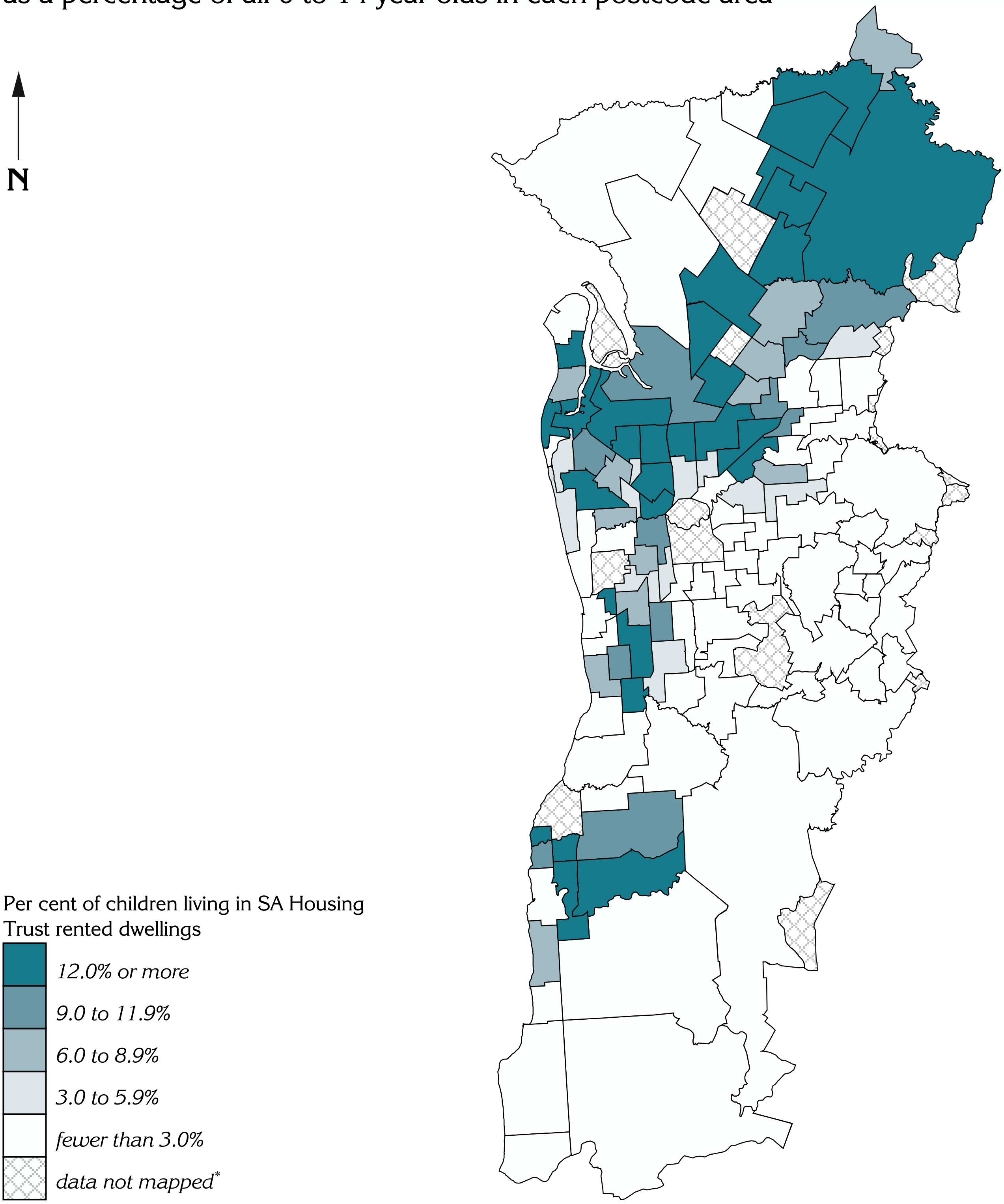
There were correlations of substantial significance at the postcode level with the variables of children aged 0 to 14 years living in dwellings with no motor vehicles (0.85), low income families (0.83) and single parent families (0.81).

The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of statistical significance recorded with the variables for female labour force participation (-0.76), high income families (-0.63) and managers and administrators, and professionals (-0.61).

These results, together with the inverse correlation of substantial significance with the IRSD (-0.83), indicate an association at the postcode level between children living in SA Housing Trust rented dwellings and socioeconomic disadvantage.

Map 3.15
Children aged 0 to 14 years living in SA Housing Trust rented dwellings, Adelaide, 1996

as a percentage of all 0 to 14 year olds in each postcode area



Per cent of children living in SA Housing Trust rented dwellings

- *12.0% or more*
- *9.0 to 11.9%*
- *6.0 to 8.9%*
- *3.0 to 5.9%*
- *fewer than 3.0%*
- *data not mapped**

**Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Children aged 0 to 14 years living in SA Housing Trust rented dwellings, 1996

Non-metropolitan South Australia

In 1996, there were 8,314 children aged from 0 to 14 years living in dwellings rented from the SA Housing Trust, comprising 9.3% of the non-metropolitan 0 to 14 year old population. This figure is consistent with the metropolitan proportion of 9.6%.

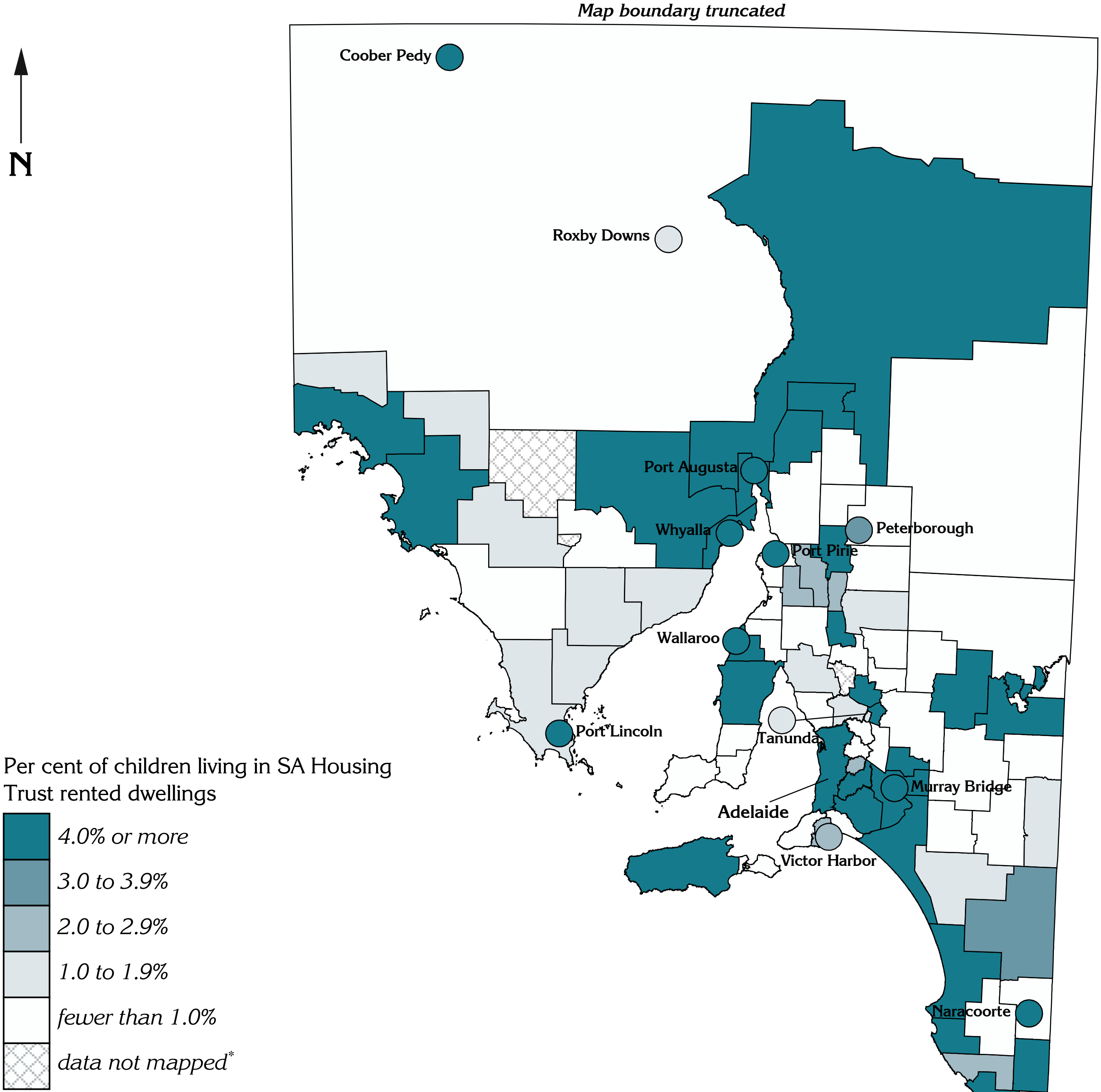
The highest proportions of children aged 0 to 14 years living in dwellings rented from the SA Housing Trust were generally located in or around the towns (**Map 3.16**). The highest proportions were in the towns of Whyalla (31.5%), Port Augusta (29.3%), Port Lincoln (21.1%), Mount Gambier (C) (18.1%), Coober Pedy (16.5%) and Murray Bridge (16.3%), as well as in Unincorporated Whyalla (23.1%). In contrast, lower than average proportions were spread across the State, but were primarily found in SLAs close to Adelaide. Twenty-five areas including Naracoorte (M), Eudunda, Browns Well, Dudley and Mount Pleasant had no children in this category.

The largest numbers of children at these ages were located in the towns. The largest numbers across the State were in Whyalla (1,804 children), Port Augusta (1,011), Mount Gambier (C) (945), Port Lincoln (635) and Murray Bridge (598).

Correlations of substantial significance were found at the SLA level with the variables for children aged 0 to 14 years living in dwellings with no vehicles (0.76) and single parent families (0.72). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.64), indicate an association at the SLA level between children living in SA Housing Trust rented dwellings and socioeconomic disadvantage.

Map 3.16
Children aged 0 to 14 years living in SA Housing Trust rented dwellings, South Australia, 1996
as a percentage of all 0 to 14 year olds in each Statistical Local Area

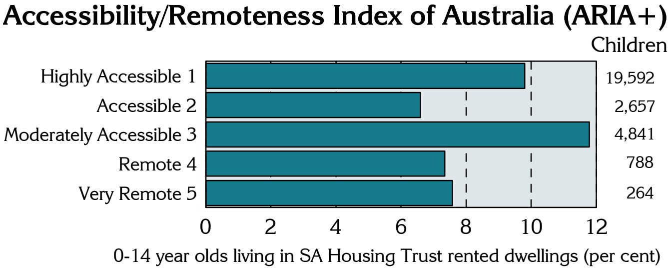
Map boundary truncated



*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



More than two thirds (69.6%, 19,592 children) of children living in dwellings rented from the SA Housing Trust were in the Highly Accessible areas. However, the highest proportion was recorded in the Moderately Accessible areas, where they represented 11.8% of all children at these ages. The lowest proportion was in the Accessible areas (6.6%).

Source: Calculated on ARIA+ classification

Children aged 0 to 14 years living in dwellings with no vehicles, 1996

Adelaide

In 1996, there were 10,604 children aged from 0 and 14 years living in dwellings in Adelaide with no vehicles parked or garaged at the dwelling, comprising 5.1% of the population at these ages.

The distribution of children living in dwellings with no vehicles is highly concentrated in the northern and western sectors of Adelaide, as well as in the outer northern and southern areas (**Map 3.17**). Most of the postcode areas with high proportions of children living in dwellings with no vehicles are located within a ten to fifteen kilometre radius of the city, suggesting that, while mobility may be difficult, the suburbs in question would still be serviced by adequate public transport networks. However, it is disturbing to note that relatively high proportions of children in dwellings without a vehicle live at the outer northern and southern metropolitan fringe, where there may be limited access to alternative means of transport, particularly for cross-suburban trips.

The highest proportions of children aged 0 to 14 years and living in dwellings with no vehicles were found in postcodes located in the outer north-west of the city at *Ferryden Park* (19.7%), *Blair Athol* (14.6%), *Woodville North* (14.2%), and *Osborne* (13.6%) and to the outer north of the city at *Elizabeth North* (17.4%) and *Elizabeth* (14.1%). In contrast, postcodes with relatively low proportions of children living in dwellings with no vehicles were located predominantly in the Adelaide Hills, where *Montacute*, *Summertown*, *Carey Gully*, *Greenhill*, *Blackwood Forward*, *MacDonald Park*, *Ashton* and *Piccadilly* all had proportions of less than 0.1%.

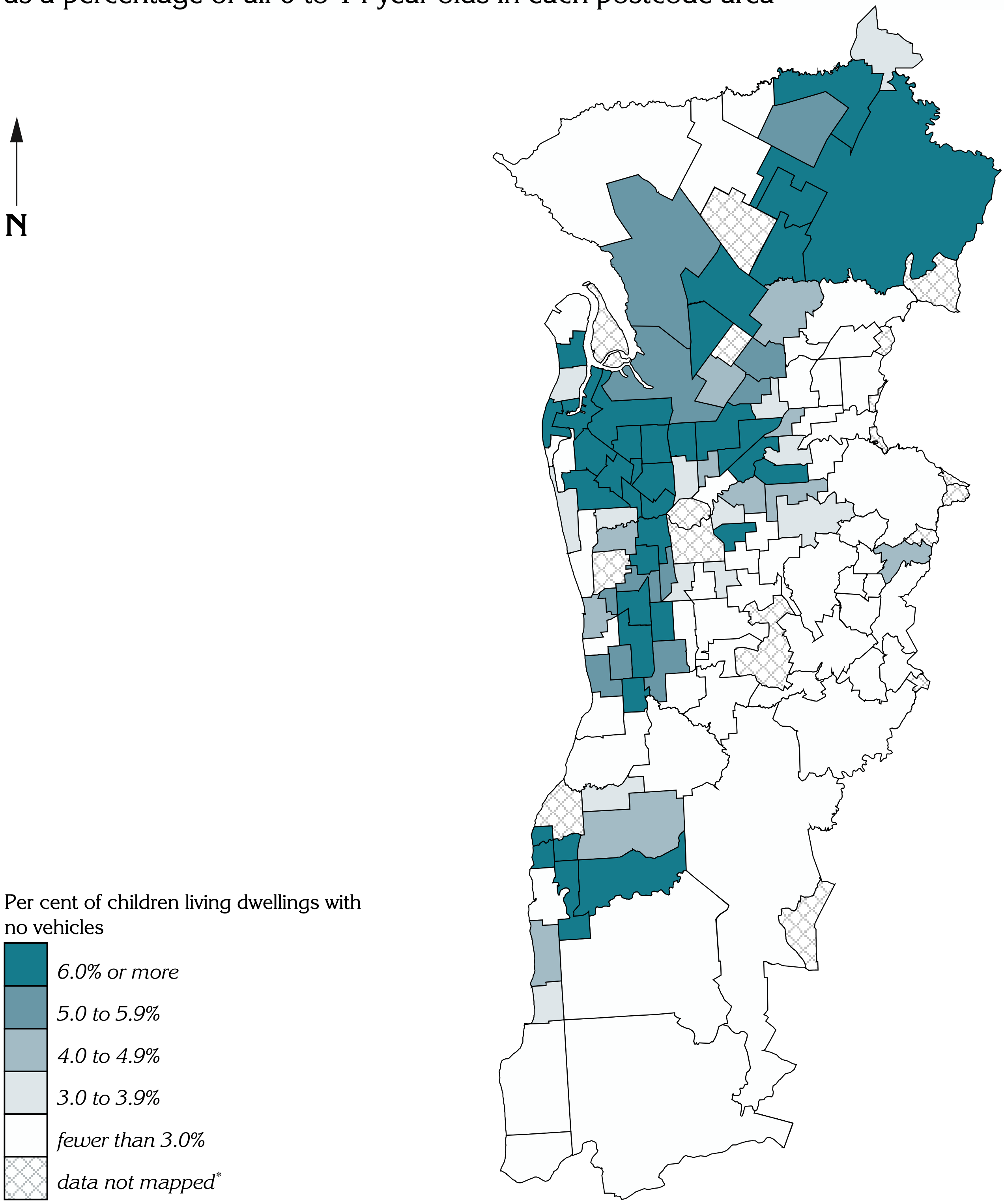
Large numbers of 0 to 14 year olds living in dwellings with no vehicles were mainly in the outer northern suburbs. *Elizabeth North* had the highest number, with 826 children, followed by *Salisbury* (685), *Elizabeth* (603), *Smithfield* (345) and the outer southern postcode area of *Morphett Vale* (366).

There were correlations of substantial significance with the variables for children aged 0 to 14 years living in single parent families (0.88), low income families (0.85) and SA Housing Trust rented dwellings (0.85); and unemployed males (0.71) and females (0.72) aged from 15 to 24 years.

The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of statistical significance recorded with the variables for female labour force participation (-0.73), high income families (-0.69) and managers and administrators, and professionals (-0.58).

These results, together with the inverse correlation of substantial significance with the IRSD (-0.87), suggest an association at the postcode level between children living in dwellings with no motor vehicle and socioeconomic disadvantage.

Map 3.17
Children aged 0 to 14 years living in dwellings with no vehicles, Adelaide, 1996
as a percentage of all 0 to 14 year olds in each postcode area



Per cent of children living dwellings with no vehicles

- *6.0% or more*
- *5.0 to 5.9%*
- *4.0 to 4.9%*
- *3.0 to 3.9%*
- *fewer than 3.0%*
- *data not mapped**

**Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Children aged 0 to 14 years living in dwellings with no vehicles, 1996

Non-metropolitan South Australia

In 1996, there were 3,812 children aged 0 to 14 years living in dwellings with no vehicles in the non-metropolitan areas of South Australia. This figure represented 4.3% of the 0 to 14 year old non-metropolitan population, compared with 5.1% in Adelaide.

High proportions of children living in dwellings with no vehicles were primarily in the towns and Unincorporated areas of non-metropolitan South Australia (**Map 3.18**). The highest proportions were in Unincorporated Riverland (43.5%, 20 children), Coober Pedy (14.7%), Ceduna (13.7%), Port Augusta (12.4%) and Whyalla (9.3%).

Areas with relatively low proportions of children in this group were distributed throughout the State, particularly in areas that are some distance from a regional centre. Twelve SLAs had no children at all in this category, including the south-eastern areas of Lameroo, Lucindale, Peake and Pinnaroo.

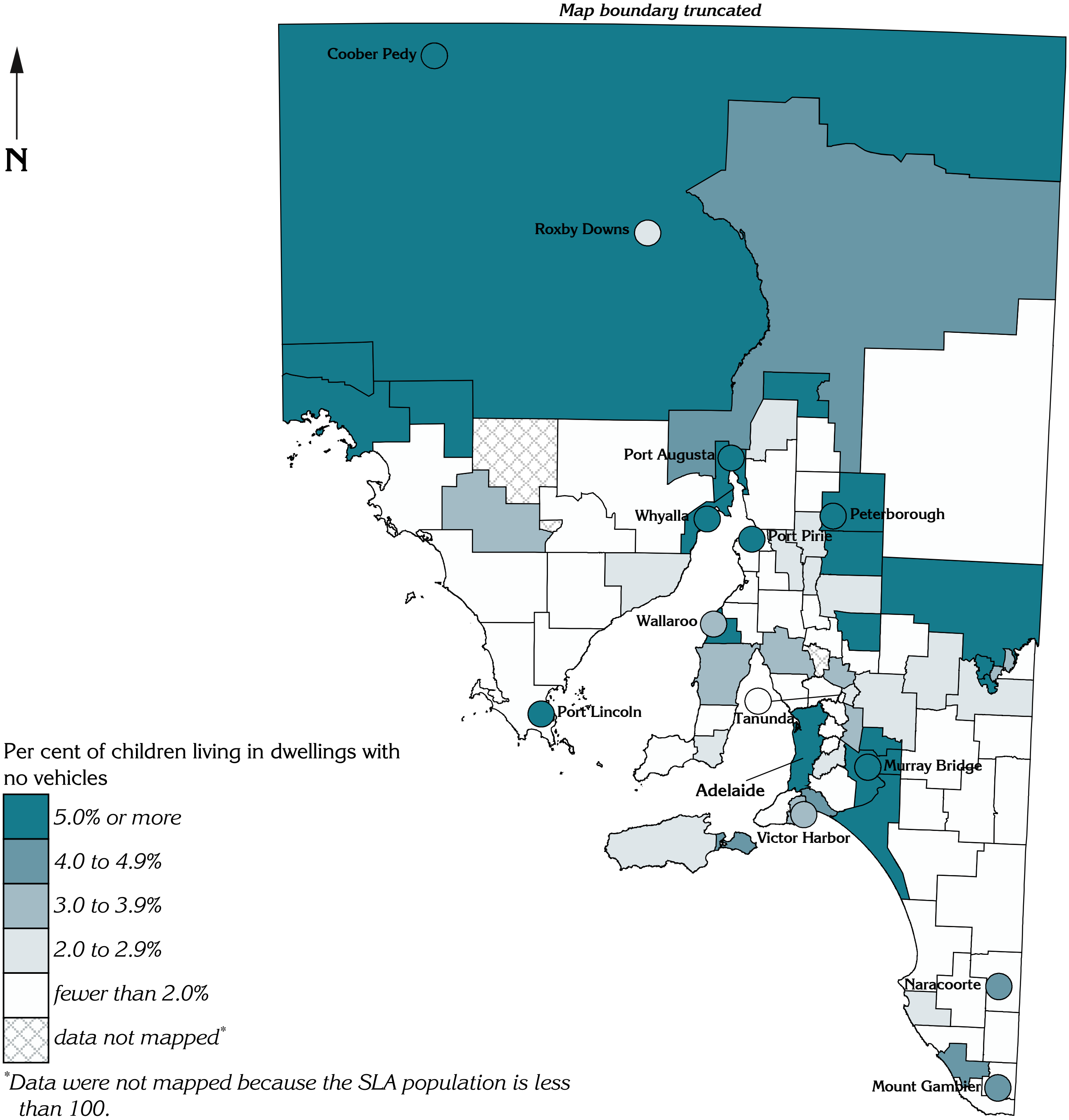
Large numbers of children living in dwellings with no vehicles were found in the towns of Whyalla (534 children), Port Augusta (428), Mount Gambier (C) (256), Port Pirie (240), Murray Bridge (236) and Port Lincoln (200).

There were correlations of substantial significance with the variables for children aged 0 to 14 years living in dwellings rented from the SA Housing Trust (0.76) and single parent families (0.72). Correlations of meaningful significance were found with the variables for children aged 0 to 14 years living in low income families (0.56), Indigenous children aged 0 to 14 years (0.55) and unemployed males aged 15 to 24 years (0.53). These results, together with the inverse correlation of substantial significance with the IRSD (-0.84), suggest an association at the SLA level between children living in dwellings with no motor vehicles and socioeconomic disadvantage.

Map 3.18
Children aged 0 to 14 years living in dwellings with no vehicles, South Australia, 1996

as a percentage of all 0 to 14 year olds in each Statistical Local Area

Map boundary truncated



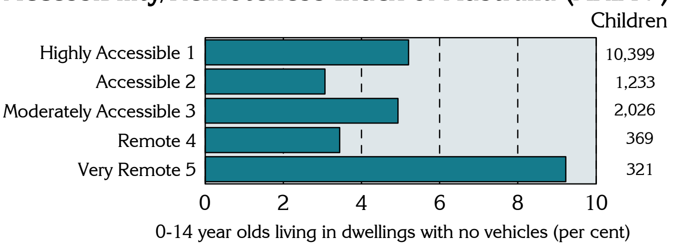
Per cent of children living in dwellings with no vehicles

- *5.0% or more*
- *4.0 to 4.9%*
- *3.0 to 3.9%*
- *2.0 to 2.9%*
- *fewer than 2.0%*
- *data not mapped**

**Data were not mapped because the SLA population is less than 100.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The highest proportion of children at these ages living in dwellings without a motor vehicle was in the Very Remote areas (9.2%), with the lowest in the Accessible ARIA+ class (3.1%). The distribution of Indigenous children is likely to have influenced the high proportion in the Very Remote areas.

Source: Calculated on ARIA+ classification

Aboriginal and Torres Strait Islander children aged 0 to 14 years, 1996

Adelaide

In 1996, there were 3,701 children aged from 0 to 14 years living in Adelaide who identified at the Census as being of Aboriginal or Torres Strait Islander descent, comprising 1.8% of the 0 to 14 year old population.

The distribution of Aboriginal and Torres Strait Islander children in Adelaide was highly concentrated in postcodes to the north and north-west of the city (**Map 3.19**). This area encompasses the postcodes of *Gepps Cross* (15.0%), *Osborne* (8.1%), *Port Adelaide* (5.8%), *Enfield* (5.7%) and *Rosewater* (5.5%), with high proportions also in *O'Sullivan Beach* (5.7%) and *Christies Beach* (5.3%). In contrast, areas with low proportions of Aboriginal and Torres Strait Islander children were generally located in the south-east of the city and in the Adelaide Hills. Postcodes with very low percentages of children in this group included *Montacute*, *Summertown*, *Carey Gully*, *Blackwood Forward*, *Ashton*, *Stirling* and *Belair*.

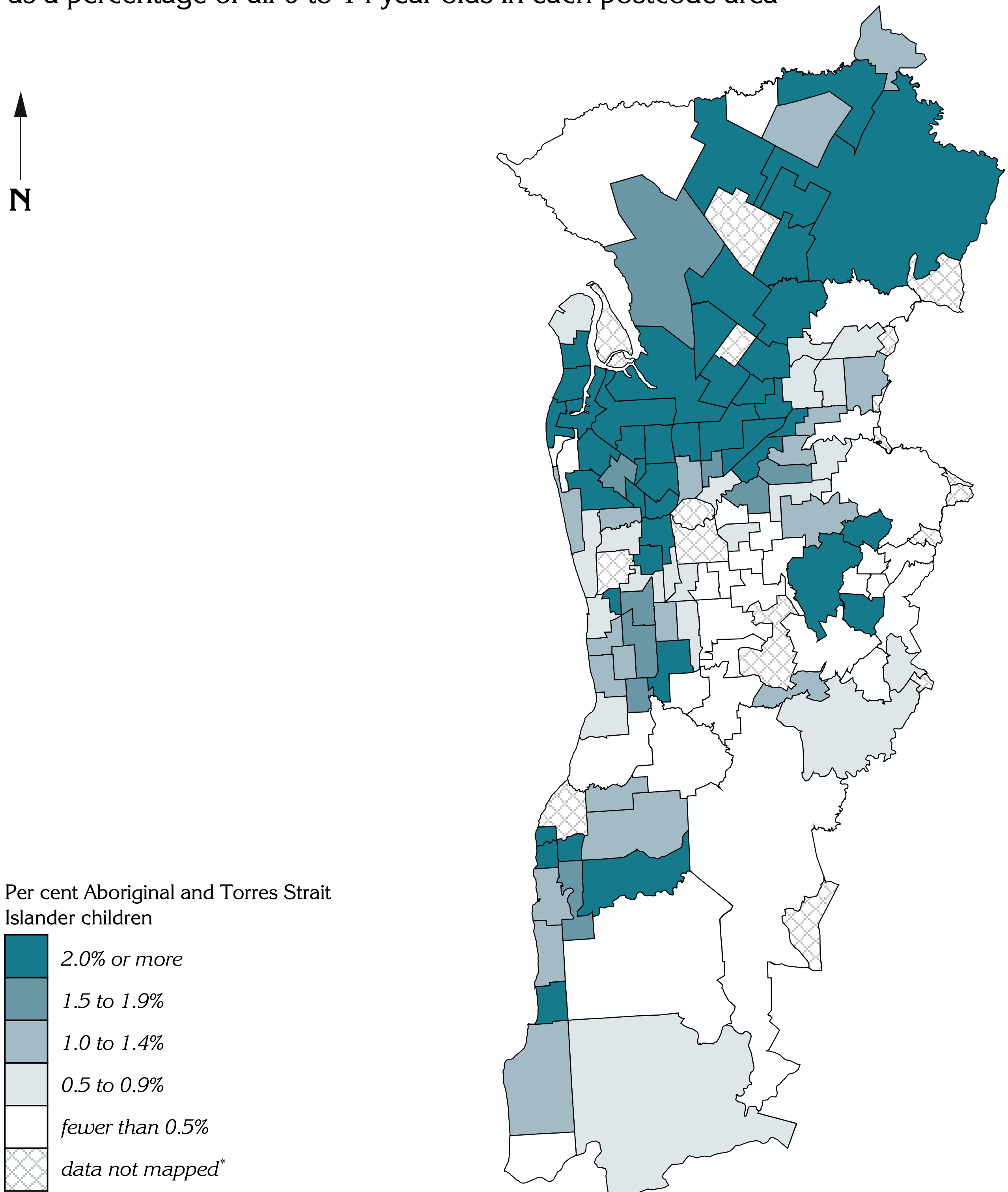
Postcode areas with the largest numbers of Aboriginal and Torres Strait Islander children were located in the northern suburbs, in particular in *Salisbury* (254 children), *Elizabeth North* (229), *Elizabeth* (161), *Smithfield* (119), *Parafield Gardens* (107), and *Salisbury East* (104). Other postcodes with relatively large numbers were *Rosewater* (102 children) and *Enfield* (101).

There were correlations of meaningful significance at the postcode level with the variables for children aged 0 to 14 years living in single parent families (0.62), dwellings with no motor vehicles (0.59), low income families (0.57) and dwellings rented from the SA Housing Trust (0.56).

The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of meaningful significance recorded with the variables for managers and administrators, and professionals (-0.52), female labour force participation (-0.51) and high income families (-0.51).

These results, together with the inverse correlation of meaningful significance with the IRSD (-0.60), suggest an association between high proportions of Indigenous children aged 0 to 14 years and socioeconomic disadvantage.

Map 3.19
Aboriginal and Torres Strait Islander children aged 0 to 14 years, Adelaide, 1996
as a percentage of all 0 to 14 year olds in each postcode area



**Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Aboriginal and Torres Strait Islander children aged 0 to 14 years, 1996

Non-metropolitan South Australia

In 1996, there were 4,496 children aged from 0 to 14 years who identified at the Census as being of Aboriginal or Torres Strait Islander descent in non-metropolitan South Australia, comprising 5.0% of the non-metropolitan population. This figure was much higher than the metropolitan figure of 1.8%, reflecting the different settlement and distribution patterns of the Indigenous and non-Indigenous populations.

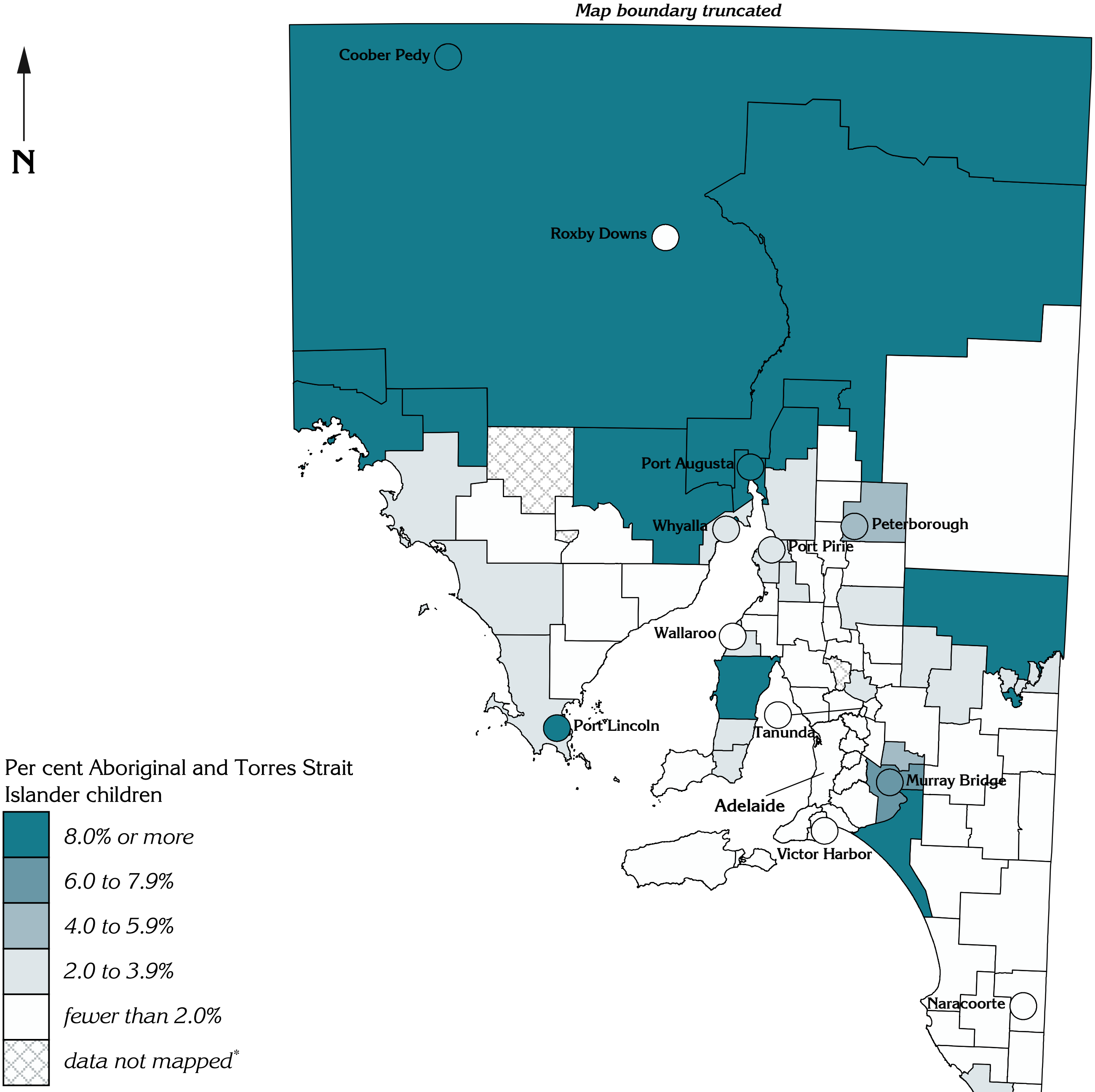
The highest proportions of Aboriginal and Torres Strait Islander children were found in the more remote areas of the State, in particular in the Unincorporated areas of Riverland (82.6%), West Coast (55.9%) and Far North (55.3%). High proportions were also recorded in the towns of Coober Pedy (32.5%) and Port Augusta (21.5%), and elsewhere at Ceduna (36.2%). A large number of SLAs had comparatively low proportions of children in this group. Much of the South East, the outer metropolitan area and the mid-north of the State were characterised by low proportions of Indigenous children (**Map 3.20**).

As with the proportion of Aboriginal and Torres Strait Islander children, the largest numbers were in the Unincorporated SLAs and regional centres. These were the SLAs of Unincorporated Far North (850 children), Port Augusta (741), Ceduna (318), Port Lincoln (269), Murray Bridge (252) and at Whyalla (228).

There were correlations of meaningful significance at the SLA level with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.55) and full time students aged 15 to 24 years (an inverse correlation of -0.64). These results, together with the weak inverse correlation with the IRSD (-0.39), suggest an association between high proportions of Indigenous children aged 0 to 14 years and socioeconomic disadvantage.

Map 3.20
Aboriginal and Torres Strait Islander children aged 0 to 14 years, South Australia, 1996

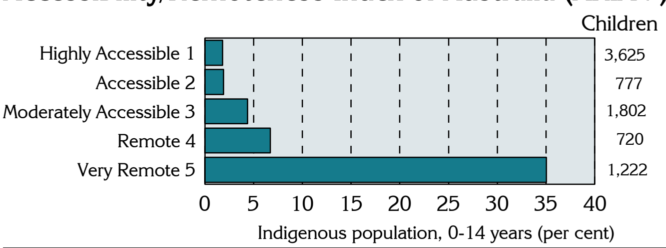
as a percentage of all 0 to 14 year olds in each Statistical Local Area



**Data were not mapped because the SLA population is less than 100.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Indigenous children have the most striking distribution under the ARIA+ classification of any of the population groups examined in this chapter. The graph shows a clear gradient in the proportion of the population represented in each ARIA+ class, from 1.8% in the Highly Accessible areas, to 35.0% in the Very Remote areas.

Source: Calculated on ARIA+ classification

Children aged 0 to 14 years born in predominantly non–English speaking countries, 1996

Adelaide

In 1996, there were 6,599 children aged from 0 to 14 years living in Adelaide who were born in predominantly non-English speaking countries[1], comprising 3.2% of the 0 to 14 year old population.

Vietnam (comprising 603 children, 9.1%) was the main birthplace from where these children arrived, followed by the Philippines (449, 6.8%), Poland (368, 5.6%), Malaysia (302, 4.6%) and Hong Kong (262, 4.0%).

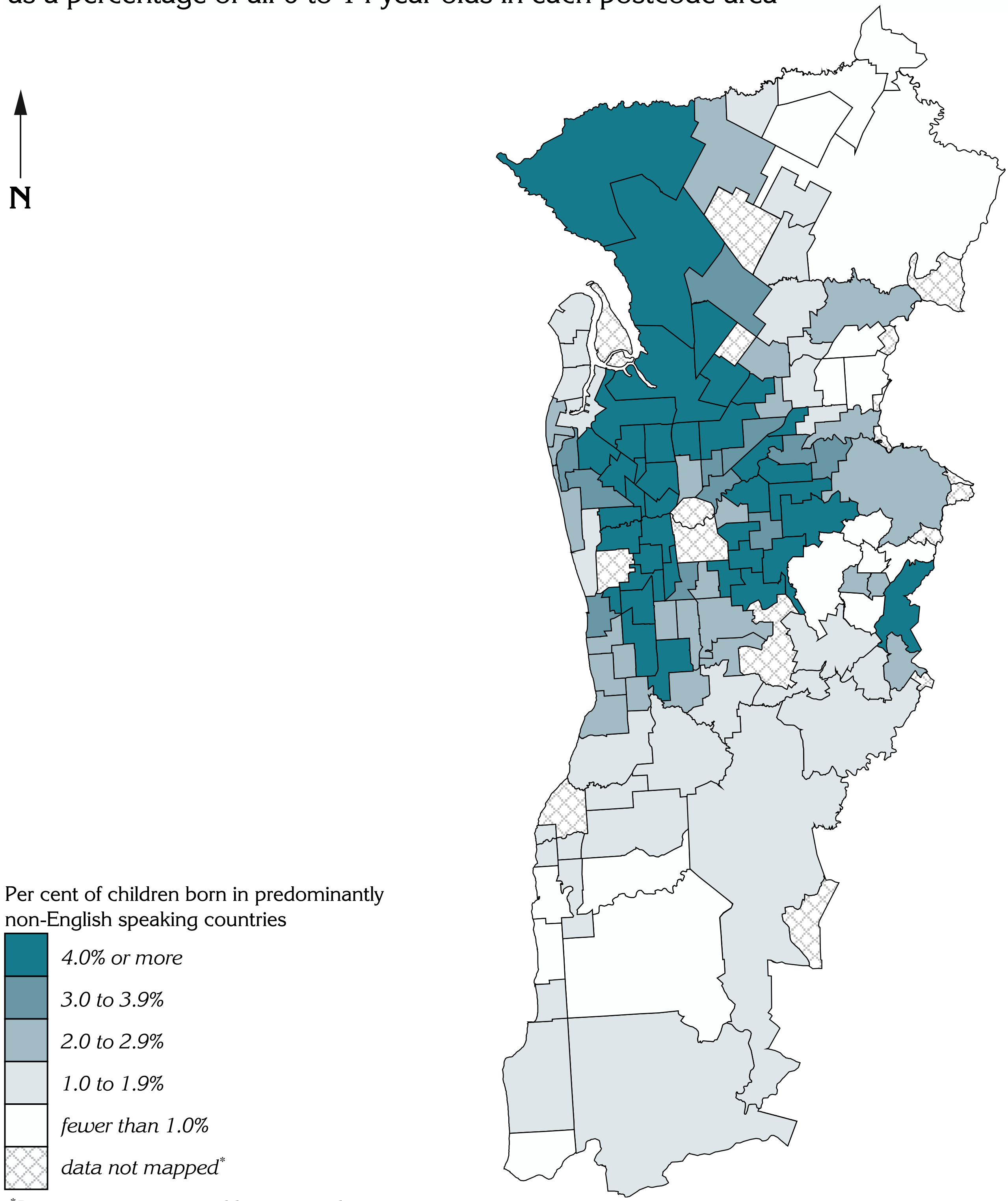
Children aged 0 to 14 years who were born in predominantly non-English speaking countries were largely located in the north-western suburbs of the city and in a ring of suburbs surrounding the city (**Map 3.21**). Relatively high proportions of children in this group were recorded in *Woodville North* (15.0%), *Ferryden Park* (14.6%), *Rosewater* (9.2%), *Virginia* (8.5%), *Gepps Cross* (8.4%), *Blair Athol* (8.4%), *Burton* (8.4%), *Croydon* (8.3%), *Hindmarsh* (8.2%) and *Magill* (8.1%). In contrast, relatively low proportions of children in this group were found in the outer metropolitan area, with the Adelaide Hills postcode areas of *Greenhill, Piccadilly, Norton Summit, Basket Range* and *Ashton* and the outer southern postcode area of *Sellicks Beach* recording the lowest proportions.

The largest numbers of children born in predominantly non-English speaking countries were in postcodes to the north of the city in *Salisbury* (324 children) and *Parafield Gardens* (241), to the inner north and west in *Woodville North* (257), *Rosewater* (171), *Croydon* (167) and *Ferryden Park* (154) and to the outer south in *Morphett Vale* (155) and *Happy Valley* (150).

There were weak correlations with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.40), suggest an association at the postcode level between children born in predominantly non-English speaking countries and socioeconomic disadvantage.

[1] Predominantly non-English speaking countries comprise all countries other than Australia, Canada, Ireland, New Zealand, South Africa, United Kingdom and the United States of America.

Map 3.21
Children aged 0 to 14 years born in predominantly non–English speaking countries, Adelaide, 1996
as a percentage of all 0 to 14 year olds in each postcode area



*Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.

Source: Calculated on data from ABS 1996 Census *Details of map boundaries are in Appendix 1.2*

Children aged 0 to 14 years born in predominantly non–English speaking countries, 1996

Non-metropolitan South Australia

In 1996, there were 507 children aged 0 to 14 years living in the non-metropolitan areas of South Australia who were born in predominantly non-English speaking countries[2]. This figure represents just 0.6% of the non-metropolitan 0 to 14 year old population, and was considerably lower than the corresponding metropolitan figure of 3.2%. The greater attraction of the metropolitan area could be attributed to the relatively greater number of employment and educational opportunities available there, and the existence of social networks or family contacts, which are an important source of support to newly arrived migrants.

Of the children aged 0 to 14 years born in predominantly non-English speaking countries residing in the non-metropolitan areas of South Australia, the Philippines (comprising 59 children, 12.0%) was the main birthplace from where these children arrived, followed by Germany (38, 7.7%), India (33, 6.7%), Sri Lanka (21, 4.3%) and Greece (16, 3.3%).

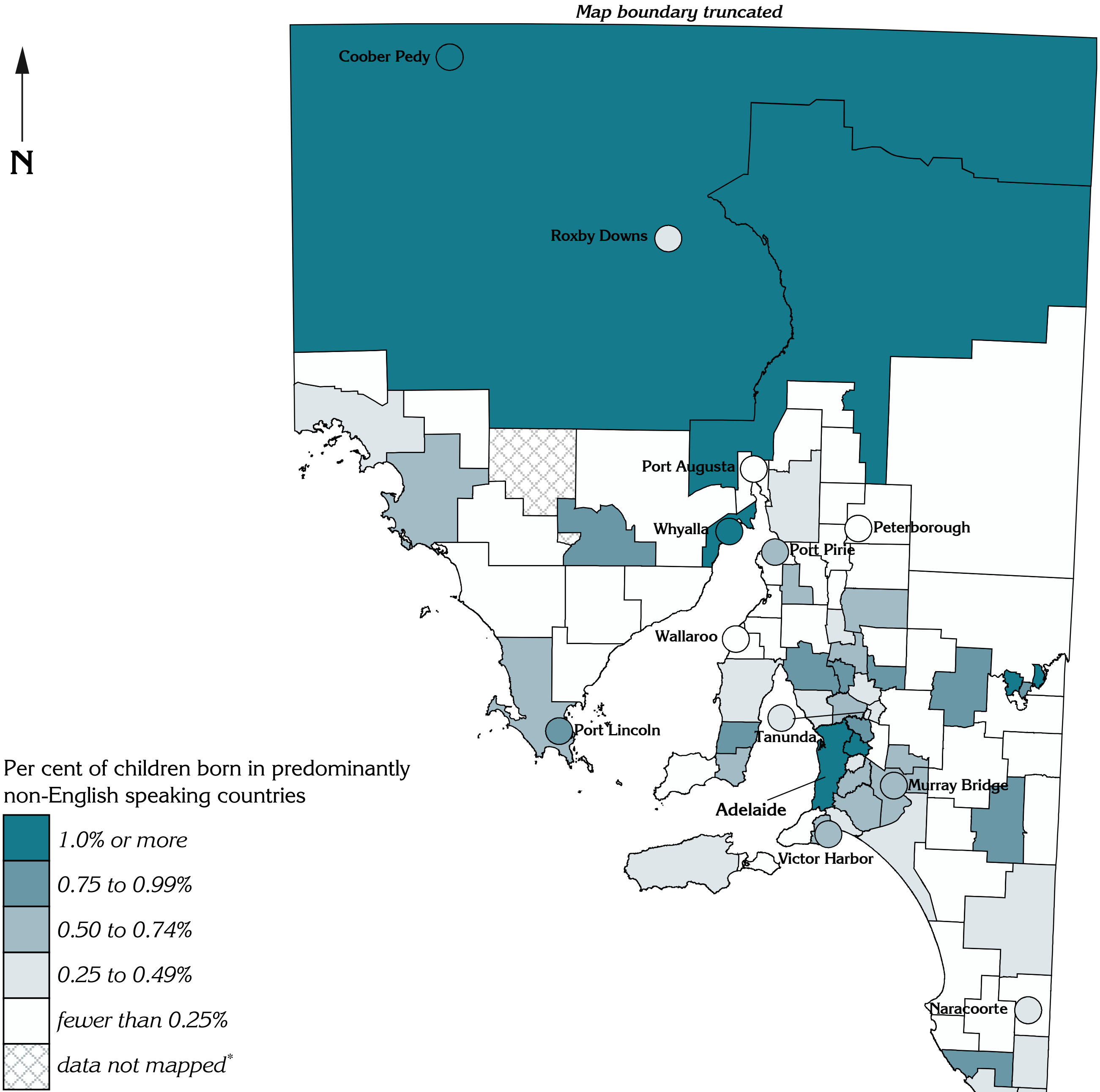
Children living in non-metropolitan South Australia who were born in predominantly non-English speaking countries, were largely located in the towns and in areas close to the fringe of the metropolitan area (**Map 3.22**). These included Coober Pedy (3.2%), Renmark (1.3%) and Whyalla (1.0%), Barmera (1.5%), Gumeracha (1.1%), Unincorporated Far North (1.0%), Unincorporated Flinders Ranges (1.0%), Kimba (1.0%) and Eudunda (1.0%). In contrast, relatively low proportions of children born in non-English speaking countries were recorded in the more remote SLAs. Over forty SLAs had no children of non-English speaking backgrounds, including Robe, Tumby Bay, Peterborough (DC), Spalding and Browns Well.

The largest numbers of children aged 0 to 14 years born in predominantly non-English speaking countries were also located in the towns and at the fringes of the metropolitan area. These included Whyalla (58 children), Mount Barker (34), Mount Gambier (C) (32) and Port Lincoln (27).

There was no consistent evidence in the correlation analysis of an association between high proportions of children born in predominantly non-English speaking countries and socioeconomic status.

[2] Predominantly non-English speaking countries comprise all countries other than Australia, Canada, Ireland, New Zealand, South Africa, United Kingdom and the United States of America.

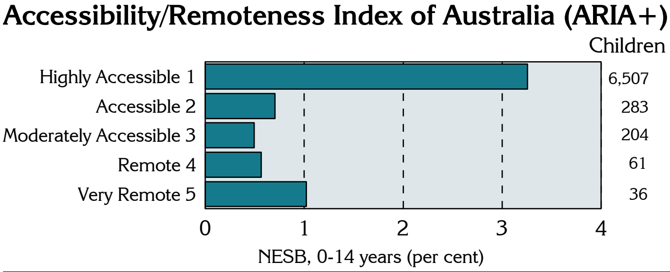
Map 3.22
Children aged 0 to 14 years born in predominantly non–English speaking countries, South Australia, 1996
as a percentage of all 0 to 14 year olds in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100.

***Source:** Calculated on data from ABS 1996 Census* — *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of the population aged 0 to 14 years who were born in predominantly non-English speaking countries is highest in the Highly Accessible areas (3.3%) and drops away rapidly to lower proportions in the next three ARIA+ classes. The very small number in the Very Remote areas represents a slightly higher per cent at 1.0%.

***Source:** Calculated on ARIA+ classification*

People aged 15 to 19 years, 1998

Adelaide

In 1998, there were an estimated 73,662 people aged 15 to 19 years living in Adelaide, comprising 6.8% of the metropolitan population. The number of 15 to 19 year olds fell by 5,522 people in the period from 1991 to 1998, a decrease of 7.0%. The number of people in this age group expressed as a proportion of the total population also declined, down from 7.7% in 1991.

In contrast to the distribution of the 0 to 14 year old population, the metropolitan population aged 15 to 19 years was predominantly in localities closer to the city, in particular in the middle suburbs (**Map 3.23**). This distribution reflects the settlement patterns associated with different stages of the residential life cycle in Adelaide's suburbs, described in the introduction to this section.

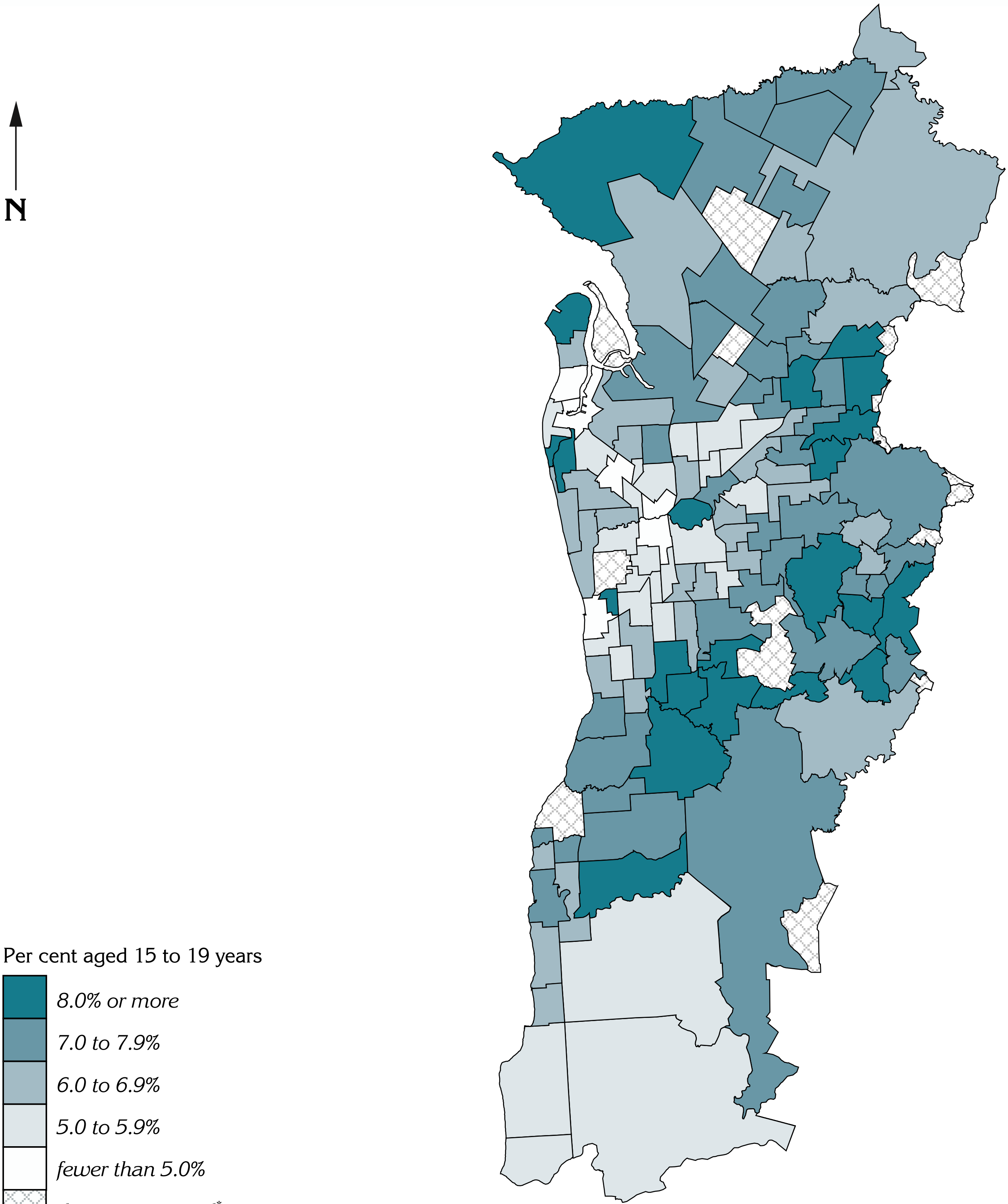
The highest proportions of 15 to 19 year olds were found in postcodes in the Adelaide Hills at *Upper Sturt* (9.5%), *Aldgate* (8.9%), *Piccadilly* (8.6%) and *Eden Hills* (8.5%); to the north at *Highbury* (9.2%), *Modbury North* (8.8%) and *Tea Tree Gully* (8.5%) and elsewhere at *Novar Gardens* (12.0%), *North Adelaide* (11.7%), *West Lakes Shore* (9.3%), *Happy Valley* (9.0%), *Greenhill* (8.9%) and *Fairview Park* (8.5%).

In contrast, relatively low proportions of children aged 15 to 19 years were found in the inner northern and western sectors of the city. The lowest proportions were in *Thebarton* (4.7%), *Largs Bay*, *Woodville* and *Glenelg* (each 4.8%), *Port Adelaide* (4.9%) and *Hindmarsh* (5.0%) in the west.

The largest numbers of people aged from 15 to 19 years were in postcode areas located in the outer suburbs of *Salisbury* (2,838 people), *Salisbury East* (1,794), *Modbury North* (1,481), *Elizabeth North* (1,376) and *Smithfield* (1,324) in the north, and *Happy Valley* (2,830) and *O'Halloran Hill* (1,627) in the south.

There was a correlation of meaningful significance at the postcode level with the variable for people who were full time students (0.54).

Map 3.23
People aged 15 to 19 years, Adelaide, 1998
as a percentage of the total population in each postcode area



Per cent aged 15 to 19 years

- *8.0% or more*
- *7.0 to 7.9%*
- *6.0 to 6.9%*
- *5.0 to 5.9%*
- *fewer than 5.0%*
- *data not mapped**

**Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.*

Source: ERP, 1998, ABS Cat No. 3235.4 ***Details of map boundaries are in Appendix 1.2***

People aged 15 to 19 years, 1998

Non-metropolitan South Australia

In 1998, there were an estimated 25,444 people aged from 15 to 19 years living in the non-metropolitan areas of South Australia, comprising 6.4% of the non-metropolitan population. This figure was slightly lower than in Adelaide. The number of 15 to 19 year olds rose by 360 people in the period from 1991 to 1998, an increase of 1.4%.

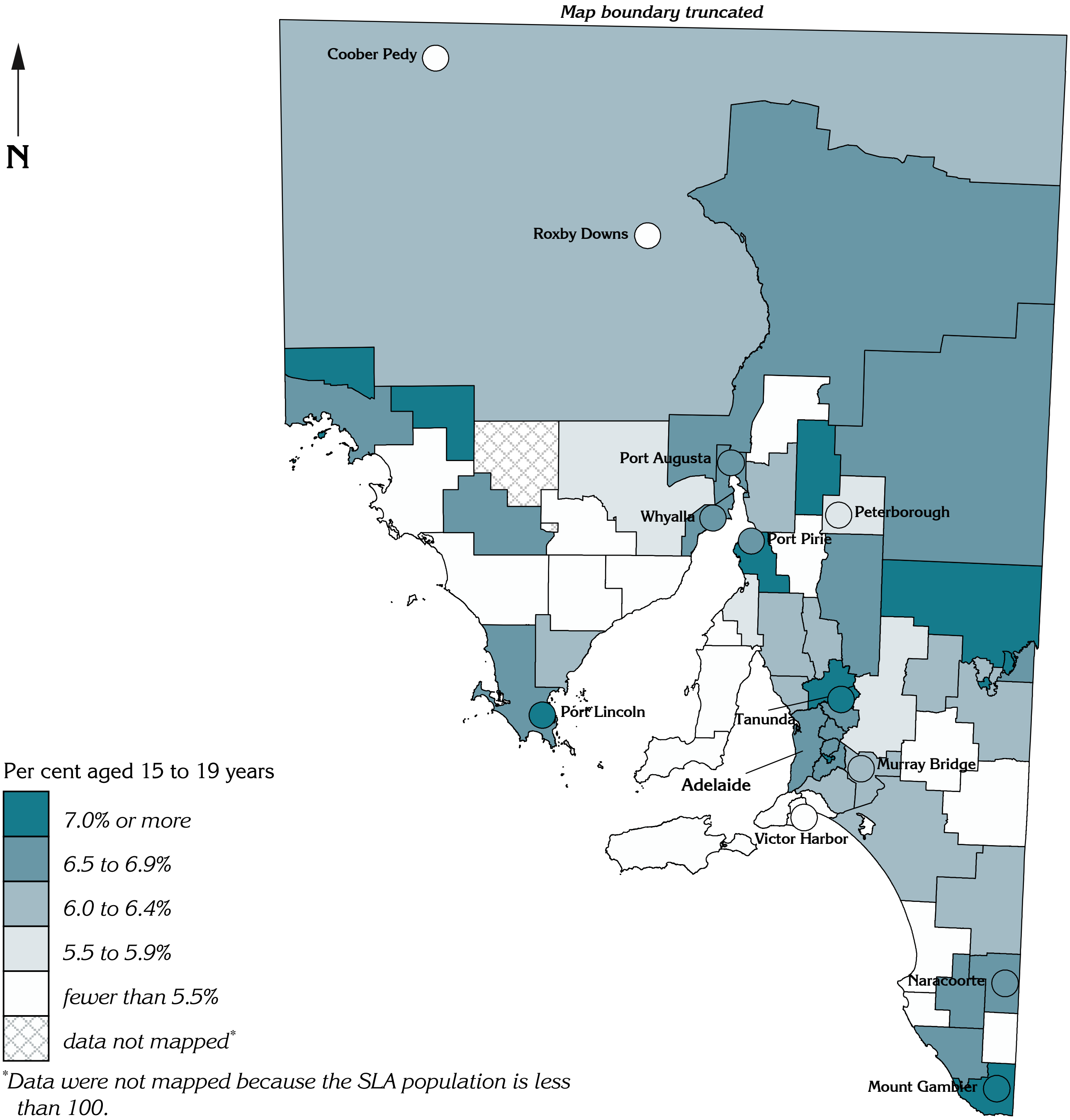
High proportions of people aged 15 to 19 years were generally in SLAs located close to the metropolitan area and in the regional centres (**Map 3.24**). The highest proportions were in the SLAs of Unincorporated West Coast (10.2%), Kapunda and Light (7.7%), Port Pirie-City (7.7%), Grant (7.6%), Barossa-Tanunda (7.4%), Unincorporated Riverland (7.3%), Mount Barker-Central and Port Lincoln (both 7.2%), Mount Gambier, Barossa-Angaston, Renmark and Orroroo/Carrieton (each 7.1%).

The distribution of low proportions of people in this age group showed little spatial patterning. The SLAs of Elliston (2.2%), Southern Mallee (4.4%), Victor Harbor (4.5%), Yorke Peninsula-South (4.5%), Roxby Downs (4.6%), Franklin Harbor (4.7%), Karoonda-East Murray and Robe (both 4.8%), all had proportions of below 5%.

The largest numbers of people aged from 15 to 19 years were in the regional centres, in Mount Gambier (1,646 people), Whyalla (1,644), Murray Bridge (1,055), Mount Barker (1,028), Port Augusta and Port Pirie-City (both 956) and Port Lincoln (933).

There was no consistent evidence in the correlation analysis of an association at the SLA level between high proportions of people aged 15 to 19 years and socioeconomic disadvantage.

Map 3.24
People aged 15 to 19 years, South Australia, 1998
as a percentage of the total population in each Statistical Local Area



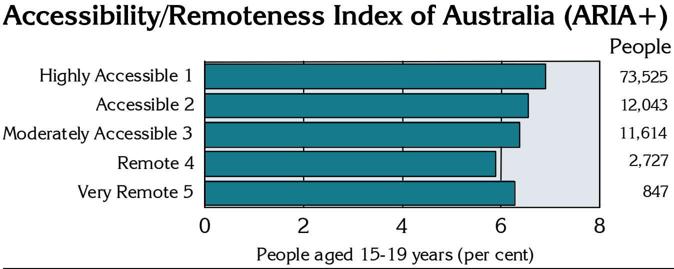
Per cent aged 15 to 19 years

- *7.0% or more*
- *6.5 to 6.9%*
- *6.0 to 6.4%*
- *5.5 to 5.9%*
- *fewer than 5.5%*
- *data not mapped**

**Data were not mapped because the SLA population is less than 100.*

Source: ERP, 1998, ABS Cat No. 3235.4 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of the population aged 15 to 19 years declines steadily over the first four ARIA+ classes, from 6.9% in the Highly Accessible areas to 5.9% in the Remote areas, before increasing slightly to 6.3% in the Very Remote areas.

Source: Calculated on ARIA+ classification

People aged 20 to 24 years, 1998

Adelaide

In 1998, there were an estimated 80,542 people aged from 20 to 24 years living in Adelaide, comprising 7.4% of the metropolitan population. From 1991 to 1998, the number of people in this age group fell by 4,279 people (5.0%). The proportion of people in this age group relative to the total population also declined over the period.

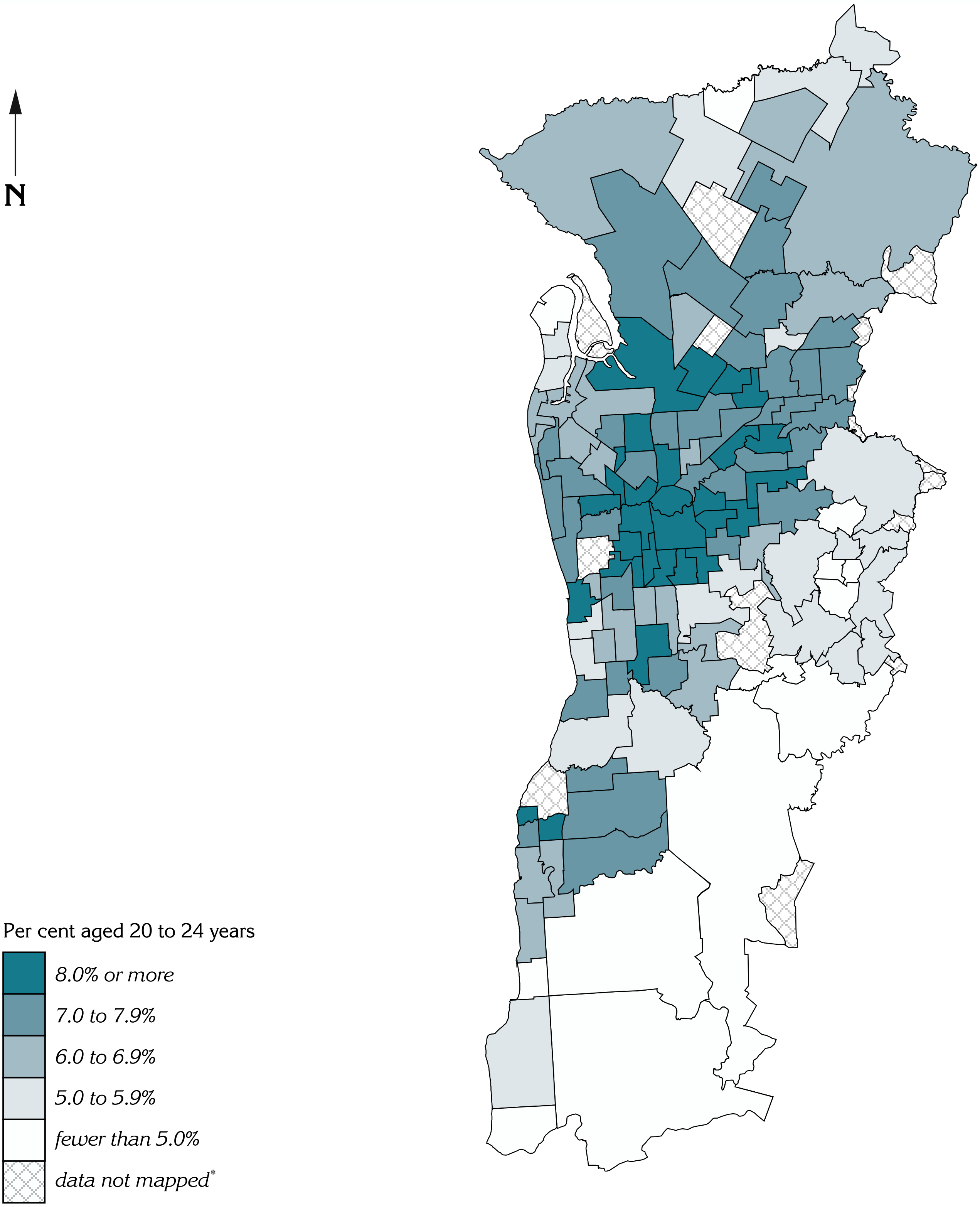
The pattern of distribution of people in this age group is highly distinctive. Postcode areas recording high proportions of 20 to 24 year olds formed a band in and around the city. This pattern extended in some cases out to the middle suburbs (**Map 3.25**). Postcode areas recording the highest proportions of 20 to 24 year olds were *North Adelaide* (15.1%), *Gepps Cross* (12.9%), *Adelaide* (12.9%), *Norwood* (11.9%), *St Marys* (11.0%), *Thebarton* (10.6%), *Keswick* (10.1%), *Eastwood* (10.1%), *Goodwood* (9.7%) and *St Peters* (9.0%).

In contrast, relatively low proportions of people in the 20 to 24 age group were found in the Adelaide Hills and the outer southern suburbs. *Summertown* (with 3.0%), *Norton Summit* (3.2%), *Piccadilly* (3.7%), *Maslin Beach* (3.8%), *Willunga* and *Upper Sturt* (both 4.0%), *Uraidla, Blackwood Forward, Stirling Forward* and *Sellicks Beach* (each 4.4%) and *Angle Vale* (4.6%) all had values of below 5%.

The largest numbers of people aged from 20 to 24 years were located in outer postcode areas. These included *Salisbury* (2,935 people), *Salisbury East* (1,699), *Elizabeth North* (1,385), *Elizabeth* (1,371), *Smithfield* (1,298) and *Modbury North* (1,241) in the outer north and *Morphett Vale* (2,413) and *Happy Valley* (1,850) in the outer south.

There was no consistent evidence in the correlation analysis at the postcode level between high proportions of people aged 20 to 24 years and socioeconomic disadvantage.

Map 3.25
People aged 20 to 24 years, Adelaide, 1998
as a percentage of the total population in each postcode area



*Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.

Source: ERP, 1998, ABS Cat No. 3235.4 — *Details of map boundaries are in Appendix 1.2*

People aged 20 to 24 years, 1998

Non-metropolitan South Australia

In 1998, there were an estimated 20,642 people aged from 20 to 24 years living in the non-metropolitan areas of South Australia, comprising 5.2% of the non-metropolitan population. From 1991 to 1998, the number of people in this age group fell by 3,956 people (16.1%). The proportion of people in this age group relative to the total population also declined over the period.

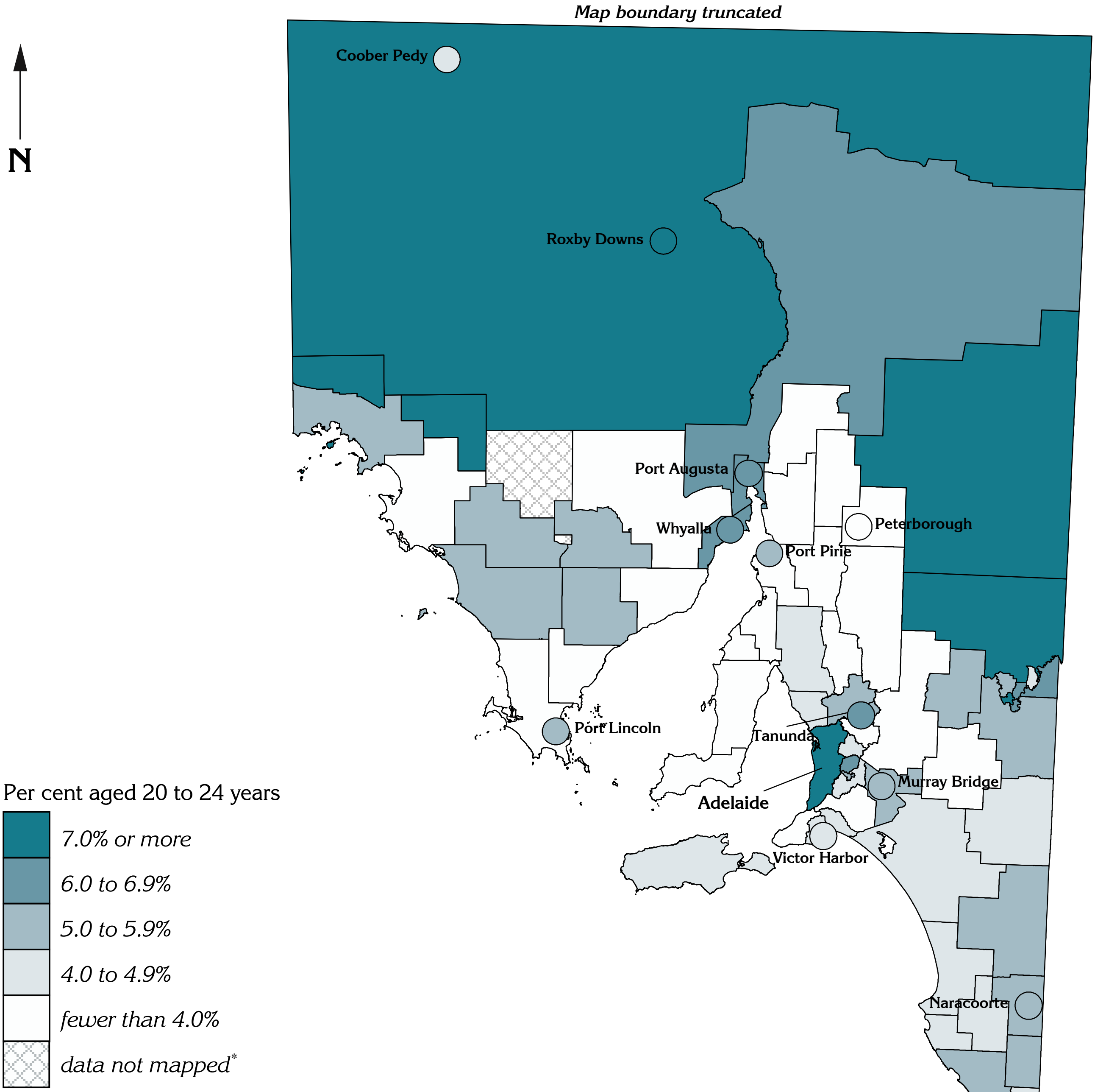
In non-metropolitan South Australia, the highest proportions of people aged from 20 to 24 years were located in the towns and in the Unincorporated areas (**Map 3.26**). These areas included the towns and settled areas of Roxby Downs (10.4%) and Mount Gambier (7.0%), and the Unincorporated areas of Riverland (9.8%), Far North (8.0%), West Coast (7.5%), Pirie (7.2%), and Flinders Ranges (6.9%).

Low proportions of people in this group were distributed unevenly across the State, particularly in SLAs in the Yorke Peninsula, the Mid North and to the east of the State; Yankalilla (2.8%), Yorke Peninsula-South and Lower Eyre Peninsula (both 3.0%), Barunga West (3.1%), Yorke Peninsula-North and Northern Areas (both 3.3%), Karoonda-East Murray (3.4%) and Tumby Bay (3.5%) all had proportions of 3.5% or less.

The largest numbers of people aged from 20 to 24 years were located in the towns and in regional centres on the fringe of the metropolitan area. These included Mount Gambier (1,621 people), Whyalla (1,451), Murray Bridge (986), Port Augusta (866), Port Pirie-City (860), Mount Barker-Central (786) and Port Lincoln (717).

There was no consistent evidence in the correlation analysis at the SLA level between high proportions of people aged 20 to 24 years and socioeconomic disadvantage.

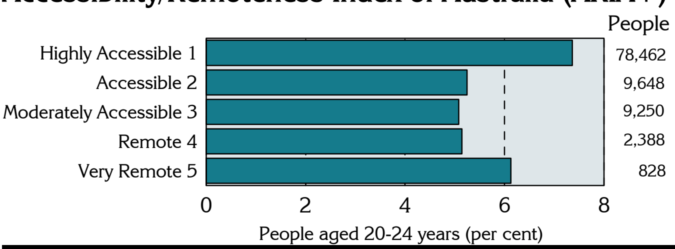
Map 3.26
People aged 20 to 24 years, South Australia, 1998
as a percentage of the total population in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100.

Source: ERP, 1998, ABS Cat No. 3235.4 — *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



The highest proportion of people aged 20 to 24 years was estimated to be in the Highly Accessible areas, (7.4%). Proportions of around 5% were recorded in the next three ARIA+ classes, with a higher 6.1% in the Very Remote areas.

Source: Calculated on ARIA+ classification

Proportion of the population aged 15 to 24 years, 1998

Adelaide

In 1998, the estimated number of people aged from 15 to 24 years living in Adelaide was 154,204, comprising 14.2% of the metropolitan population. From 1991 to 1998, the number of people in this age group fell by 9,801 people (6.0%). The proportion of people in this age group also declined.

In contrast to the distribution of the 0 to 14 year old population, the metropolitan population aged 15 to 24 years tended to be located in postcode areas closer to the city, in particular in the inner and middle suburbs (**Map 3.27**). As this broad age group incorporates both the 15 to 19 year old and 20 to 24 year old age groups, each of which displays distinctively different spatial distribution patterns, to some extent the amalgamation of the groups masks the true variations in the underlying data.

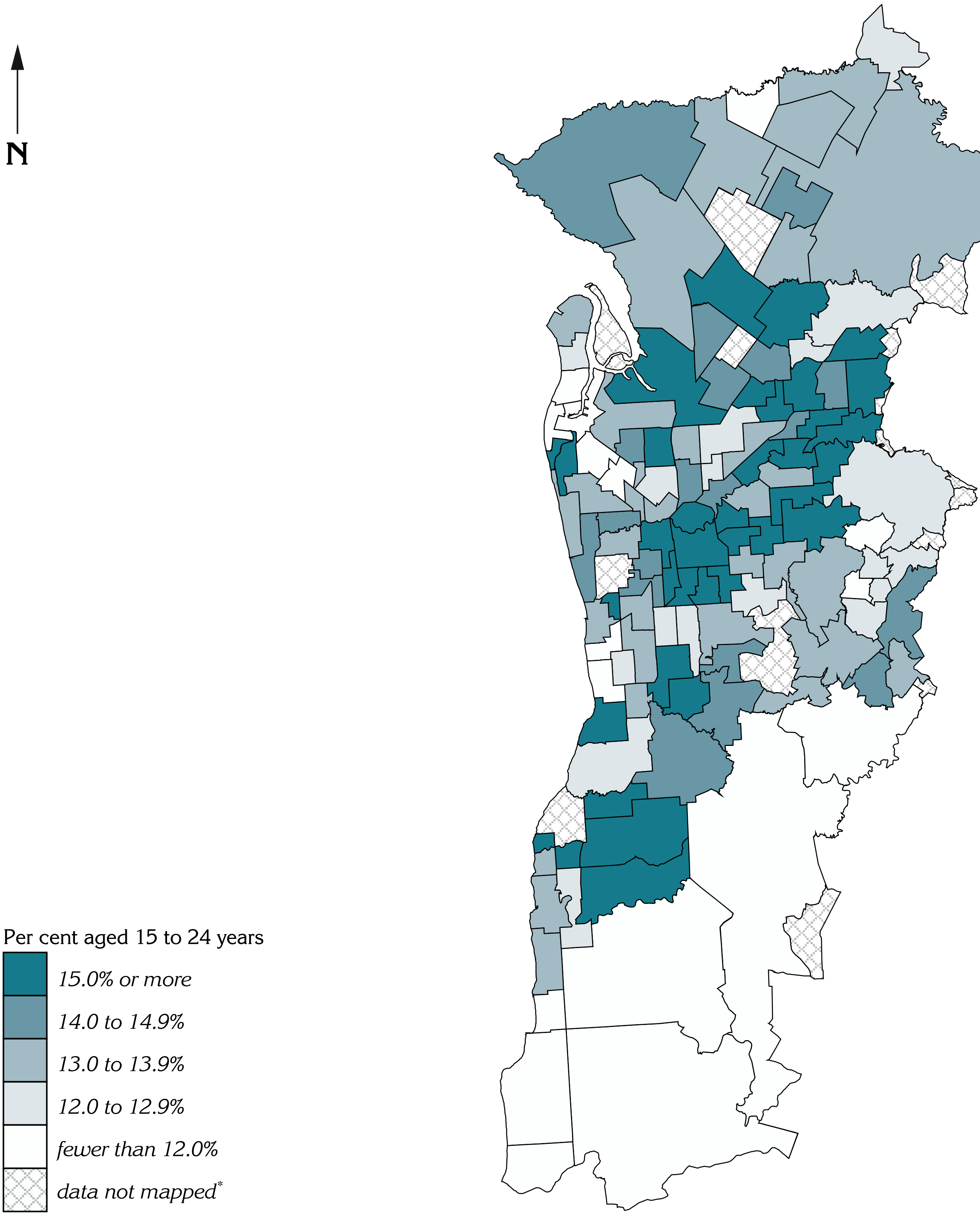
The highest proportions of 15 to 24 year olds were in postcode areas located to the north and north-east of the city at *North Adelaide* (26.8%), *Gepps Cross* (20.6%), *Adelaide* (18.1%), *Highbury* (16.9%), *Ingle Farm* (16.5%), *Fairview Park* and *Tea Tree Gully* (both 16.2%), *Para Vista* and *Modbury North* (both 16.1%); to the south and south-west of the city at *St Marys* (19.1%), *Novar Gardens* (18.7%), *Goodwood* (16.6%) and *Christie Downs* (16.4%); to the east of the city at *Norwood* (18.5%) and *Kensington Park* (16.1%); and in the Adelaide Hills at *Eden Hills* (16.1%).

In contrast, relatively low proportions of the 15 to 24 year old population were found in pockets throughout the metropolitan area, most notably to the north and north-west of the city, in the Adelaide Hills and at the southern metropolitan fringe. The lowest proportions were in *Sellicks Beach* (9.6%), *Willunga* (9.8%), *Maslin Beach* (10.0%) and *Aldinga* (10.6%) in the south, *Largs Bay* (10.0%) in the west and *Norton Summit* (10.0%), *Summertown* (10.4%) and *Stirling Forward* (10.9%) in the Adelaide Hills.

There was no consistent evidence in the correlation analysis at the postcode level between high proportions of people aged 15 to 24 years and socioeconomic disadvantage.

Map 3.27
Proportion of the population aged 15 to 24 years, Adelaide, 1998

as a percentage of the total population in each postcode area



*Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.

Source: ERP, 1998, ABS Cat No. 3235.4 | ***Details of map boundaries are in Appendix 1.2***

People aged 15 to 24 years, 1998: Proportion

Non-metropolitan South Australia

In 1998, there were 46,086 people aged from 15 to 24 years living in non-metropolitan South Australia, comprising 11.6% of the non-metropolitan population. Over the period from 1991 to 1998, the number of people in this age group fell by 3,426 people (6.9%). The proportion of people in this age group relative to the total population also declined.

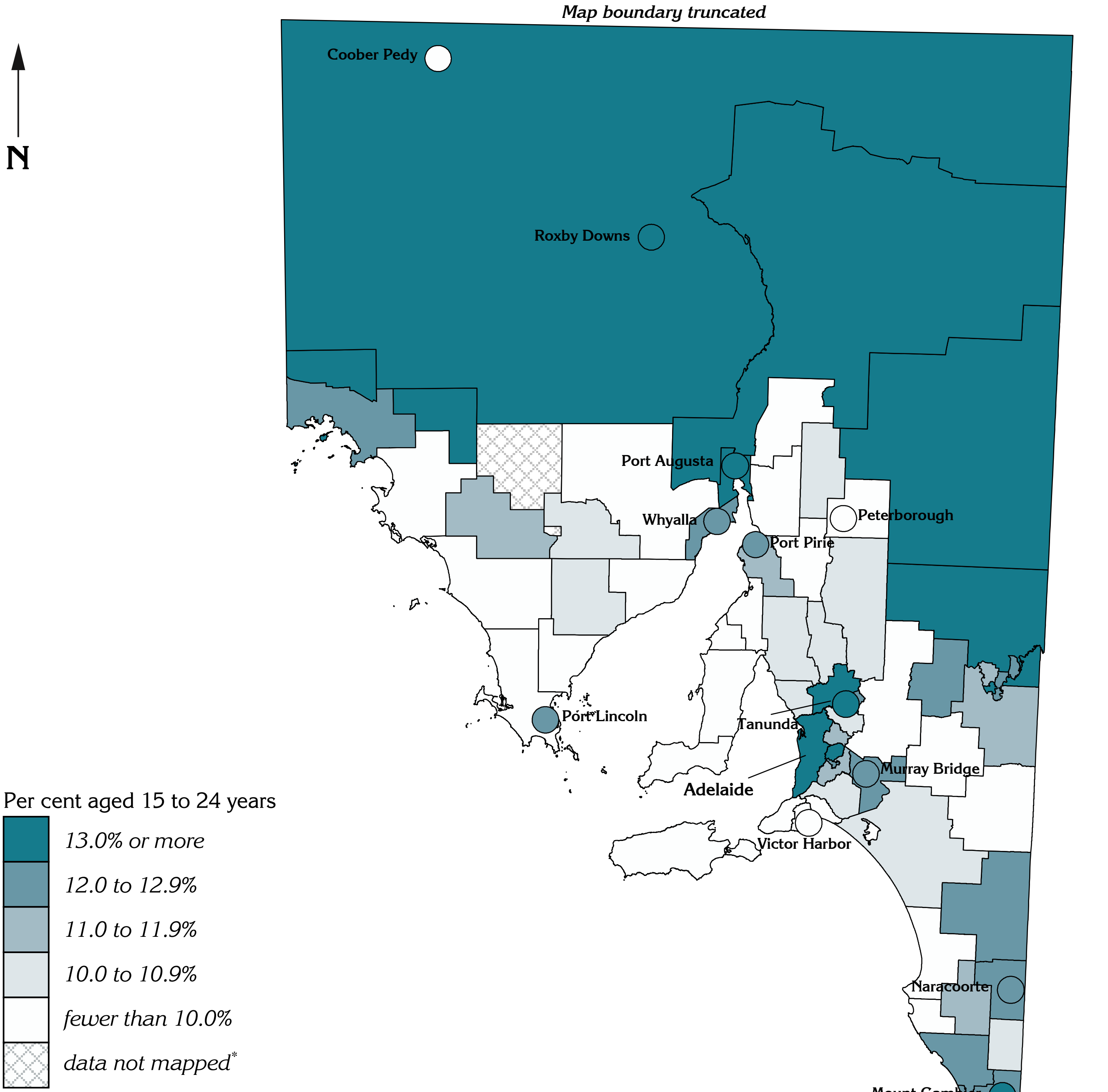
The highest proportions of people aged from 15 to 24 years were in the Unincorporated areas of West Coast (17.8%), Riverland (17.1%), Far North (14.4%), Pirie (13.8%) and Flinders Ranges (13.6%); in the urban centres of Roxby Downs (15.1%), Mount Gambier (14.2%) and Port Augusta (13.0%); and elsewhere at Barossa-Tanunda (13.5%), Adelaide Hills-Balance (13.1%), Kapunda and Light (13.3%) and Paringa (13.0%).

SLAs with low proportions of people in this age group were spread across the non-metropolitan areas of South Australia (**Map 3.28**). Yorke Peninsula-South (7.5%), Elliston (8.0%), Yankalilla and Karoonda-East Murray (both 8.2%), Yorke Peninsula-North (8.3%), Franklin Harbor (8.4%), Victor Harbor (8.6%), Streaky Bay and Cooper Coast (both 8.7%) and Northern Areas and Southern Mallee (both 8.8%) had the lowest proportions, of less than 9.0%.

There was no consistent evidence in the correlation analysis at the SLA level between high proportions of people aged 15 to 24 years and socioeconomic disadvantage.

Map 3.28
People aged 15 to 24 years, South Australia, 1998: Proportion

as a percentage of the total population in each Statistical Local Area

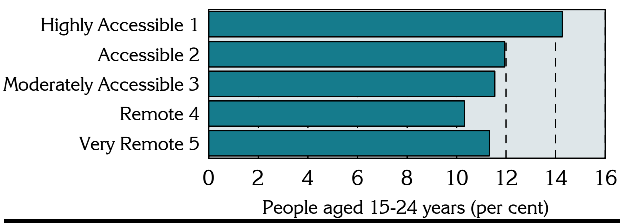


*Data were not mapped because the SLA population is less than 100.

Source: ERP, 1998, ABS Cat No. 3235.4

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of the population aged from 15 to 24 years decreased steadily across the first four ARIA+ classes (from 14.3% in the Highly Accessible areas to 10.3% in the Remote areas), before increasing slightly in the Very Remote areas (11.3%).

Source: Calculated on ARIA+ classification

People aged 15 to 24 years, 1998: Number

Adelaide

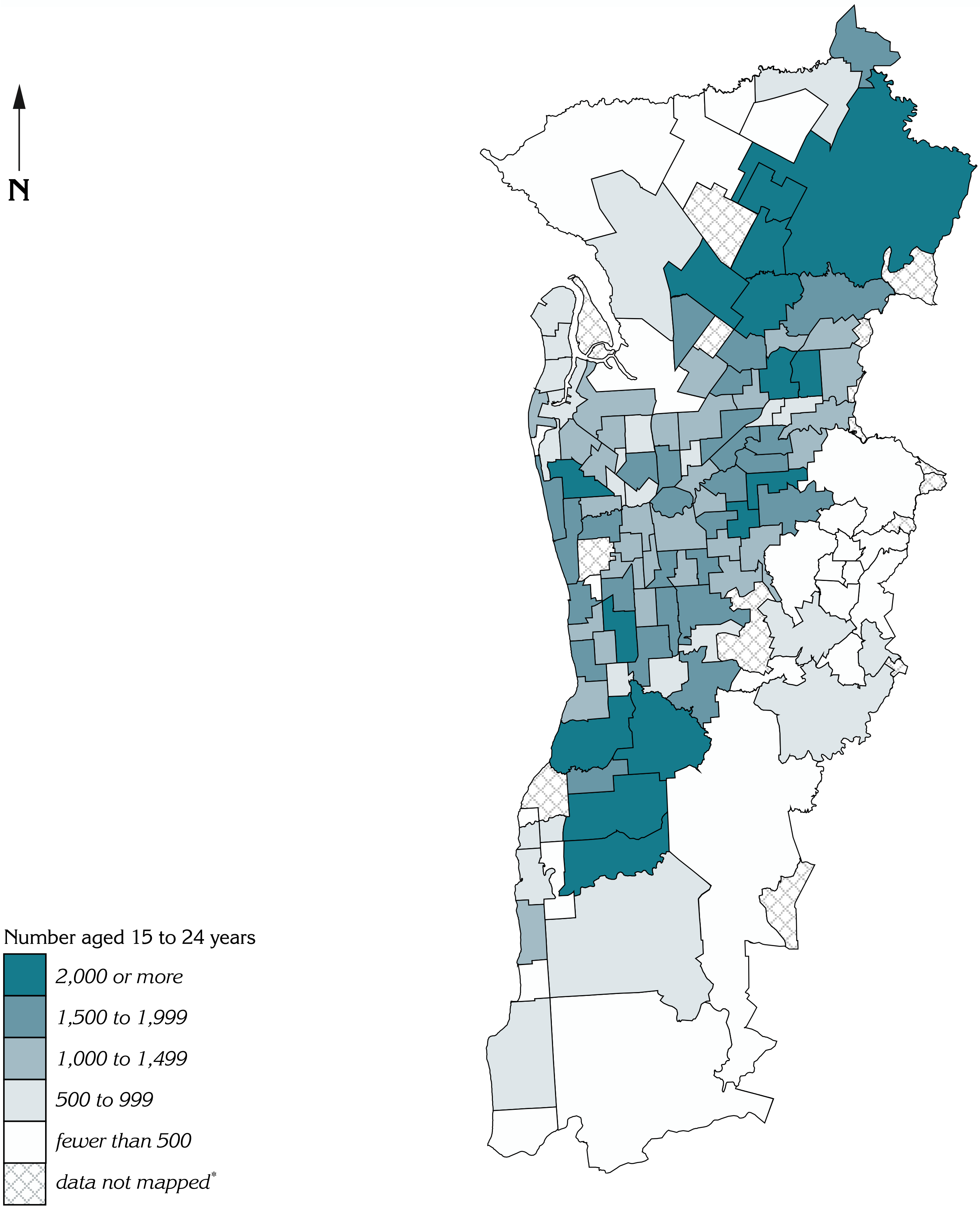
In 1998, there were an estimated 154,204 people aged from 15 to 24 years living in Adelaide. Over the period from 1991 to 1998, the number of people in this age group fell substantially, down by 9,801 people (6.0%).

Large numbers of 15 to 24 year olds were estimated to live in the outer metropolitan postcode areas, as well as within some postcodes located in the middle sector of the city (**Map 3.29**). The largest numbers were in the north, in *Salisbury* (5,773 people), *Salisbury East* (3,493), *Elizabeth North* (2,761), *Modbury North* (2,722) *Smithfield* (2,622), *Elizabeth* (2,554) and *St Agnes* (2,176); and in the south, in *Morphett Vale* (5,047) *Happy Valley* (4,680), *O'Halloran Hill* (2,755), *Hackhm* (2,229) and *Park Holme* (2,202).

The smallest numbers of 15 to 24 year olds were in postcode areas located in the Adelaide Hills and in a small number of outer postcode areas. These were *Basket Range* (30 people), *Ashton* (40), *Norton Summit* (44), *Summertown* (59), *Uraidla* (62), *Piccadilly* (66), *Greenhill* (69), *Montacute* (75) and *Maslin Beach* (96).

Map 3.29
People aged 15 to 24 years, Adelaide, 1998: Number

total population in each postcode area



*Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.

Source: ERP, 1998, ABS Cat No. 3235.4

Details of map boundaries are in Appendix 1.2

People aged 15 to 24 years, 1998: Number

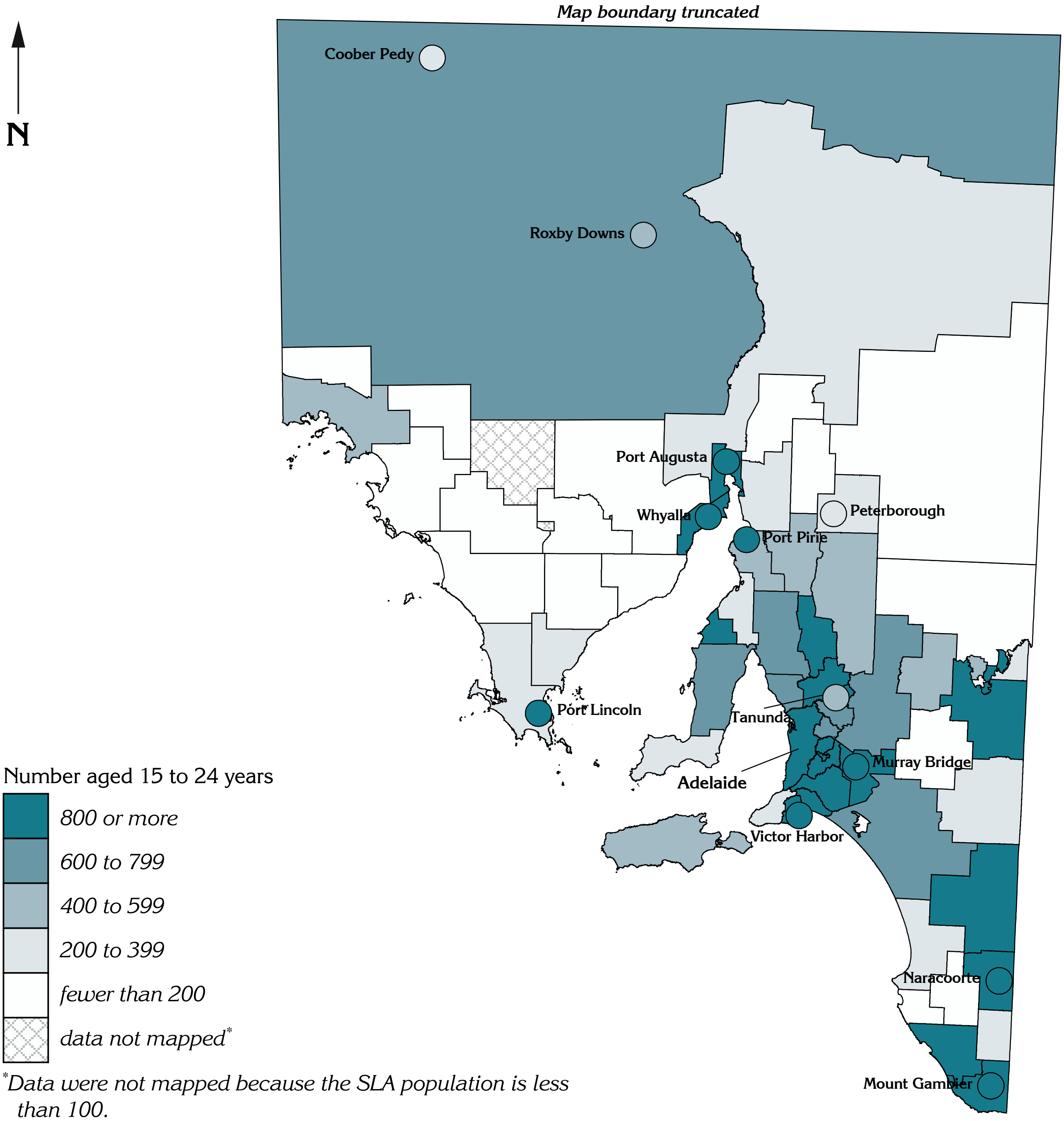
Non-metropolitan South Australia

In 1998, there were an estimated 46,086 people aged from 15 to 24 years living in the non-metropolitan areas of South Australia. Over the period from 1991 to 1998, the total number of people in this age group fell by 3,426 people (6.9%).

The largest numbers of 15 to 24 year olds were estimated to live in the towns of Mount Gambier (3,267 people), Whyalla (3,095), Murray Bridge (2,041), Port Augusta (1,822), Port Pirie-City (1,816), Mount Barker-Central (1,814), and Port Lincoln (1,650).

In contrast, relatively low numbers of the 15 to 24 year old population were found in the more remote SLAs such as Unincorporated Riverland (28 people), Unincorporated Whyalla (29), Unincorporated Pirie (44), Elliston (98), Franklin Harbor (102), Karoonda-East Murray (110), Unincorporated West Coast (111), Orroroo/Carrieton (119), Robe (121), Kimba (129) and Lucindale (149), all had fewer than 150 people in this age group (**Map 3.30**).

Map 3.30
People aged 15 to 24 years, South Australia, 1998: Number
total population in each Statistical Local Area

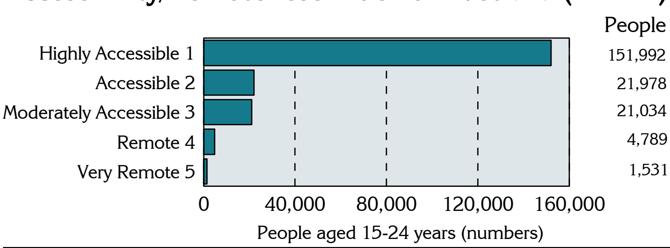


*Data were not mapped because the SLA population is less than 100.

Source: ERP, 1998, ABS Cat No. 3235.4

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



More than three quarters (75.5%, 151,992 people) of the population aged 15 to 24 years were estimated to live in the Highly Accessible areas. The numbers declined rapidly over the next four ARIA+ classes, to a low of 1,531 in the Very Remote areas.

Source: Calculated on ARIA+ classification

Unemployed males aged 15 to 24 years, 1996

Adelaide

There were 10,480 males aged 15 to 24 years in Adelaide recorded at the 1996 Census as being unemployed, an unemployment rate of 20.9%.

The highest proportions of unemployed 15 to 24 year old males were found in the inner north-western and western suburbs of Adelaide, as well as in the outer northern and southern suburbs (**Map 3.31**). The highest proportion was recorded in *Elizabeth North*, where 40.9% of all males at ages 15 to 24 years were unemployed. Other areas with high percentages included *Elizabeth* (35.7%), also in the outer north; *Ferryden Park* (38.5%), *Woodville North* (38.2%), *Osborne* (32.3%) and *Thebarton* (30.2%) in the west; *Blair Athol* (31.6%) in the north and *Aldinga* (39.5%), *O'Sullivan Beach* (37.0%), *Sellicks Beach* (31.0%) and *Christie Downs* (30.1%) in the outer south.

In contrast, the lowest proportions of unemployed males aged 15 to 24 years were generally in the hills suburbs, the inner south-eastern suburbs and in pockets along the metropolitan coastline. Postcode areas with less than 12.0% of unemployed males were *West Lakes*, *West Lakes Shore*, *Burnside*, *Greenhill*, *Montacute*, *Summertown*, *Uraidla, Gepps Cross* and *Willunga*,

The largest numbers of unemployed males in this age group were distributed in a similar pattern to the largest proportions: in the north in *Salisbury* (506 males), *Elizabeth North* (371), *Elizabeth* (298) and *Salisbury East* (238) and in the south in *Morphett Vale* (356), *Happy Valley* and *Hackham* (both 214).

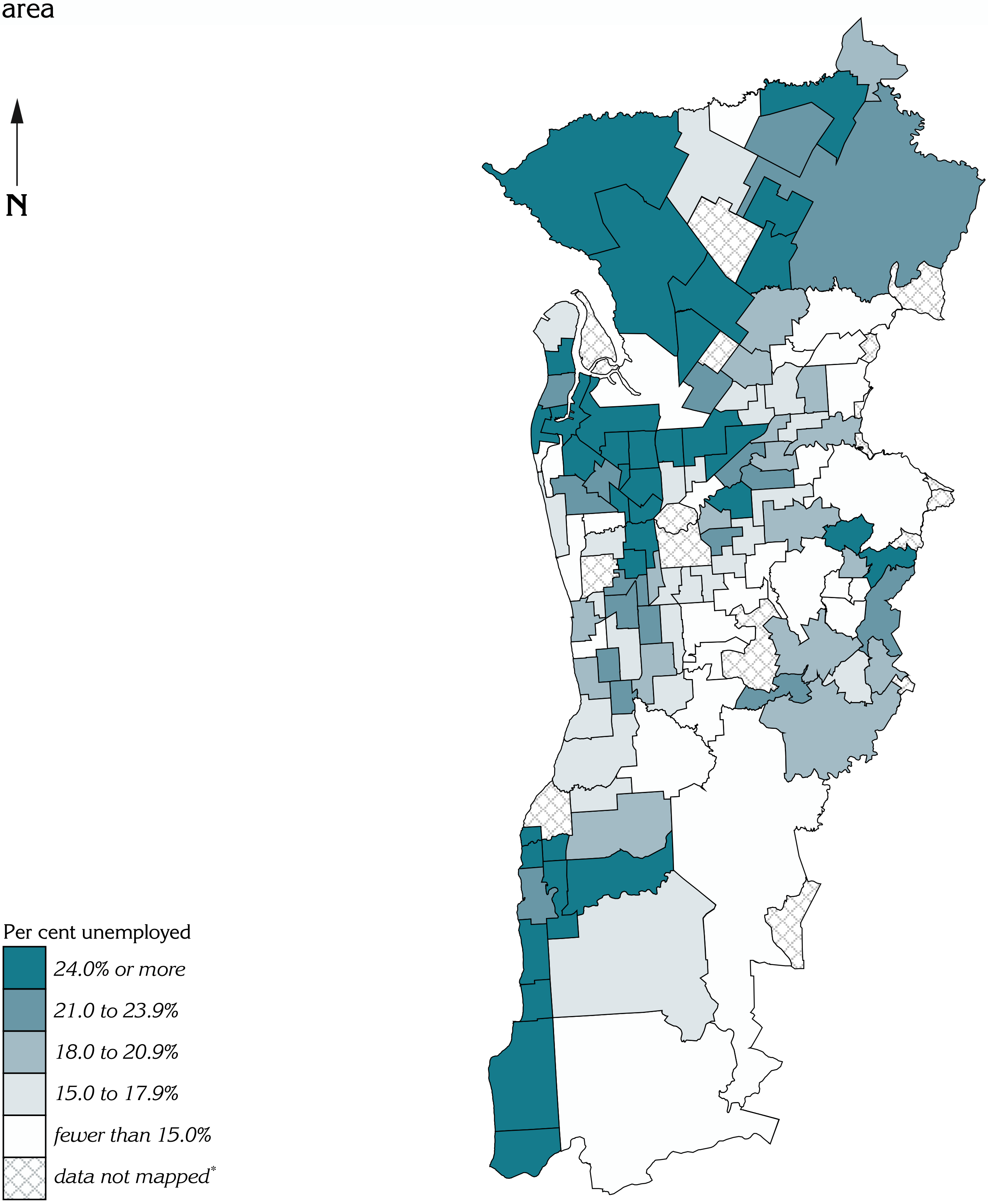
There were correlations of substantial significance at the postcode level with the variables for children aged 0 to 14 years living in low income families (0.77) and dwellings with no motor vehicles (0.71); and unemployed females aged 15 to 24 years (0.75). Correlations of meaningful significance were found with the variables for children aged 0 to 14 years living in single parent families (0.70) and dwellings rented from the SA Housing Trust (0.59); people who left school at age 15 years or earlier (0.64); and Indigenous people aged 15 to 24 years (0.51).

The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of meaningful significance recorded with the variables for female labour force participation (-0.66), high income families (-0.65) and managers and administrators, and professionals (-0.50).

These results, together with the inverse correlation of substantial significance with the IRSD (-0.73), indicate an association at the postcode level between unemployed males and socioeconomic disadvantage.

Map 3.31
Unemployed males aged 15 to 24 years, Adelaide, 1996

as a percentage of males aged 15 to 24 years in the labour force in each postcode area



** Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Unemployed males aged 15 to 24 years, 1996

Non-metropolitan South Australia

There were 2,862 males aged 15 to 24 years in non-metropolitan South Australia recorded at the 1996 Census as being unemployed, an unemployment rate of 18.4%. This was lower than the rate in Adelaide, of 20.9%. Males at these ages are highly mobile and are likely to have moved from the non-metropolitan area as a whole (and from some rural areas in particular) to Adelaide, or interstate.

It should be noted that these data are unlikely to include details of young Indigenous males involved in the Community Development Employment Program (CDEP). Under this program unemployment benefits are paid to the community, and participants work for the benefit. It is likely that at least some young men involved in the CDEP would show themselves as 'employed', thereby understating the extent of unemployment. This is particularly likely to have affected the rates under ARIA+ (see graph opposite).

The distribution of unemployed males aged 15 to 24 years showed considerable variation across the State (**Map 3.32**). The highest proportions were in the towns of Peterborough (M) (41.2%), Port Pirie (35.5%), Coober Pedy (33.3%), Wallaroo (29.8%) and Port Lincoln (28.4%) and elsewhere at Dudley (55.0%), Pirie (40.0%), Kingscote (33.3%), Yorketown (32.1%) and Port Elliot and Goolwa (29.0%).

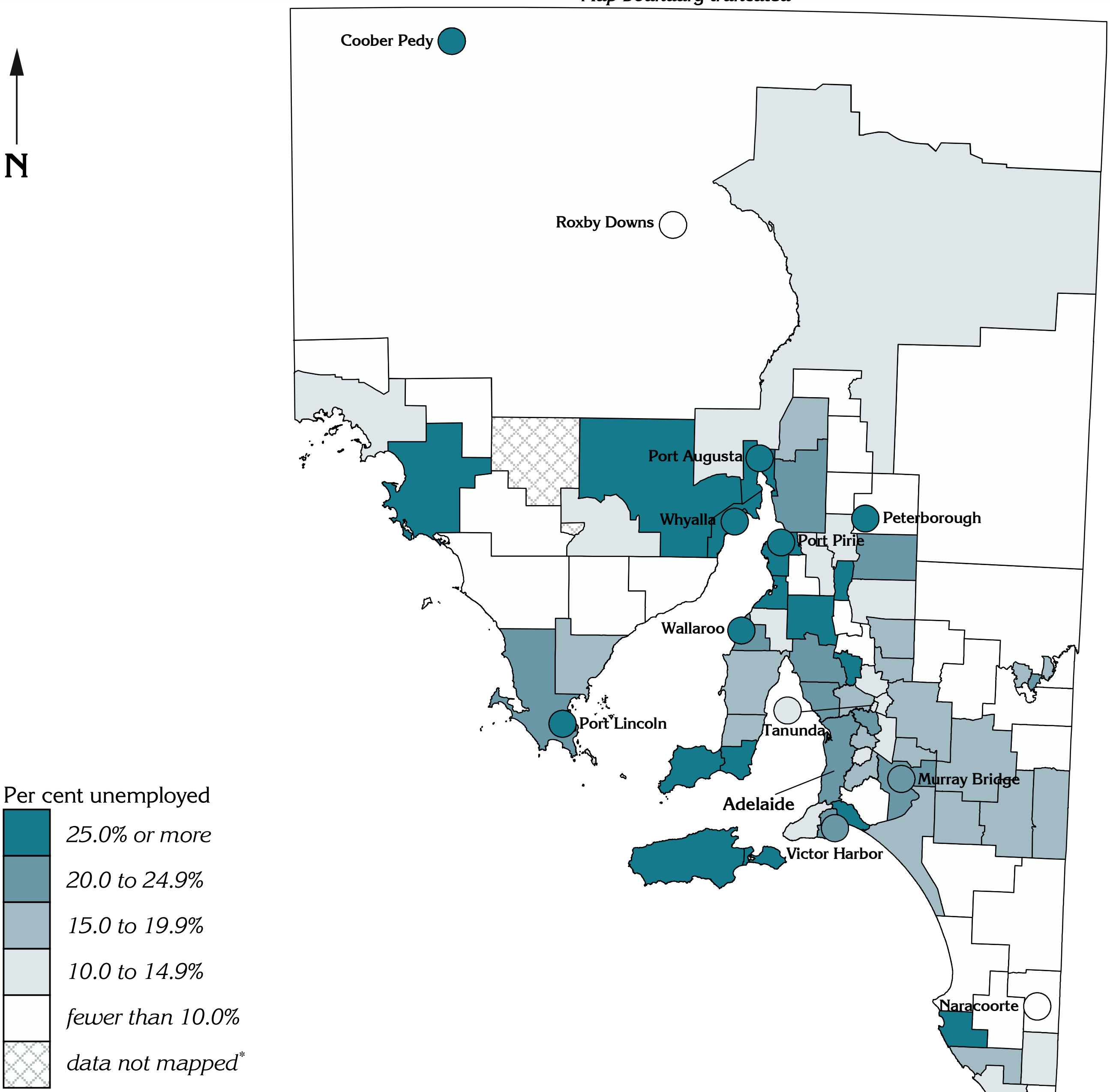
Many SLAs had low proportions of unemployed 15 to 24 year old males. Browns Well, Carrieton, Elliston, Franklin Harbor, Hawker, Lucindale, Orroroo, Peterborough (DC) and the Unincorporated areas of Pirie, Riverland and West Coast all had values of 0.0% unemployment for males in this age group.

The largest numbers of unemployed males were located in the towns and major centres, including Whyalla (295 males), Port Pirie (217), Mount Gambier (C) (196), Port Augusta (167), Murray Bridge (159), Mount Barker (154) and Port Lincoln (149).

There were correlations of meaningful significance at the SLA level with the variables for children aged 0 to 14 years living in low income families (0.69), single parent families (0.67) and dwellings with no motor vehicles (0.53). These results, together with the correlation of meaningful significance with the IRSD (-0.51), suggest an association at the SLA level between high rates of unemployed males aged 15 to 24 years and socioeconomic disadvantage.

Map 3.32
Unemployed males aged 15 to 24 years, South Australia, 1996

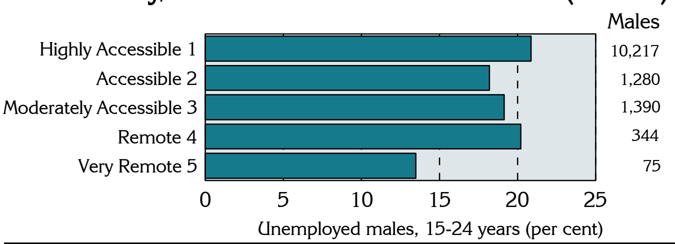
as a percentage of males aged 15 to 24 years in the labour force in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from ABS 1996 Census — *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



The distribution of unemployed males aged 15 to 24 years by ARIA+ class is unusual, in that the lowest proportions were in the Very Remote (13.5%) areas. The comment in the text (opposite) on the CDEP should be read in this context. The Highly Accessible and Remote classes had the highest proportions.

Source: Calculated on ARIA+ classification

Unemployed females aged 15 to 24 years, 1996

Adelaide

There were 7,579 females aged 15 to 24 years in Adelaide recorded at the 1996 Census as being unemployed, an unemployment rate of 16.1%.

The distribution of unemployed females aged 15 to 24 years in Adelaide was similar to that of males, with the highest proportions recorded in postcode areas at the outskirts of the metropolitan area, as well as in the inner western and northern suburbs (**Map 3.33**). The highest proportion of unemployed females in this age group was recorded at *Ferryden Park*, with 34.9%. Other postcodes with high proportions of females in this group included *Elizabeth North* (33.9%), *Christie Downs* (30.8%), *Rosewater* (30.4%), *Osborne* (29.3%), *Elizabeth* (28.8%), *Aldinga* (28.1%) and *Woodville North* (28.1%).

In contrast, the lowest proportions of unemployed females aged 15 to 24 years were generally in postcode areas in the Adelaide Hills and south-eastern suburbs, with *Norton Summit*, *Ashton*, *Greenhill*, *Piccadilly*, *Montacute* and *Summertown* recording very low proportions of people in this group.

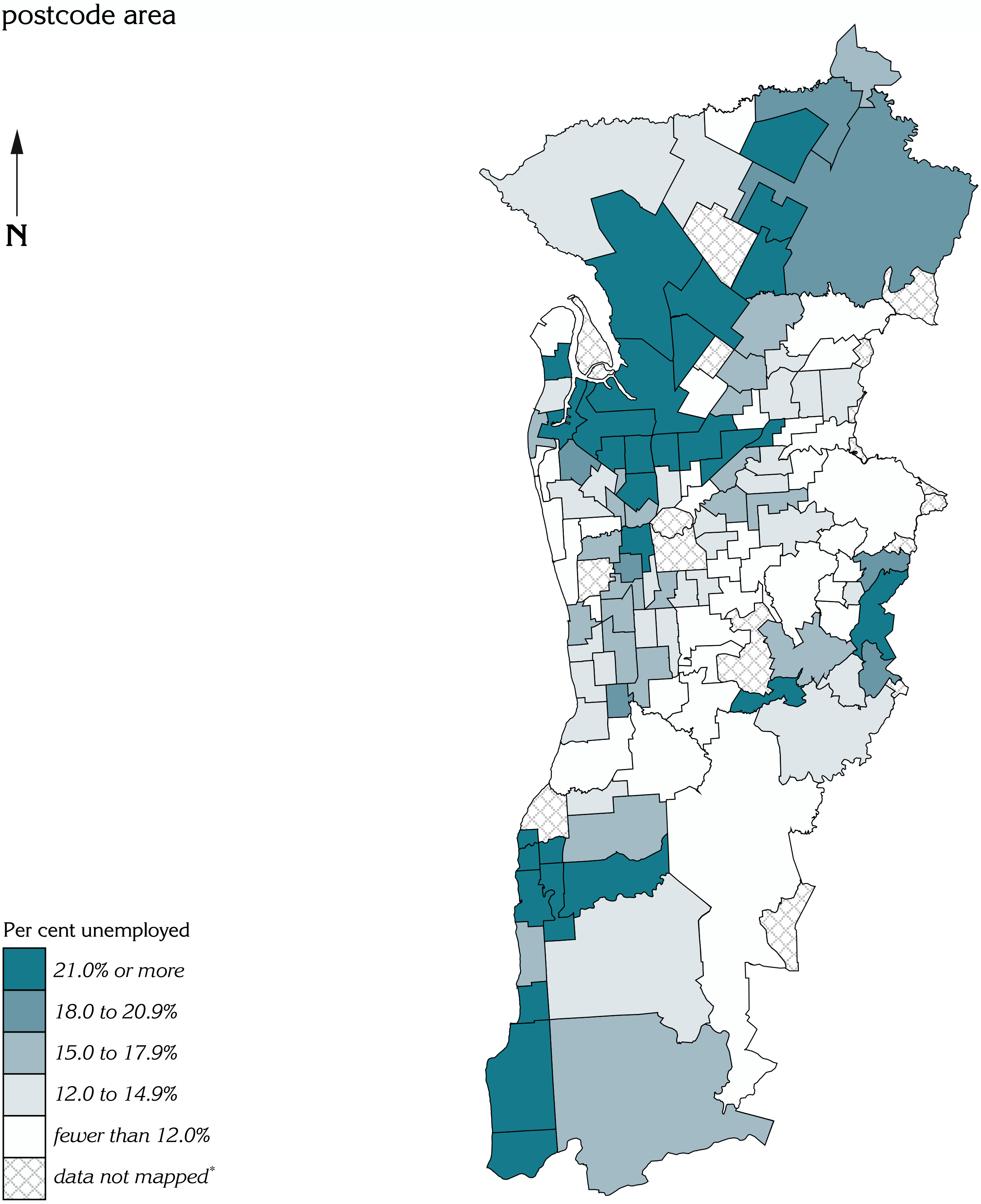
The largest numbers of 15 to 24 year old unemployed females were generally in northern, outer northern and outer southern postcode areas. Postcodes with in excess of 150 unemployed females were *Salisbury* (339 females), *Morphett Vale* (275), *Elizabeth North* (227), *Elizabeth* (205), *Salisbury East* (174) and *Happy Valley* (154).

There were correlations of substantial significance at the postcode level with the variables for children aged 0 to 14 years living in low income families (0.75), single parent families (0.73) and dwellings with no motor vehicles (0.72); and unemployed males aged 15 to 24 years (0.75). Correlations of meaningful significance were found with the variables for children aged 0 to 14 years living in dwellings rented from the SA Housing Trust (0.63), people who left school at age 15 years or earlier (0.63) and Indigenous people aged 15 to 24 years (0.61).

The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of statistical significance recorded with the variables for female labour force participation (-0.74), high income families (-0.66) and managers and administrators, and professionals (-0.58).

These results, together with the inverse correlation of substantial significance with the IRSD (-0.77), indicate an association at the postcode level between high rates of unemployed females and socioeconomic disadvantage.

Map 3.33
Unemployed females aged 15 to 24 years, Adelaide, 1996
as a percentage of females aged 15 to 24 years in the labour force in each postcode area



* *Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census

Details of map boundaries are in Appendix 1.2

Unemployed females aged 15 to 24 years, 1996

Non-metropolitan South Australia

There were 2,075 females aged 15 to 24 years in non-metropolitan South Australia recorded at the 1996 Census as being unemployed, an unemployment rate of 17.1%. This was higher than the rate in Adelaide, of 16.1%.

It should be noted that these data are unlikely to include details of young Indigenous females involved in the Community Development Employment Program (CDEP). Under this program, unemployment benefits are paid to the community, and participants work for the benefit. It is likely that at least some young women involved in the CDEP would show themselves as 'employed', thereby understating the extent of unemployment. This is particularly likely to have affected the rates under ARIA+ (see graph opposite).

High rates of unemployment among the 15 to 24 year old female population were evident throughout the mid north of the State, and, to a lesser extent, on the west coast of the Eyre Peninsula (**Map 3.34**). The highest proportions were observed in the mid north of the State at Hallett (50.0%), Jamestown (33.3%), Rocky River (30.6%), Spalding (30.0%) and Peterborough (M) (28.9%); in outer Adelaide at Riverton (35.0%) and Kapunda (30.8%) and to the east at Karoonda-East Murray (31.6%) and Peake (30.0%).

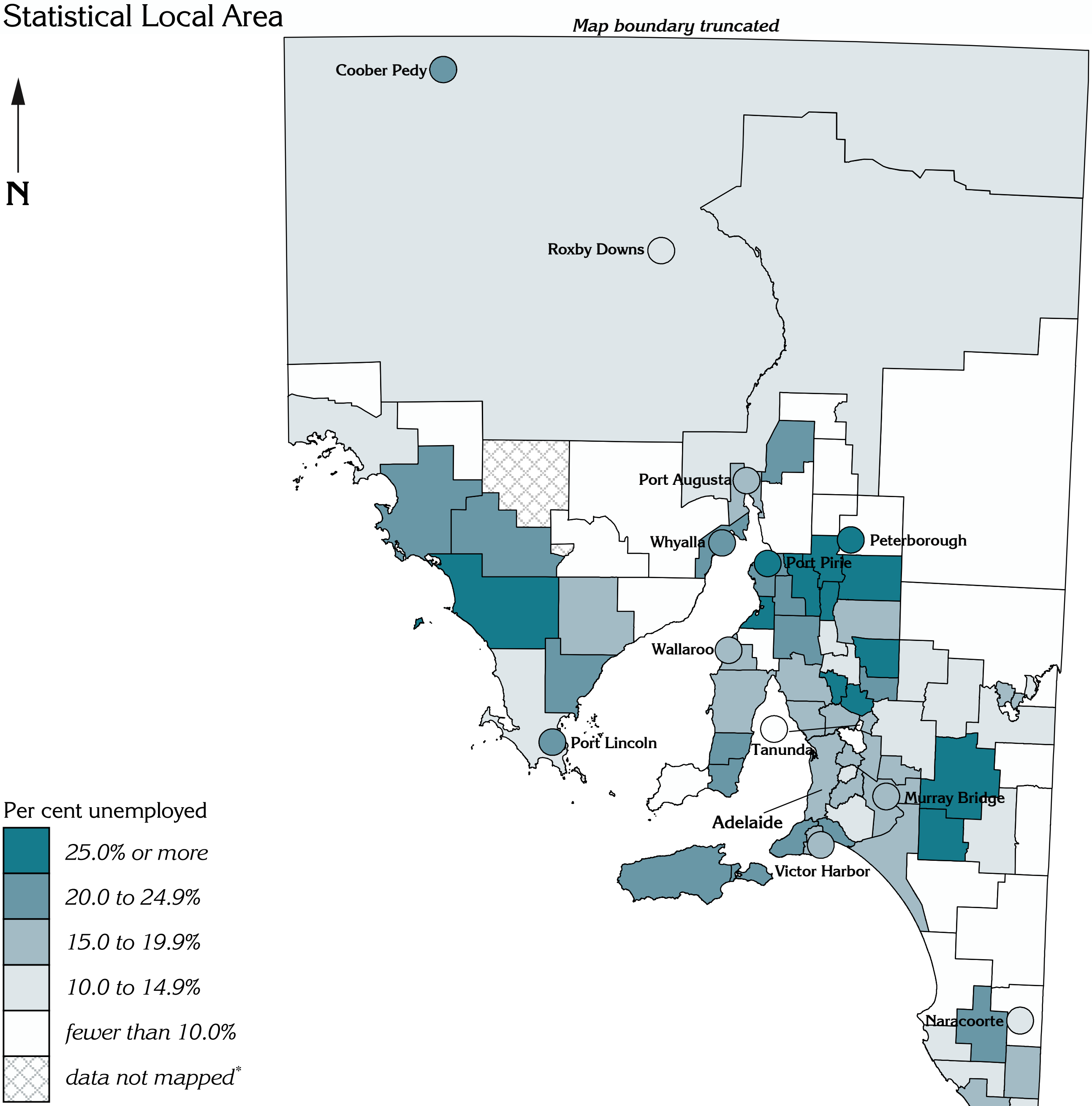
Many SLAs had low proportions of unemployed females, although in many of these areas the total number of females in the labour force was also very low. Warooka, Unincorporated Whyalla, Pinnaroo, Bute, Coonalpyn Downs, Browns Well, Franklin Harbor, Hawker, Orroroo, Peterborough (DC) and the Unincorporated areas of Pirie, Riverland and West Coast all had values of 0.0% unemployed for this category.

The largest numbers of unemployed women aged from 15 to 24 years were found in the towns, including Whyalla (207 females), Mount Gambier (C) (185), Port Pirie (149), Mount Barker (140), Murray Bridge (103) and Port Augusta (100).

There were correlations of meaningful significance at the SLA level with the variables for children aged 0 to 14 years living in single parent families (0.67) and low income families (0.66). These results, together with the correlation of meaningful significance with the IRSD (-0.52), suggest an association at the SLA level between high rates of unemployed females aged 15 to 24 years and socioeconomic disadvantage.

Map 3.34
Unemployed females aged 15 to 24 years, South Australia, 1996

as a percentage of females aged 15 to 24 years in the labour force in each Statistical Local Area

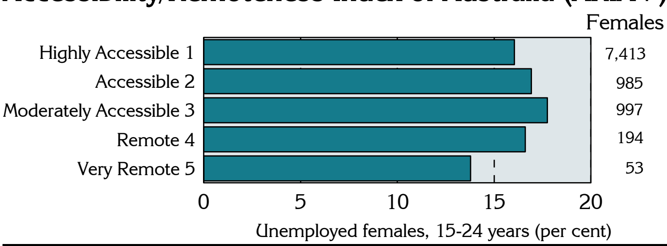


*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from ABS 1996 Census

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of unemployed females aged 15 to 24 years increases over the ARIA+ classes, from 16.0% in Highly Accessible to 17.7% in Moderately Accessible. The proportion then declines to a low of 13.8% in the Very Remote areas. The comment in the text (opposite) on the CDEP should be read in this context.

Source: Calculated on ARIA+ classification

People aged 15 to 24 years who are full-time students, 1996

Adelaide

There were 62,628 full-time students aged from 15 to 24 years in Adelaide in 1996, comprising 41.1% of the metropolitan population at these ages.

The highest proportions of 15 to 24 year old full-time students were located in the inner eastern and south-eastern suburbs in *Glen Osmond* (66.7%), *Burnside* (65.2%), *Kingswood* (63.5%) and *Glenside* (58.0%); in the Adelaide Hills in *Montacute* (69.3%), *Upper Sturt* (67.5%), *Stirling* (62.9%), *Belair* (62.8%), *Aldgate* (62.2%), *Greenhill* (62.2%) and *Blackwood Forward* (60.4%); and elsewhere in *Novar Gardens* (61.1%).

In contrast, the lowest proportions of people aged 15 to 24 years who were full-time students were located in parts of the north-western and south-western suburbs (**Map 3.35**): the postcode areas of *Elizabeth* (24.5%), *Port Adelaide* (25.5%), *Elizabeth North* (25.7%), *Christies Beach* (25.8%), *O'Sullivan Beach* (26.5%), *Christie Downs* (27.2%), *Old Noarlunga* (29.2%), *Salisbury* (29.5%), *Osborne* (29.7%) and *Smithfield* (29.9%), all had proportions of below 30%.

The areas with the largest numbers of full-time students in this age group were, in some cases, also areas with low proportions; this demonstrates the need for careful interpretation of relative (proportions) and absolute numbers. The largest numbers of these students were in the outer south in *Happy Valley* (2,277 students), *Morphett Vale* (1,702) and *O'Halloran Hill* (1,257); in the outer north in *Salisbury* (1,595), *Modbury North* (1,241) and *Salisbury East* (1,198) and in the south-eastern suburbs at *Kingswood* (1,189) and *Kensington Park* (1,016).

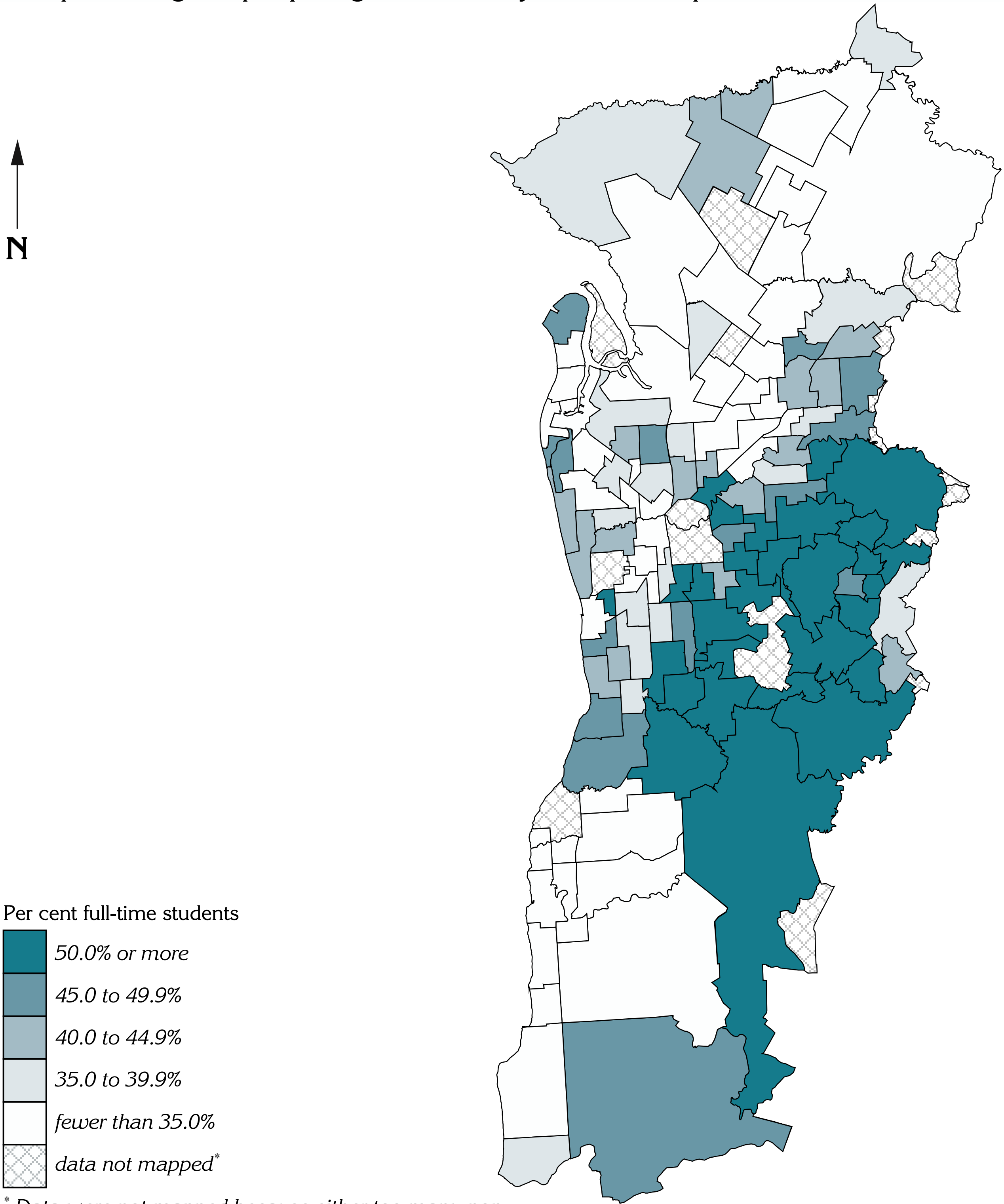
Inverse correlations of statistical significance were found with the variables for children aged 0 to 14 years living in low income families (-0.71), single parent families (-0.69) and dwellings with no motor vehicles (-0.59); unemployed males (-0.56) and females (-0.56) aged 15 to 24 years; and Indigenous people aged 15 to 24 years (-0.55).

The correlation analysis also revealed a positive association with indicators of high socioeconomic status, with correlations of statistical significance recorded with the variables for managers and administrators, and professionals (0.81), high income families (0.80) and female labour force participation (0.62).

These results, together with the correlation of substantial significance with the IRSD (0.76), suggest an association at the postcode level between full-time students aged 15 to 24 years and high socioeconomic status.

Map 3.35
People aged 15 to 24 years who are full time students, Adelaide, 1996

as a percentage of people aged 15 to 24 years in each postcode area



*Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.

Source: Calculated on data from ABS 1996 Census *Details of map boundaries are in Appendix 1.2*

People aged 15 to 24 years who are full-time students, 1996

Non-metropolitan South Australia

There were a total of 13,955 full-time students aged from 15 to 24 years living in non-metropolitan South Australia in 1996, comprising 31.1% of the non-metropolitan 15 to 24 year old population. This was considerably lower than the corresponding metropolitan figure of 41.1%, and is likely to reflect the greater availability of educational opportunities open to students living in the metropolitan area.

The distribution of full-time students aged 15 to 24 years in non-metropolitan South Australia was centred on the surrounds of the metropolitan area and parts of the mid north (**Map 3.36**). The highest proportions were in Peake (53.6%), Riverton (53.2%), Robertstown (51.3%), Light (49.1%), Carrieton (47.8%), Orroroo (47.2%), Eudunda (46.7%), Jamestown (45.5%), Minlaton (45.3%) and Mount Pleasant (45.0%).

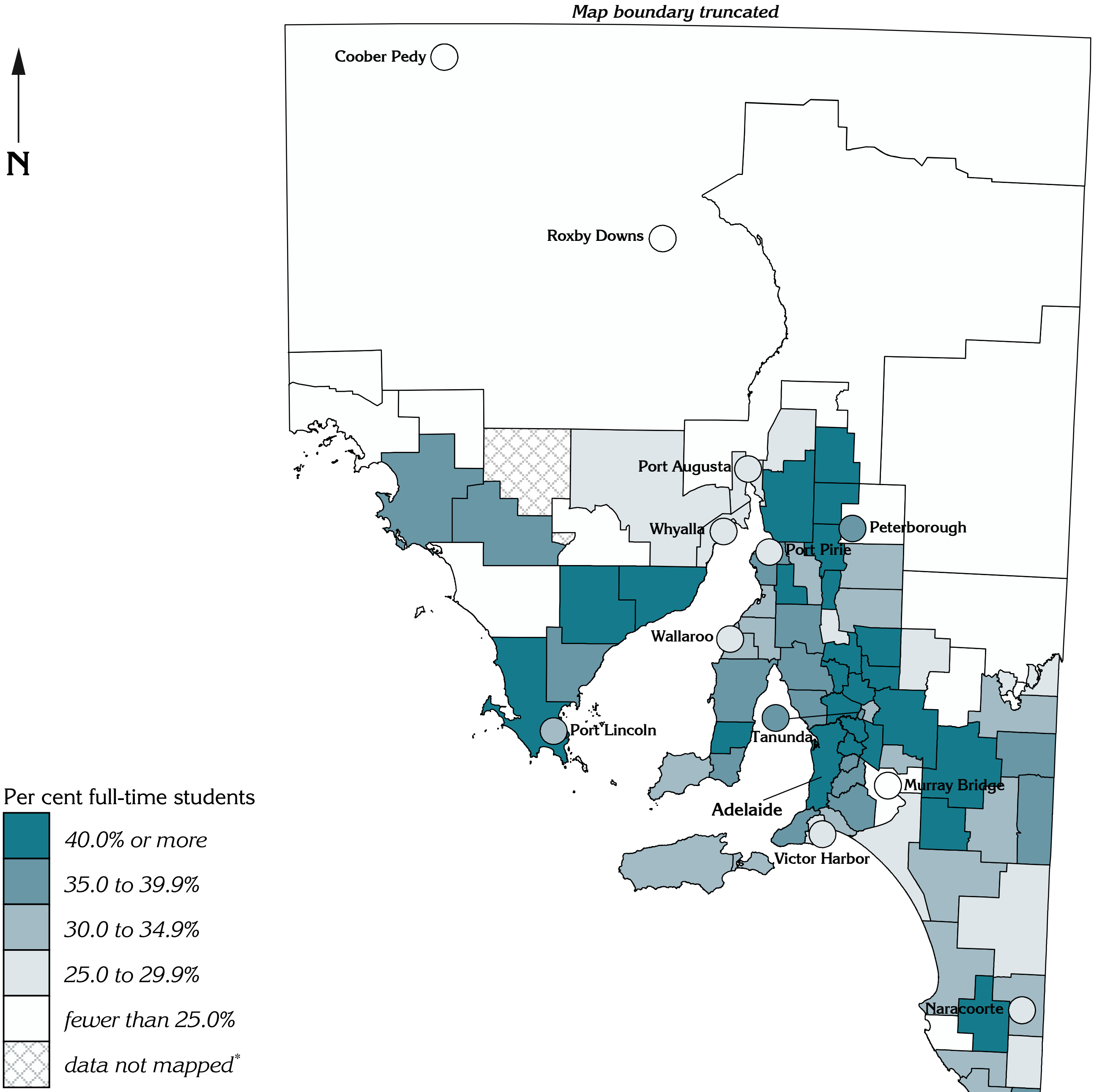
Relatively low proportions of 15 to 24 year olds in this group were found in the Unincorporated areas and in pockets across the State; Unincorporated West Coast, Unincorporated Far North, Unincorporated Riverland, Unincorporated Pirie, Unincorporated Lincoln, Elliston and Roxby Downs all had proportions of less than 20.0%.

The largest numbers of full-time students were located in the towns and other settled areas; Mount Barker (1,031 students), Whyalla (946), Mount Gambier (C) (834) and Port Lincoln (541) each had in excess of 500 students.

Inverse correlations of meaningful significance were found with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (-0.59); and Indigenous people aged 0 to 14 years (-0.64) and 15 to 24 years (-0.63). These results, together with the correlation of meaningful significance with the IRSD (0.66), suggest an association at the SLA level between full-time students aged 15 to 24 years and high socioeconomic status.

Map 3.36
People aged 15 to 24 years who are full-time students, South Australia, 1996

as a percentage of all people aged 15 to 24 years in each Statistical Local Area

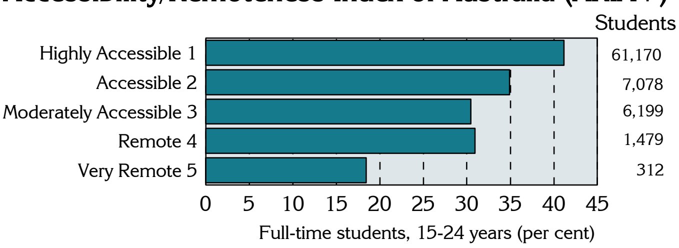


*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from ABS 1996 Census

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of the population aged 15 to 24 years who are full-time students shows a strong relationship with the accessibility and remoteness. Proportions range from 41.2% in the Highly Accessible areas to 18.4% in the Very Remote areas.

Source: Calculated on ARIA+ classification

People aged 15 to 24 years who left school aged 15 or less, 1996

Adelaide

Although the age at which one leaves school is not an absolute determinant of future wellbeing, there are strong links between completion of education and the ability to gain secure employment, with implications for social health and wellbeing. However, it should be recognised that school is not an appropriate or desired setting for all young people. Like other environmental influences on children's development, positive school influences can have benefits for both advantaged and disadvantaged children but, on their own, are unlikely to reduce population variance to any marked extent (Rutter & Maughan 2002).

This variable has been age standardised to remove differences in participation rates occurring between areas solely because of differences in the age of the population in the areas being studied. A description of this process is on page 368.

In 1996, there were 14,994 people aged 15 to 24 years who left school at age 15 years or less (or did not go to school) living in Adelaide, 8% fewer than were expected from the State rates (a standardised ratio (SR) of 92**). The highest rates of 15 to 24 year olds leaving school when aged 15 years or younger were located in the outer suburbs and in the inner north and north-west (**Map 3.37**). These included the outer northern suburbs of *Elizabeth North* (with an SR of 229**, i.e. more than twice the number of early school leavers expected from the State rates), *Elizabeth* (191**), *Munno Para* (184**), *Evanston* (175**) and *Virginia* (162**); in the northern and western suburbs of *Osborne* (202**), *Enfield* (180**), *Woodville North* (161**) and *Ferryden Park* (161**); in the southern suburbs of *Christie Downs* (200**) and *Old Noarlunga* (172**); and in the hills in *Basket Range* (199**). In contrast, the lowest ratios were located in south-eastern and in a number of Adelaide Hills postcode areas. Postcodes with at least 30% fewer early school-leavers than expected from the State rates included *Upper Sturt, Belair, Carey Gully, Kingswood, Stirling* and *Burnside.*

The largest numbers of young people in this group were located in the outer northern and southern suburbs; in the north in *Salisbury* (937 young people), *Elizabeth North* (659), *Elizabeth* (518), *Salisbury East* (412) and *Smithfield* (409), and in the south in *Morphett Vale* (635).

There was a correlation of substantial significance with the variable for children aged 0 to 14 years living in low income families (a positive correlation of 0.74). There were also correlations of meaningful significance with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.63), single parent families (0.62) and dwellings rented from the SA Housing Trust (0.62); unemployed males (0.63) and females (0.60); Indigenous people aged 15 to 24 years (0.51); and dependent children living in low income families (0.70). These results, together with the inverse correlations of substantial significance with the IRSD (-0.78), indicate an association at the postcode level between high proportions of people who left school at age 15 years or earlier and socioeconomic disadvantage. The correlation analysis also revealed a negative association at the postcode level with indicators of high socioeconomic status, with correlations of substantial significance recorded with the variables for female labour force participation (-0.79) and high income families (-0.78).

Participation and retention rates[1]

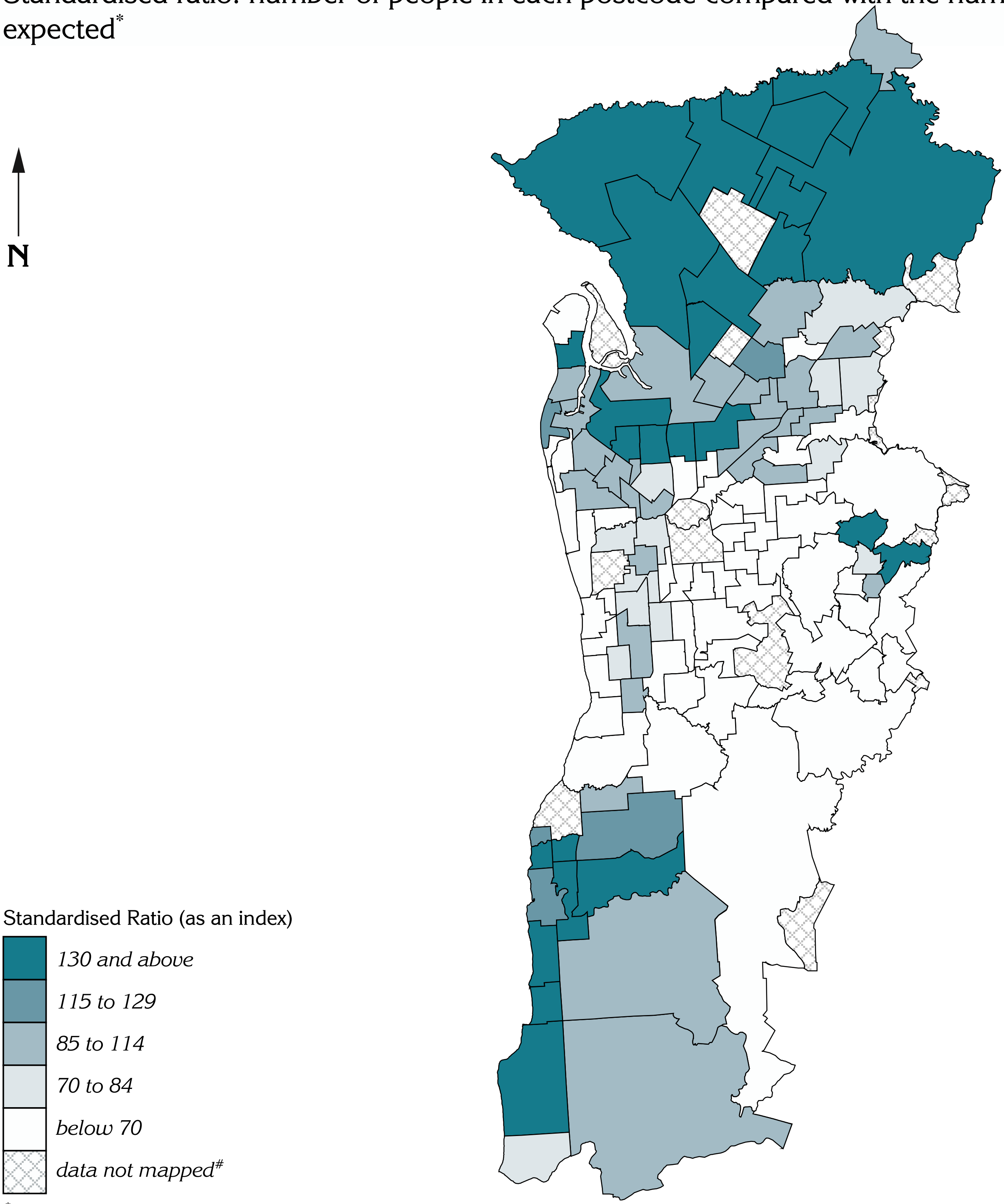
In South Australia, participation rates for full-time school students in 2001 were 92.9% for 15 year-olds, 84.2% for 16 year-olds, 59.5% for 17 year-olds, 8.8% for 18 year-olds and 1.7% for 19 year-olds (ABS 2001). Over the last decade, the age participation rate for 16 (81.2% in 1991) and 17 (39.9% in 1991) year-olds has risen, while there has been a decrease in participation rates among 15 (93.7% in 1991) and 18 (2.7% in 1991) year-olds. Since 1991, the participation rate among 18 year-olds has remained relatively stable, rising slightly from 8.7%.

In 2001, the apparent retention rate[2] of full-time school students from Year 7/8 to Year 12 was 66.4% compared to 83.5% in 1991 (ABS 2001). As in previous years, the apparent retention rate for females (72.5%) was significantly higher than the rate for males (60.4%). Over the last decade, the apparent retention rate from Year 10 to Year 12 also decreased significantly, from 85.3% in 1991 to 69.6% in 2001, with the rate for females in 2001 again being considerably higher than that for males (75.1% and 64.2% respectively).

[1]Participation rates are calculated as the number of full-time school students at an age expressed as a proportion of the population at that age.
[2]Retention rates are calculated as the total number of full-time students in Year 12 divided by the number of the full-time students in year 8.

Map 3.37
People aged 15 to 24 years who left school aged 15 or less, Adelaide, 1996

Standardised ratio: number of people in each postcode compared with the number expected*



*Expected numbers were derived by indirect age standardisation

Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.

Source: Calculated on data from ABS 1996 Census — **Details of map boundaries are in Appendix 1.2**

People aged 15 to 24 years who left school aged 15 or less, 1996

Non-metropolitan South Australia

This variable has been age standardised to remove differences in participation rates occurring between areas solely because of differences in the age of the population in the areas being studied. A description of this process is on page 368.

In 1996, there were 5,792 early school-leavers aged from 15 to 24 years living in the non-metropolitan areas of South Australia, 24% more than were expected from the State rates (a standardised ratio (SR) of 124**). This figure was relatively high in comparison with that in Adelaide, although it should be noted that the tendency for young people to move to the metropolitan area in order to complete their education may inflate the proportion of those who left school early (as the composition of the total remaining population is altered as a result). This is relevant to the ARIA+ graph, opposite.

The highest rates of early school leavers in this age group were primarily located in the Unincorporated areas of the State (**Map 3.38**). These include the Unincorporated areas of Riverland (with an SR of 498**, 16 young people), West Coast (317**, 32), Far North (190**, 166) and Pirie (178**, 8), as well as Peterborough (DC) (256**), Ceduna (228**), Morgan (175**), Meningie (172**), Wallaroo (169**), Renmark (167**), Waikerie (167**) and Northern Yorke Peninsula (165**). These are also areas with high proportions of Indigenous young people, who are much more likely to have left school at age 15 years or earlier than non-Indigenous young people. At the 1996 Census, 34.0% of Indigenous people aged from 15 to 24 years had left school at age 15 years or earlier, or not attended school, nearly two and a half times the rate of 14.1% for non-Indigenous young people. These figures are for Australia as a whole, but are likely to be representative of the position in South Australia. The gap between these rates is likely to be even greater in the more remote areas and should be borne in mind when reading the ARIA+ graph, opposite.

In contrast, relatively low proportions of early school-leavers in this age group were located in the Barossa Valley and Adelaide Hills to the east of Adelaide, as well as in parts of the Eyre Peninsula and the South East. Areas with at least 30% fewer early school-leavers than were expected from the State rates were Lucindale (with an SR of 37**), Kimba (41**), Cleve (60**), Spalding (62**), Naracoorte (DC) (63**), Eudunda (66**), Lameroo (68**), Jamestown (69**) and Peake (70**).

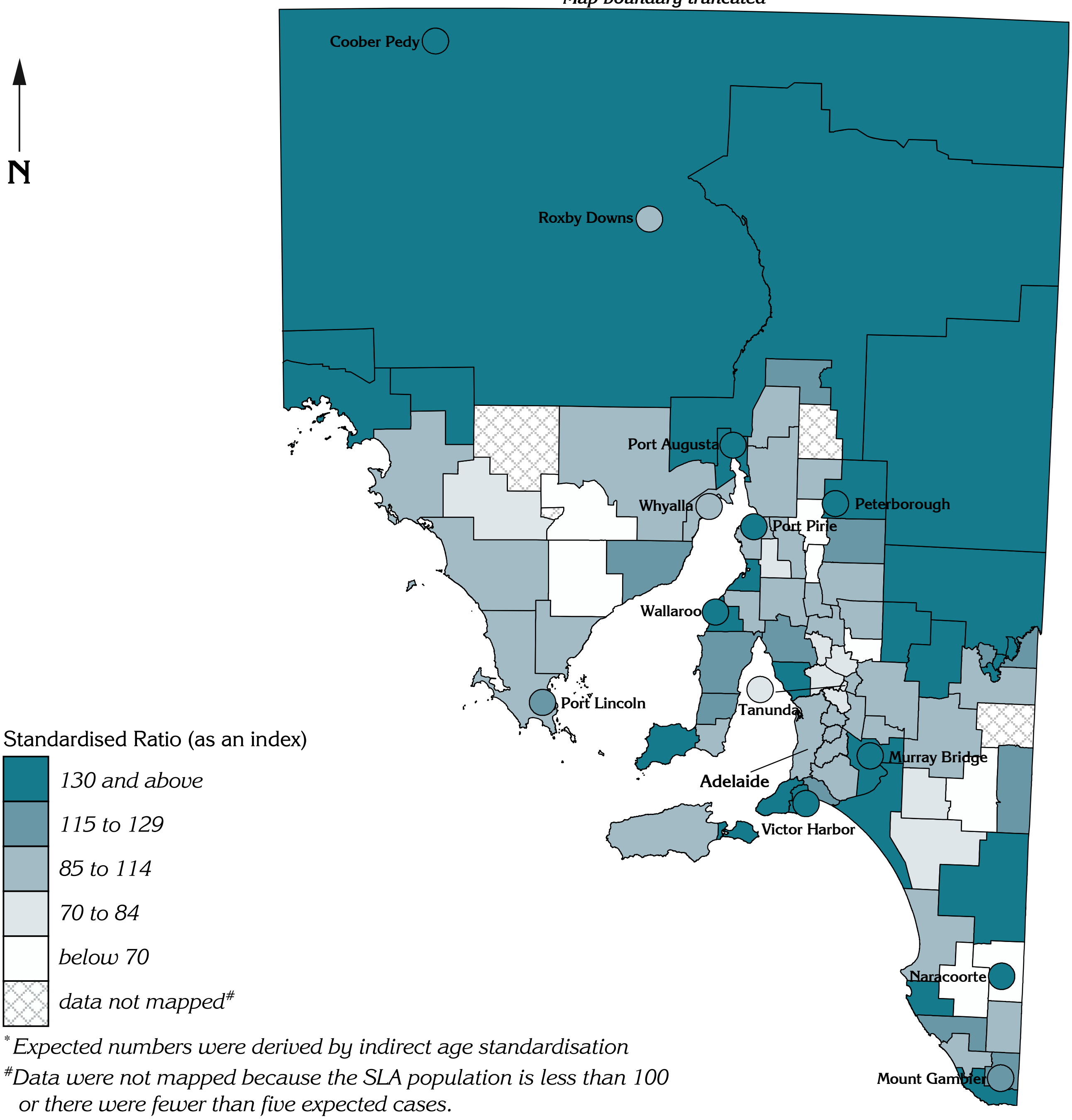
The largest numbers of people in this group were generally located in the towns and settled areas, in Mount Gambier (C) (396 young people), Whyalla (357), Murray Bridge (354), Mount Barker (261), Port Pirie and Port Augusta (both 257).

There were weak correlations at the SLA level with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.44) and Indigenous people (a correlation of 0.48 for children aged 0 to 14 years and 0.47 for people aged 15 to 24 years). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.65), suggest an association at the SLA level between high proportions of people who left school at age 15 years or earlier and socioeconomic disadvantage.

Map 3.38
People aged 15 to 24 years who left school aged 15 or less, South Australia, 1996

Standardised ratio: number of people in each Statistical Local Area compared with the number expected*

Map boundary truncated



Standardised Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*
- *data not mapped#*

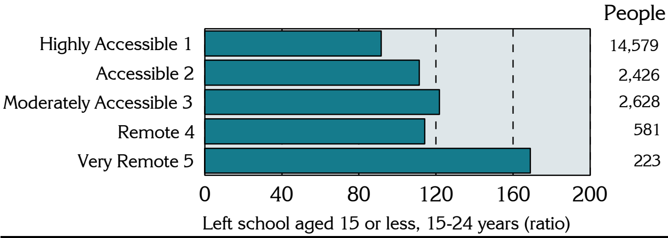
* *Expected numbers were derived by indirect age standardisation*

#*Data were not mapped because the SLA population is less than 100 or there were fewer than five expected cases.*

Source: Calculated on data from ABS 1996 Census

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



Young people living in the Highly Accessible areas have the highest rate of educational participation. As accessibility decreases, people are increasingly likely to have left school early (with an SR of 169 in the Very Remote areas): the relatively high proportion of Indigenous people in these areas is likely to be an important influence on the rates (see text opposite).

Source: Calculated on ARIA+ classification

Aboriginal people and Torres Strait Islanders aged 15 to 24 years, 1996

Adelaide

In 1996, there were 1,845 people aged from 15 to 24 years who identified as being of Aboriginal or Torres Strait Islander descent living in Adelaide. This figure represents 1.2% of all 15 to 24 year olds living in Adelaide.

People aged from 15 to 24 years and identifying as being of either Aboriginal or Torres Strait Islander origin are highly concentrated in the north-western suburbs (**Map 3.39**). The highest proportions of 15 to 24 year olds in this group are in the northern and north-western postcode areas of *Enfield* (5.4%), *Osborne* (4.6%), *Gepps Cross* (4.3%), *Rosewater* (3.9%), *Woodville North* (3.8%), *Alberton* (3.3%), *Hindmarsh* (3.2%), *Kilkenny* (2.9%), *Blair Athol* (2.8%) and *Largs Bay* (2.7%), in the outer north at *Elizabeth North* (3.3%) and in the south at *Maslin Beach* (3.0%).

The lowest proportions of people identified as Aboriginal or Torres Strait Islander were primarily in the south-eastern and hills areas of Adelaide. Around one fifth of postcode areas (21 postcodes) had 0.0% of 15 to 24 year olds identifying as Aboriginal or Torres Strait Islanders; these included *MacDonald Park*, *Greenhill*, *Burnside*, *West Lakes*, *Golden Grove* and *Willunga*.

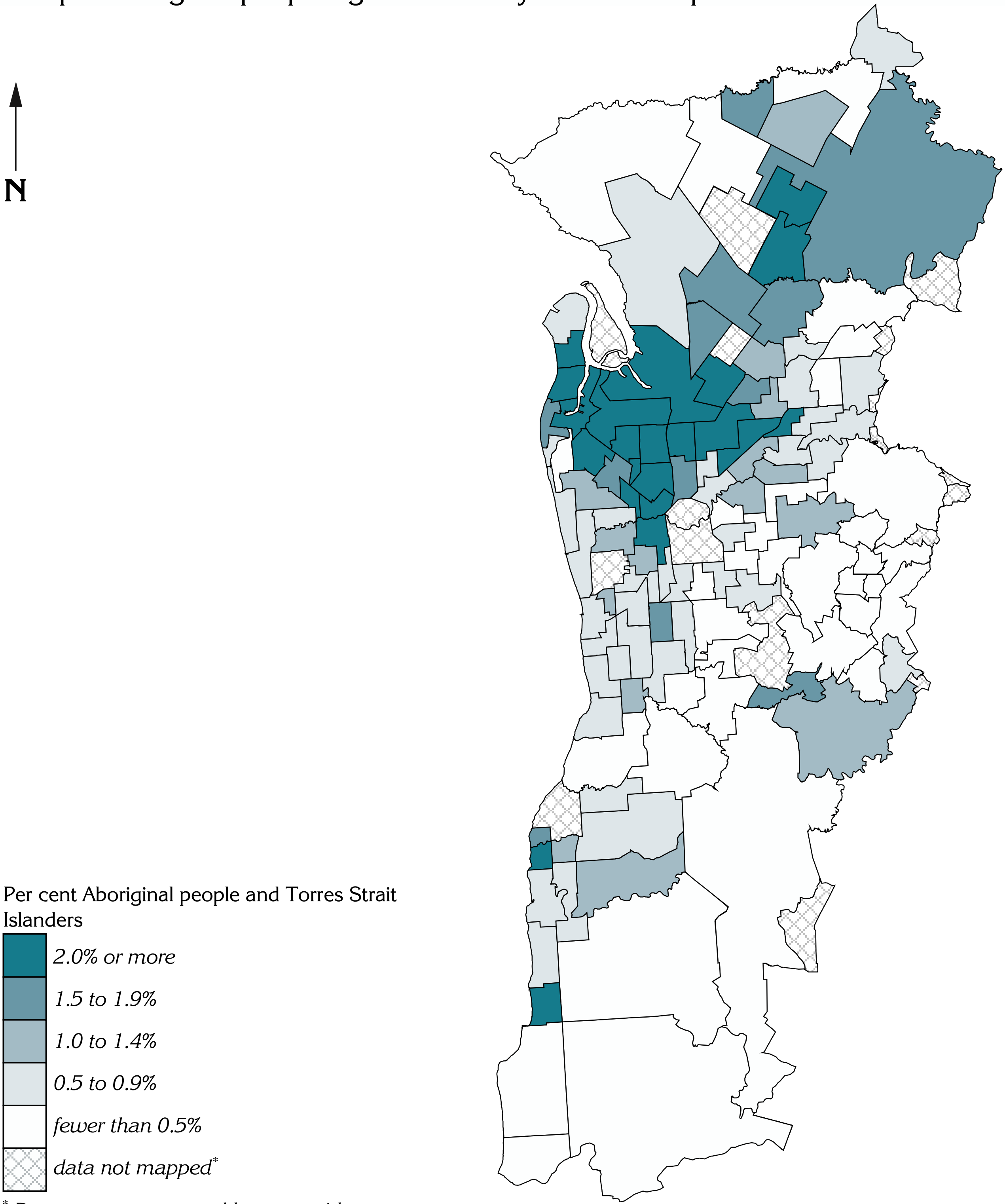
The largest numbers of 15 to 24 year old Aboriginal or Torres Strait Islander people were located in the northern, western and southern suburbs; the largest were in *Salisbury* (105 people), *Elizabeth North* (92), *Enfield* (77), *Salisbury East* (63), *Elizabeth* (59) and *Woodville North* (51).

There were correlations of statistical significance at the postcode level with the variables for children aged 0 to 14 years living in single parent families (0.71), dwellings with no motor vehicles (0.70), low income families (0.65) and dwellings rented from the SA Housing Trust (0.60); unemployed males (0.51) and females (0.61) aged 15 to 24 years; and people who left school at age 15 years or earlier (0.55).

The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of meaningful significance recorded with the variables for high income families (-0.58), female labour force participation (-0.57) and managers and administrators, and professionals (-0.57).

These results, together with the inverse correlation of meaningful significance with the IRSD (-0.70), indicate an association at the postcode level between Indigenous people aged 15 to 24 years and socioeconomic disadvantage.

Map 3.39
Aboriginal people and Torres Strait Islanders aged 15 to 24 years, Adelaide, 1996
as a percentage of people aged 15 to 24 years in each postcode area



* *Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Aboriginal people and Torres Strait Islanders aged 15 to 24 years, 1996

Non-metropolitan South Australia

In 1996, there were 2,048 people aged from 15 to 24 years who identified as being of Aboriginal or Torres Strait Islander descent living in non-metropolitan South Australia, comprising 4.6% of the non-metropolitan population at these ages. This was nearly four times higher than the corresponding metropolitan figure.

The highest proportions of 15 to 24 year old Aboriginal and Torres Strait Islander people were generally found in the Unincorporated areas of the State, and to a lesser extent in the towns (**Map 3.40**). The highest proportions were observed in the Unincorporated SLAs of Riverland (78.1%, 25 people), Far North (59.8%, 477), West Coast (57.9%, 55) and Flinders Ranges (21.7%, 50), as well as in Ceduna (32.2%), Coober Pedy (19.1%), Port Augusta (17.8%), Central Yorke Peninsula (11.7%), Kanyaka-Quorn (11.1%) and Meningie (10.4%).

In contrast, much of the State was characterised by low proportions of Aboriginal and Torres Strait Islander people in this age group, particularly throughout the Mid North and South East. Approximately thirty SLAs included in the analysis had a proportion of 0.0%, including Strathalbyn, Penola, Ridley-Truro, Barossa and Lucindale.

The largest number of Aboriginal and Torres Strait Islander people in this age group was in Unincorporated Far North (477 people), which is a function of the size of the area and a reflection of a range of factors, including historical settlement patterns and the results of white colonisation. Other relatively large numbers were in Port Augusta (327 people), Ceduna (150) and Murray Bridge (126).

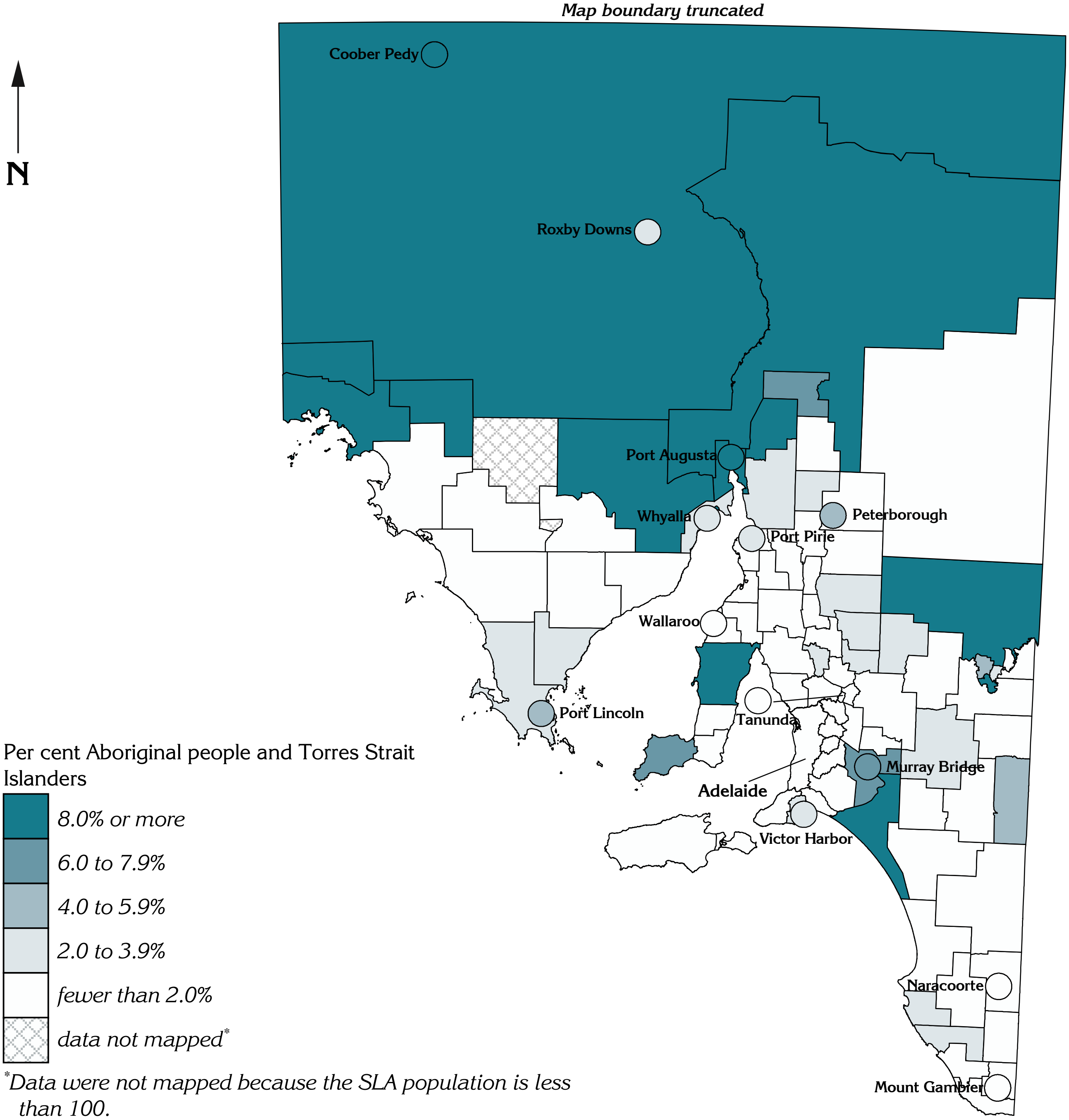
There was no consistent evidence in the correlation analysis at the SLA level between high proportions of Indigenous people aged 15 to 24 years and socioeconomic disadvantage.

Map 3.40

Aboriginal people and Torres Strait Islanders aged 15 to 24 years, South Australia, 1996

as a percentage of people aged 15 to 24 years in each Statistical Local Area

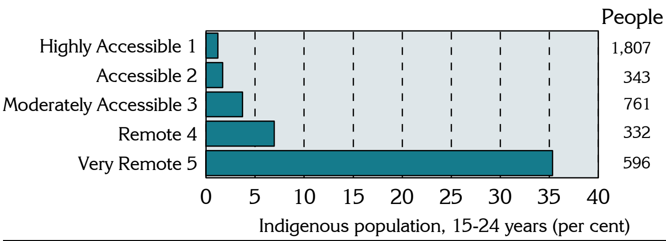
Map boundary truncated



*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The graph shows a clear gradient across the ARIA+ classes in the distribution of the Indigenous population aged 15 to 24 years, from 1.2% in the Highly Accessible areas, to 35.3% in the Very Remote areas.

Source: Calculated on ARIA+ classification

People aged 15 to 24 years born in predominantly non-English speaking countries, 1996

Adelaide

In 1996, there were 12,530 people aged 15 to 24 years living in Adelaide who were born in predominantly non-English speaking countries, comprising 8.2% of Adelaide's 15 to 24 year old population.

Vietnam (comprising 2,556 young people, 20.3%) was the main birthplace from where these young people arrived, followed by Malaysia (1,381, 11.0%), Hong Kong (696, 5.5%), Poland (686, 5.5%) and the Philippines (489, 3.9%).

The population aged from 15 to 24 years and born in predominantly non-English speaking countries was mainly located in the north-western sector of Adelaide, in the middle northern and western suburbs at *Woodville North* (43.8%), *Ferryden Park* (41.6%), *Rosewater* (31.5%), *Blair Athol* (22.7%), *Croydon* (20.2%) and *Hindmarsh* (17.5%); in the outer northern suburbs at *Burton* (25.1%), *Virginia* (22.7%) and *Parafield Gardens* (20.9%); in the eastern suburbs at *Magill* (15.4%) and *Burnside* (15.0%); and in the south at *St Marys* (17.6%).

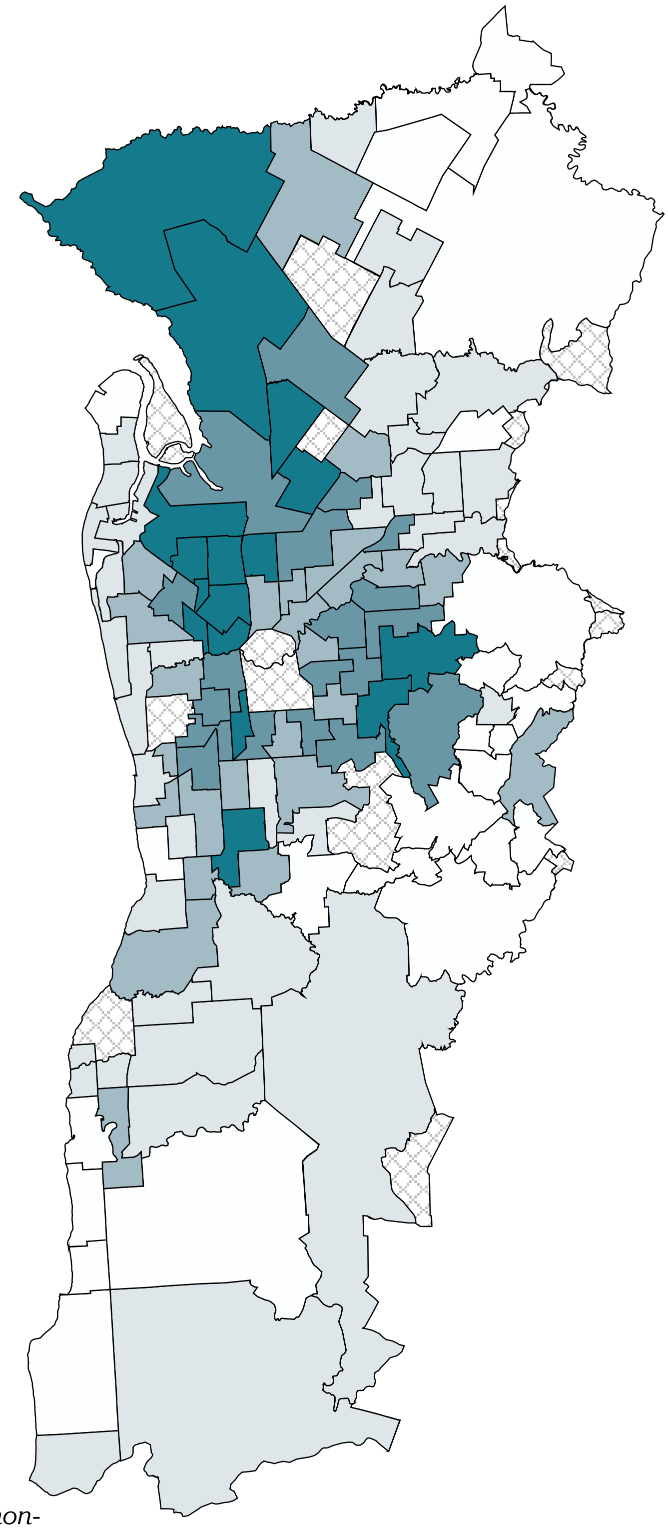
Low proportions of 15 to 24 years olds who were born in predominantly non-English speaking countries were generally found in the postcode areas in the hills and outer suburbs (**Map 3.41**). *Maslin Beach*, *Norton Summit*, *Uraidla*, *Basket Range*, *Summertown*, *Montacute* and *Piccadilly* all had proportions of 0.0%.

The largest numbers of these 15 to 24 years olds were located in postcode areas to the north and west of the city, in *Woodville North* (583 people), *Salisbury* (522), *Parafield Gardens* (432) and *Rosewater* (394).

There were weak correlations with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.47), suggest an association at the postcode level between high proportions of people aged 15 to 24 years born in predominantly non-English speaking countries and socioeconomic disadvantage.

Map 3.41
People aged 15 to 24 years born in predominantly non-English speaking countries, Adelaide, 1996
as a percentage of all people aged 15 to 24 years in each postcode area

N



Per cent non-English speaking backgrounds

- *12.0% or more*
- *9.0 to 11.9%*
- *6.0 to 8.9%*
- *3.0 to 5.9%*
- *fewer than 3.0%*
- *data not mapped**

* *Data were not mapped because either too many non-resident people were included in the Census population, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

People aged 15 to 24 years born in predominantly non-English speaking countries, 1996

Non-metropolitan South Australia

In 1996, there were 624 people aged 15 to 24 years living in non-metropolitan South Australia who had been born in predominantly non-English speaking countries, comprising 1.5% of the 15 to 24 year old non-metropolitan population. This was much lower than the corresponding metropolitan proportion (of 8.2%), demonstrating the tendency for this population to locate in the metropolitan area.

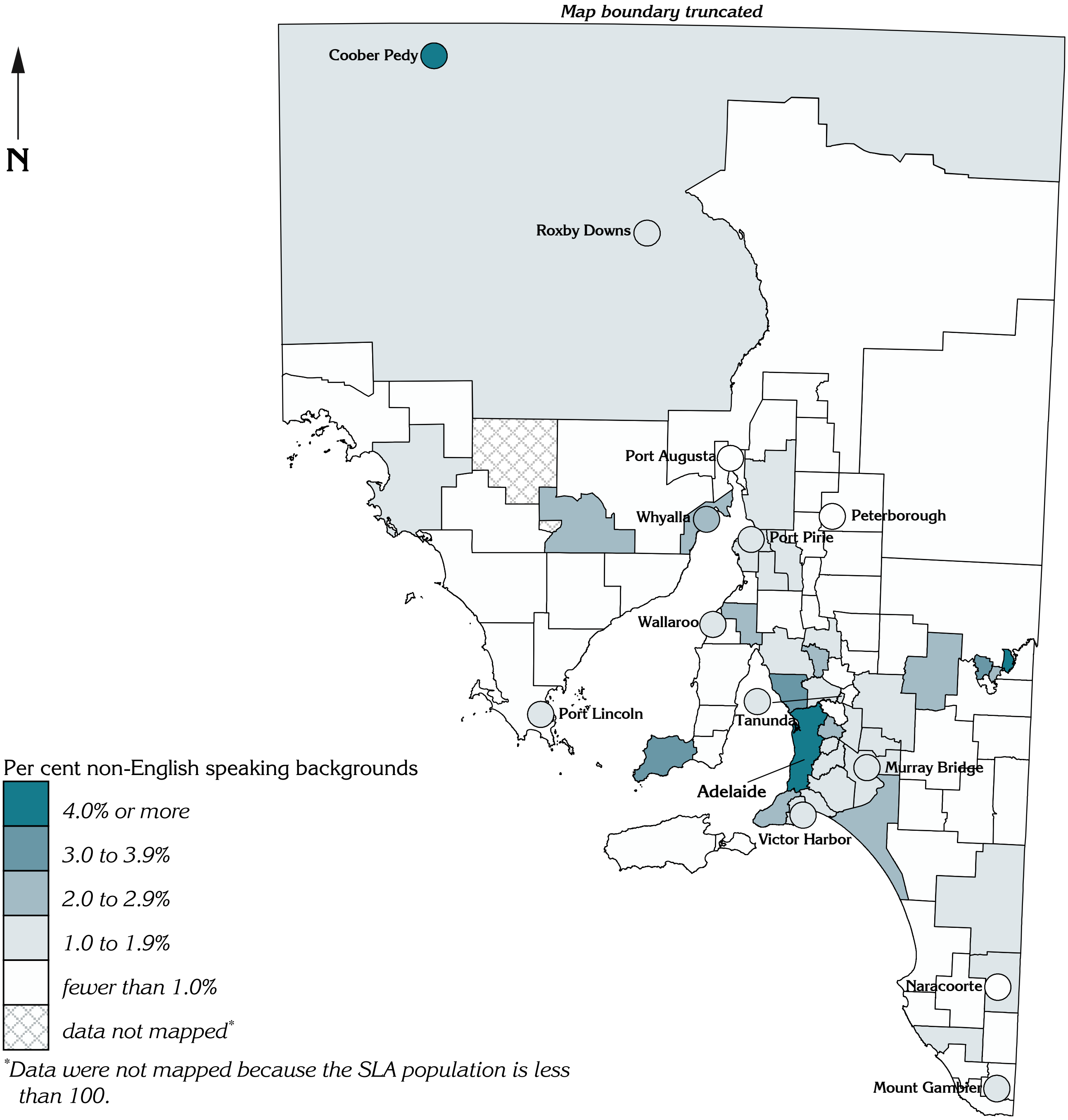
Vietnam (comprising 49 young people, 7.6%) was the main birthplace from where these young people arrived, followed by Germany (48, 7.7%), the Philippines (45, 7.2%), India (39, 6.3%) and the Netherlands (41, 6.6%).

The distribution of 15 to 24 year olds in this group was located around the metropolitan area and in the towns (**Map 3.42**), in Coober Pedy (5.5%), Renmark (4.3%), Whyalla (C) (2.4%), Murray Bridge (1.9%) and Mount Barker (DC) (1.8%); and elsewhere at Barmera and Mallala (both 3.4%), Gumeracha (2.5%), Yankalilla (2.3%), Berri (2.2%), Meningie and Waikerie (both 2.1%). In contrast, SLAs with relatively low proportions of people in this group were recorded right across the State, with almost half of the SLAs recording a proportion of 0.0%. These SLAs included Kapunda, Naracoorte (M), Kingscote, Cleve and Paringa.

The largest numbers of people with these characteristics were in the towns and in SLAs at the fringe of the metropolitan area, including Whyalla (78 people), Mount Barker (48), Renmark (40), Murray Bridge and Mount Gambier (C) (both 39).

There was no consistent evidence in the correlation analysis of an association at the SLA level between high proportions of people aged 15 to 24 years born in predominantly non-English speaking countries and socioeconomic status.

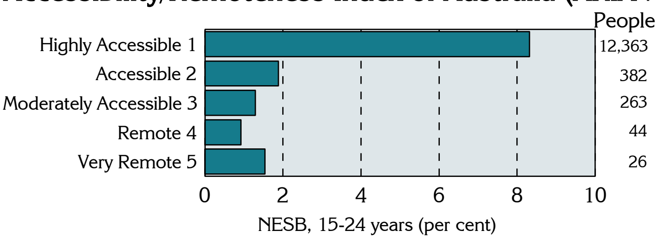
Map 3.42
People aged 15 to 24 years born in predominantly non-English speaking countries, South Australia, 1996
as a percentage of all people aged 15 to 24 years in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of the population aged 15 to 24 years born in predominantly non-English speaking countries declines with increasing remoteness, from 8.3% in the Highly Accessible areas to 0.9% in the Remote areas. The proportion in the Very Remote areas is higher, at 1.5%.

Source: Calculated on ARIA+ classification

Proportion of population aged 0 to 24 years, 1998

Adelaide

In 1998, there were an estimated 360,259 people aged from 0 to 24 years living in Adelaide, comprising almost one third (33.1%) of the metropolitan population. The proportion of people in this age group as a percentage of the total population fell, from 36.2% in 1991 to 33.1% in 1998.

The highest proportions of people in this age group were in postcodes located at the outer northern and southern metropolitan fringe: in the north in *Smithfield* (42.5%), *Burton* and *Angle Vale* (both 41.9%), *Parafield Gardens* (41.7%), *Salisbury* (41.2%), *Wynn Vale* (40.6%), *Munno Para* (40.5%), *Golden Grove* (39.4%), and *Elizabeth North* (39.2%), and in the south in *Hackham* (41.2%), *Happy Valley* (40.4%), *Old Noarlunga* (39.9%), *O'Halloran Hill* (39.7%) and *Morphett Vale* (39.5%).

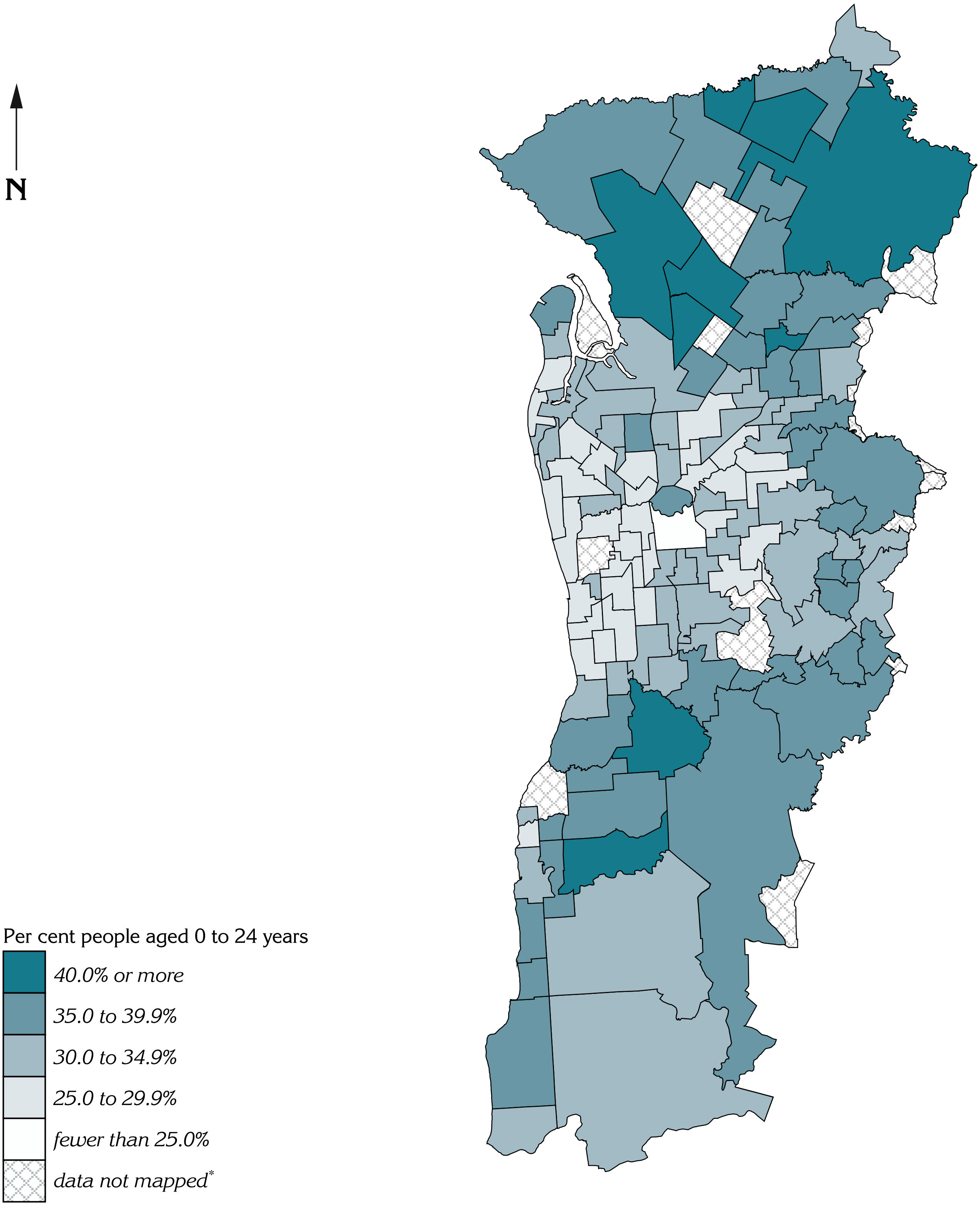
In contrast, the lowest proportions were generally in postcodes in the inner metropolitan area and, in particular, along the coastal sector (**Map 3.43**). It is important to note, however, that the range of the 0 to 24 age group covers a large number of smaller age sub-groups, which may have very distinctive spatial patterning effectively disguised by the size of this category. Areas with the lowest proportions of people aged 0 to 24 years were located to the west of the city in postcodes such as *Glenelg, Somerton Park*, *Brighton*, *Oaklands Park*, *Hindmarsh, Plympton*, *Semaphore*, *Henley Beach*, *Cowandilla*, *Park Holme*, *Edwardstown,* and *Largs Bay*, and elsewhere in the inner suburbs *at Marden*. All of the listed areas had proportions of below 30%.

There was no consistent evidence in the correlation analysis of an association at the postcode level between high proportions of people aged 0 to 24 years and socioeconomic status.

Map 3.43

Proportion of population aged 0 to 24 years, Adelaide, 1998

as a percentage of the total population in each postcode area



*Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.

Source: Calculated on data from ABS 1996 Census — ***Details of map boundaries are in Appendix 1.2***

Proportion of population aged 0 to 24 years, 1998

Non-metropolitan South Australia

There were an estimated 136,009 people aged from 0 to 24 years living in non-metropolitan South Australia in 1996, just over one third (34.1%) of the non-metropolitan population.

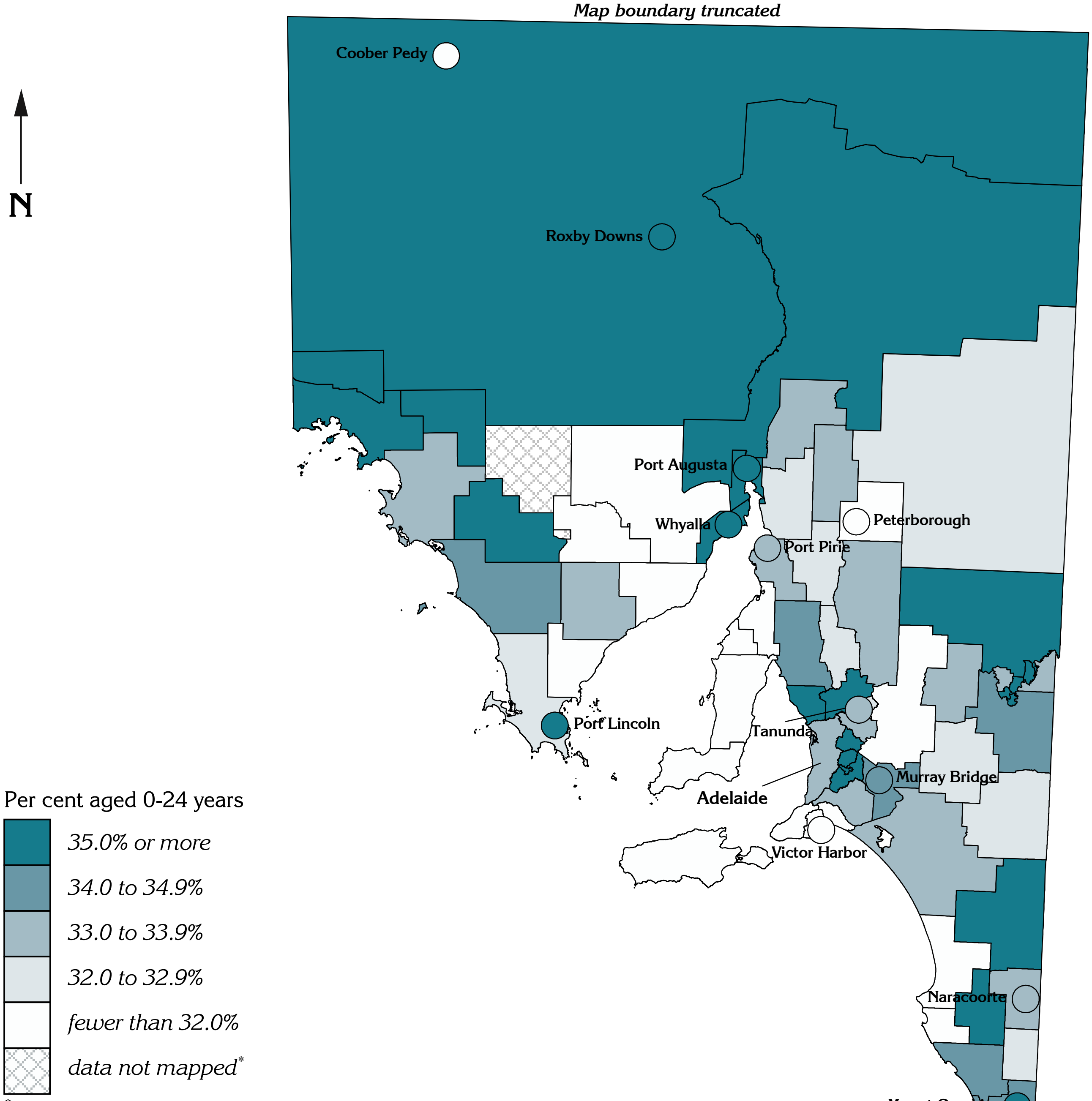
High proportions of people in this group tended to be located in the Unincorporated areas and in a number of the towns (**Map 3.44**). The highest proportions were in the SLAs of Roxby Downs (45.6%), Unincorporated West Coast (43.2%), Unincorporated Far North (42.2%), Unincorporated Flinders Ranges (40.7%), Unincorporated Riverland (40.2%), Ceduna (38.9%), Lucindale (37.6%), Mount Barker-Central (37.2%), Port Augusta (37.1%), Kapunda and Light (37.0%), Mount Gambier (36.8%), Mount Barker-Balance and Whyalla (both 36.6%) and Mallala (36.5%).

Relatively low proportions of 0 to 24 year olds were estimated to live to the south of Adelaide in Victor Harbor, Yankalilla and Alexandrina-Coastal, and on the Yorke Peninsula in Yorke Peninsula-South, Barunga West and Yorke Peninsula-North. In other areas, Cooper Coast, Unincorporated Whyalla, Franklin Harbor, Mid Murray and Robe all had proportions below 30%.

There was no consistent evidence in the correlation analysis of an association at the SLA level between high proportions of people aged 0 to 24 years and socioeconomic status.

Map 3.44
Proportion of population aged 0 to 24 years, South Australia, 1998

as a percentage of the total population in each Statistical Local Area

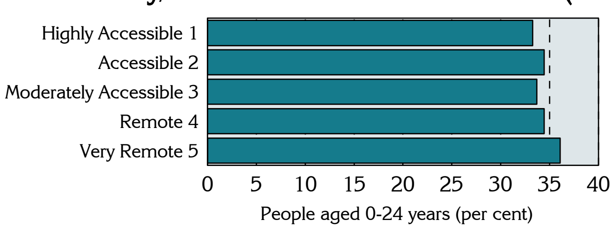


*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from ABS 1996 Census

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of the population aged 0 to 24 years varied little over the ARIA+ classes, from 33.3% in the Highly Accessible areas to 36.1% in the Very Remote areas.

Source: Calculated on ARIA+ classification

Number of people aged 0 to 24 years, 1998

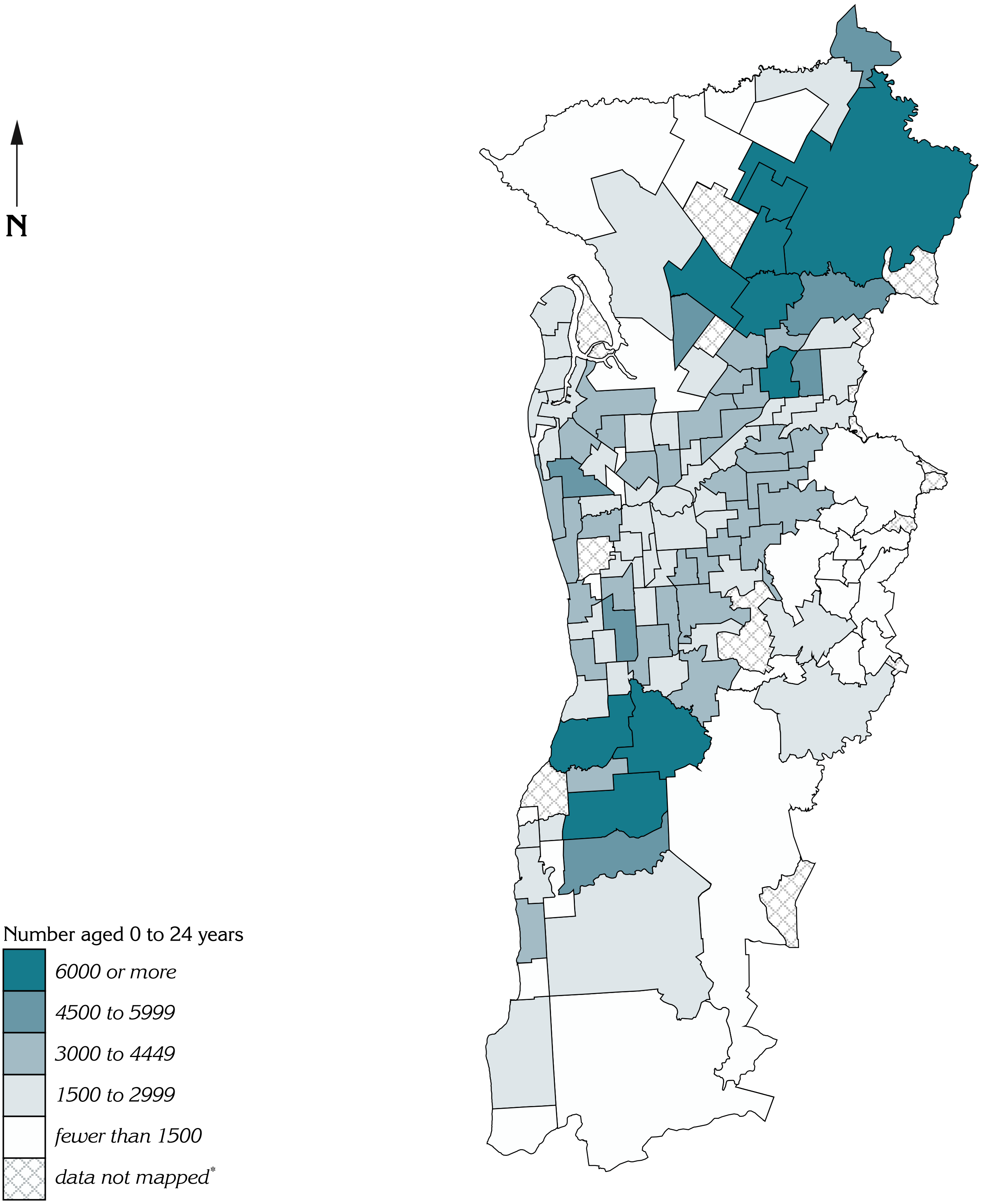
Adelaide

There were an estimated 360,259 people aged from 0 to 24 years living in Adelaide in 1998. This was 9,828 fewer than in 1991, a decline of 2.7%.

The largest numbers of people in this group were in outer metropolitan postcode areas (**Map 3.45**). In the outer north, these areas included *Salisbury* (15,716 people), *Salisbury East* (8,580), *Smithfield* (8,355), *Elizabeth North* (7,498), *Elizabeth* (6,902), *Golden Grove* (5,697), *Parafield Gardens* (5,444) and *St. Agnes* (5,344), and in the outer south, the postcodes were *Morphett Vale* (13,201), *Happy Valley* (12,699), *O'Halloran Hill* (8,511) and *Hackham* (5,895).

In contrast to the pattern described above, relatively low numbers of 0 to 24 year olds were found in postcode areas located in the Adelaide Hills, areas which contain a relatively low total population count. There were fewer than 300 people aged 0 to 24 years in *Basket Range*, *Ashton*, *Norton Summit*, *Greenhill*, *Uraidla,* *Piccadilly*, *Summertown, Montacute*, *Gepps Cross* and *Carey Gully*.

Map 3.45
Number of people aged 0 to 24 years, Adelaide, 1998
total population in each postcode area



*Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.

Source: Calculated on data from ABS 1996 Census *Details of map boundaries are in Appendix 1.2*

Number of people aged 0 to 24 years, 1998

Non-metropolitan South Australia

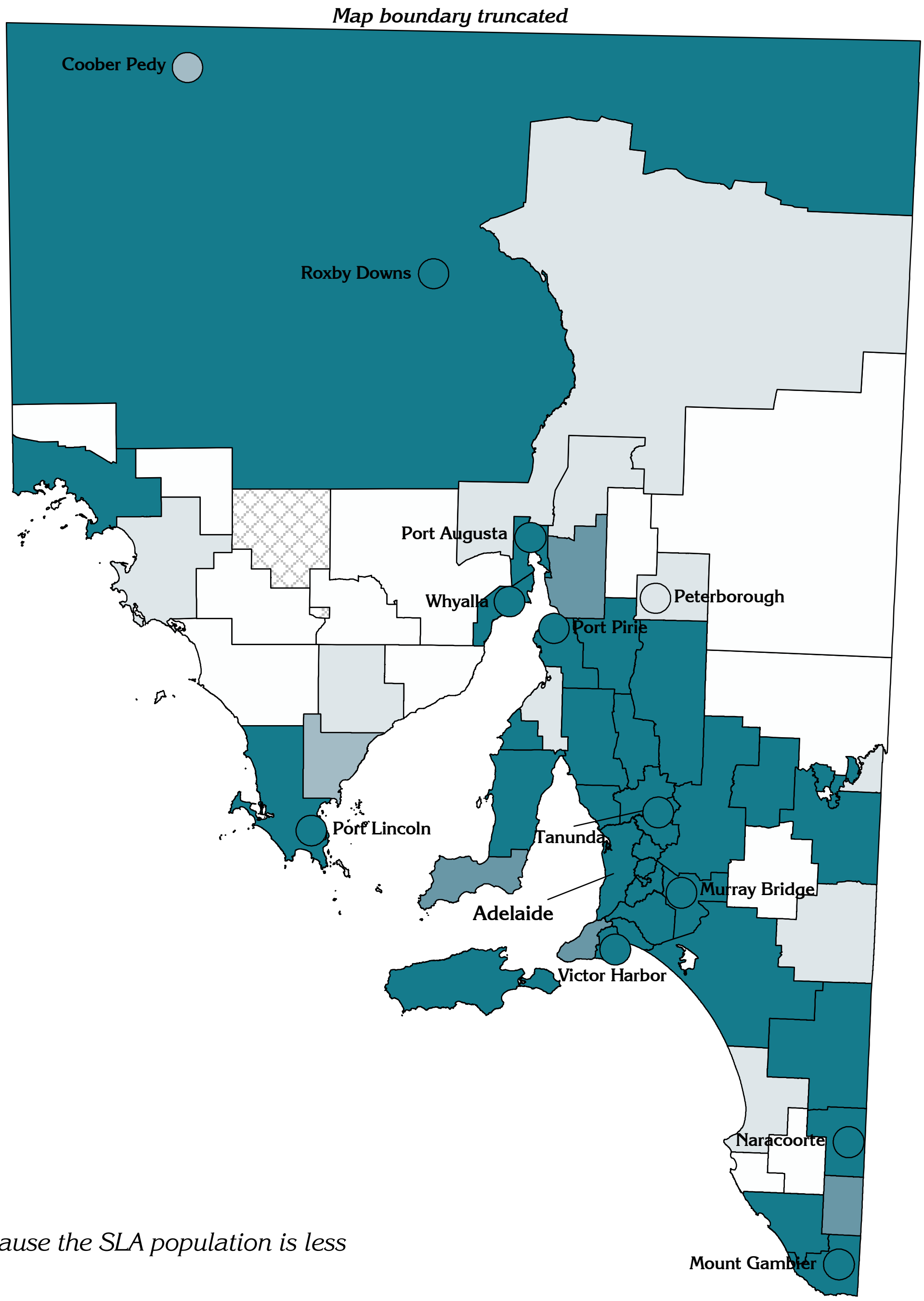
In 1998, there were 136,009 people aged from 0 to 24 years living in non-metropolitan South Australia. This represented a decline of 4,390 people (3.1%) from 1991 to 1998.

The largest numbers of people in this group were located primarily in the towns and in SLAs at the fringe of the metropolitan area (**Map 3.46**). These included Whyalla (8,774 people), Mount Gambier (8,486), Murray Bridge (5,768), Mount Barker-Central (5,296), Port Augusta (5,195), Port Pirie (4,897) and Port Lincoln (4,694).

Low numbers of those aged 0 to 24 years were found in the Unincorporated areas of the State and in the more remote SLAs. The lowest numbers of 0 to 24 year olds were in the Unincorporated areas of Lincoln, Riverland, Whyalla, Pirie and West Coast, all with fewer than 300 people in this age group.

Map 3.46
Number of people aged 0 to 24 years, South Australia, 1998
total population in each Statistical Local Area

N



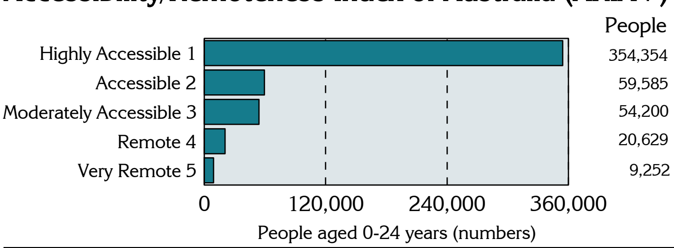
Number aged 0-24 years

- *1,200 or more*
- *1,000 to 1,199*
- *800 to 999*
- *600 to 799*
- *fewer than 600*
- *data not mapped**

**Data were not mapped because the SLA population is less than 100.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The number of people aged from 0 to 24 years decreased sharply with increasing remoteness, declining from 354,354 people in the Highly Accessible areas to 9,252 people in the Very Remote areas.

Source: Calculated on ARIA+ classification

Index of Relative Socio-Economic Disadvantage, 1996

A description of the Index of Relative Socio-Economic Disadvantage (IRSD) is provided on page 24. Briefly, the IRSD score measures the relative socioeconomic disadvantage of the population of an area in comparison with the average for South Australia as a whole. High index scores indicate least disadvantage and low index scores indicate greater disadvantage.

The IRSD has been calculated on the total population only, and is not available for specific age groups.

Adelaide

At the 1996 Census, the IRSD score calculated for Adelaide was 1010 (when the index score for South Australia as a whole was 1000).

The overall pattern of distribution within Adelaide shows that the least disadvantaged areas in 1996 were those to the east, south-east and south of the city, while the most disadvantaged areas were generally those to the north-west and in the outer north and outer south (**Map 3.47**).

The eastern and hills suburbs of Adelaide had the highest index scores (least disadvantaged), with scores of greater than 1140 in *Greenhill* (1177), *Aldgate* (1173), *Belair* (1170), *Burnside* (1164), *Stirling* (1160), *Upper Sturt* (1155), *Glen Osmond* (1153), *Ashton* (1149), *Norton Summit* (1146), *Blackwood* (1145), *Glenside* (1142) and *Kingswood* (1140).

Relatively low scores, indicating the most disadvantaged areas, were calculated for the inner northern and north-western areas of *Ferryden Park* (664), *Woodville North* (764), *Osborne* (821), *Blair Athol* (825), *Rosewater* (845), *Port Adelaide* (893) and *Enfield* (896); for the outer northern suburbs of *Elizabeth North* (780), *Elizabeth* (852) and *Munno Para* (884); and for the southern areas of *Christies Downs* (852) and *Old Noarlunga* (879).

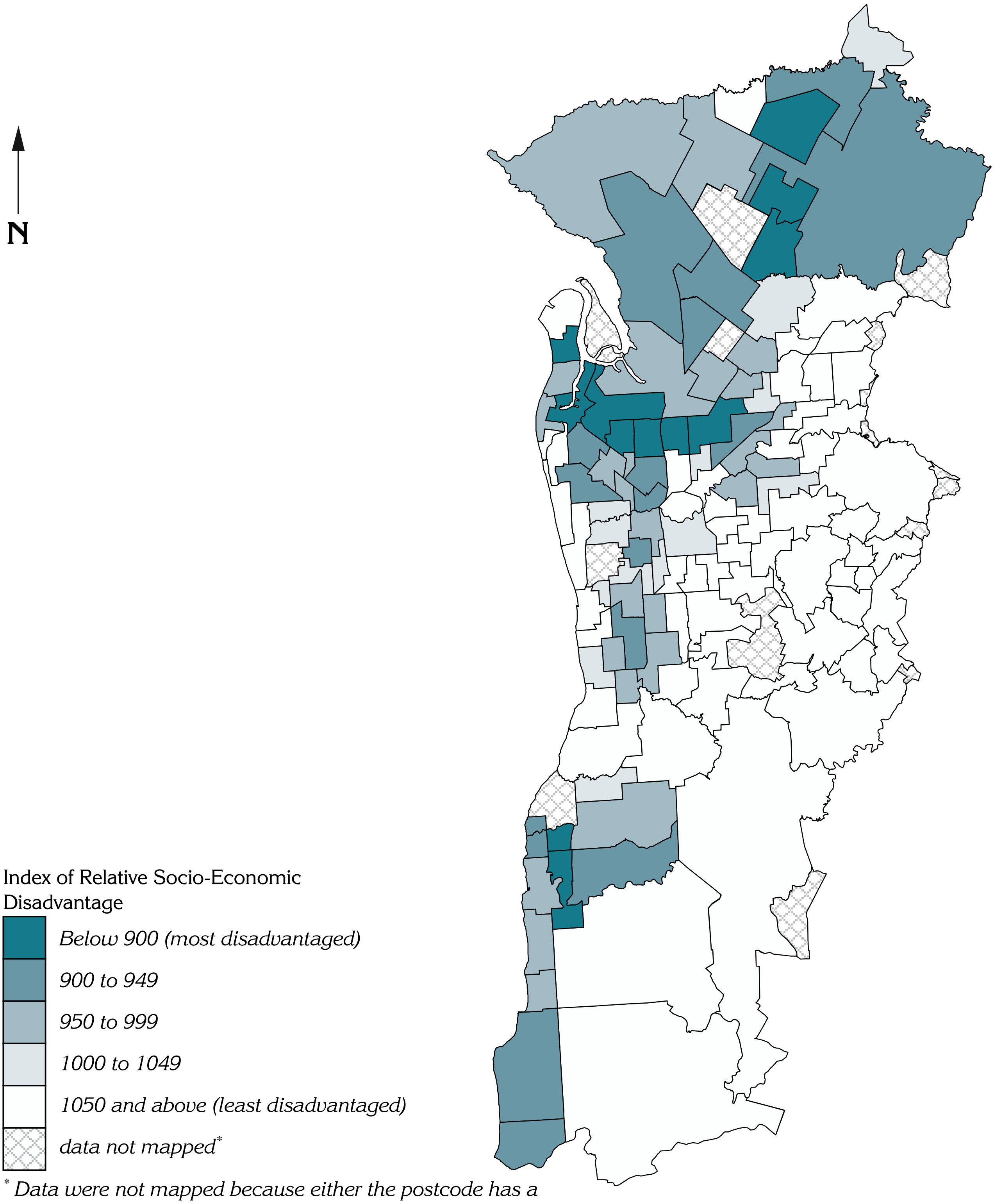
The IRSD, understandably, was highly correlated with many of the individual variables mapped. The strongest inverse correlations were with the variables for children aged 0 to 14 years living in low income families (-0.95), single parent families (-0.89), dwellings with no motor vehicles (-0.87) and dwellings rented from the SA Housing Trust (-0.83).

The correlation analysis also revealed a strong positive association with indicators of high socioeconomic status, with correlations of substantial significance recorded with the variables for high income families (0.91), female labour force participation (0.89) and managers and administrators, and professionals (0.83).

The strength of the correlations with these particular variables is an indication of their importance as key indicators of socioeconomic status.

Map 3.47
Index of Relative Socio-Economic Disadvantage, Adelaide, 1996

IRSD index number in each postcode area



Index of Relative Socio-Economic Disadvantage

- *Below 900 (most disadvantaged)*
- *900 to 949*
- *950 to 999*
- *1000 to 1049*
- *1050 and above (least disadvantaged)*
- *data not mapped**

* *Data were not mapped because either the postcode has a population of less than 100, or only a small part of the postcode is located in Adelaide.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Index of Relative Socio-Economic Disadvantage, 1996

Non-metropolitan South Australia

At the 1996 Census, the non-metropolitan areas of South Australia had an IRSD score of 980 (when the index score for South Australia was 1000). This was considerably lower than the index score calculated for in Adelaide (of 1010), indicating a greater degree of disadvantage relative to South Australia as a whole.

Outside Adelaide, the most disadvantaged areas were located in the north of the State (**Map 3.48**), with the lowest score of 820 calculated for the small population in Unincorporated Whyalla (23,644 people, 2.2% of whom identified at the Census as being Indigenous). IRSD scores of below 900 were also recorded in Unincorporated Riverland (an index of 852 – with 177 people, 68.4% of whom identified at the Census as being Indigenous), Wallaroo (860 – 2,289 people, 0.5% Indigenous), Peterborough (M) (871 – 1,850 people, 3.1% Indigenous) and Port Pirie (897 – 13,950 people, 1.6% Indigenous).

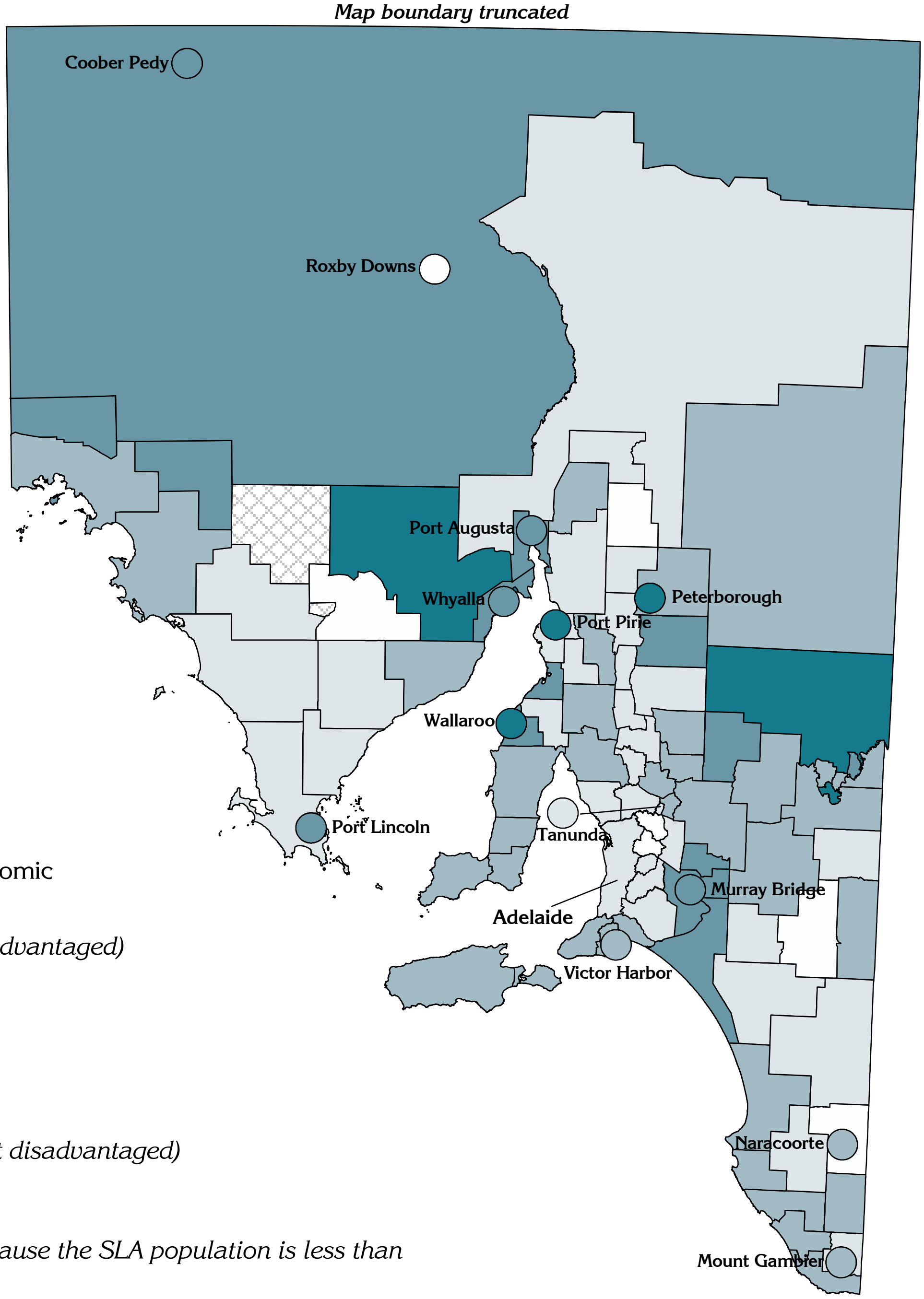
The SLA with the highest socioeconomic status as measured by the IRSD was the mining centre of Roxby Downs, with an index score of 1103. Gumeracha (1087), Carrieton (1065), Naracoorte (1059), Lameroo (1058), Barossa (1057) and Kimba (1056) all had relatively high index scores.

The strongest inverse correlations at the SLA level were found with the variables for children aged 0 to 14 years living in dwellings with no vehicles (-0.84), low income families (-0.75) and single parent families (-0.73); and people who left school at age 15 years or earlier (-0.65). These inverse correlations indicate a positive association at the SLA level between this aggregate measure of socioeconomic disadvantage and the individual indicators analysed.

Map 3.48
Index of Relative Socio-Economic Disadvantage, South Australia, 1996

IRSD index number in each Statistical Local Area

N



Index of Relative Socio-Economic Disadvantage

Below 900 (most disadvantaged)

900 to 949

950 to 999

1000 to 1049

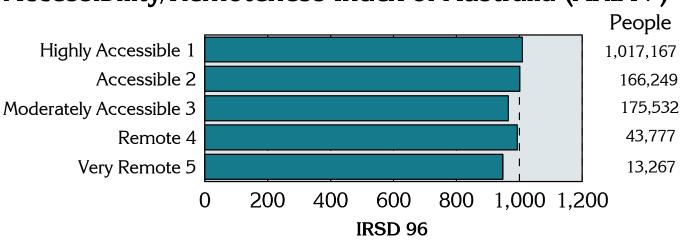
1050 and above (least disadvantaged)

*data not mapped**

**Data were not mapped because the SLA population is less than 100.*

Source: Calculated on data from ABS 1996 Census ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The graph of the ABS Index of Relative Socio-Economic Disadvantage shows the highest index score (indicating the most advantaged areas) is in the Highly Accessible ARIA+ class (1010) and the lowest score is in the Very Remote areas (948).

Source: Calculated on ARIA+ classification

Dependent children of selected pensioners and beneficiaries, 30 June 2001

Dependent children aged less than 16 years and living in families receiving an income support payment from the Department of Family and Community Services (DFaCS) have been mapped as a percentage of all children aged less than 16 years. Families included are those receiving the DFaCS Age, Disability Support and Sole Parent Pensions; Youth Training or Newstart Allowances; sickness and special benefits; and the Family Tax Benefit[3] (previously the Family Payment). These families represent the majority of families with children who are reliant on government welfare payments for their main source of income, or wage earners on low incomes.

Adelaide

Both the number and proportion of dependent children aged less than 16 years in Adelaide and living in families receiving an income support payment have increased substantially since 1989. While the percentage rose from 28.8% in 1989 to 52.9% in 2001, the numbers have also increased, from 64,241 to 114,360 children (**Table 3.4**).

Table 3.4: Dependent children of selected pensioners and beneficiaries, Adelaide

	1989	1992	1996	2001
number	64,241	84,480	99,880	114,360
per cent	28.8	37.6	45.6	52.9

Source: Calculated on data from DFaCS

The highest proportions of dependent children were located in the north-western, outer northern and outer southern postcodes (**Map 3.49**), not unlike the distribution of children in low income and single parent families. Postcode areas with the highest proportions for this variable were *Ferryden Park* (92.4%), *Woodville North* (91.3%), *Gepps Cross* (88.2%), *Blair Athol* (80.9%) and *Rosewater* (77.7%), located in the north-western and inner northern suburbs; *Elizabeth North* (92.2%), *Virginia* (88.1%), *Burton* (76.3%) and *Elizabeth* (75.4%), in the outer north; and *Christies Downs* (86.9%), *Sellicks Beach* (84.7%), *Christies Beach* (82.4%), *Old Noarlunga* (80.1%) and *O'Sullivan Beach* (78.6%), in the outer south.

Although a number of the percentages shown above appear to be particularly high, they are proportional to the increase in the percentage of dependent children that has occurred since 1992. From 1992 to 2001, there has been an increase of 40.7% in the proportion of children in Adelaide in families receiving an income support payment. Had this increase applied to the postcodes with the highest proportions in 1992, the postcode areas of *Ferryden Park*, *Woodville North* and *Elizabeth North* would, by 2001, have had proportions in excess of 100%.

Lower than average proportions of children in this group were concentrated in the inner city areas, extending through the eastern suburbs to the Adelaide Hills. Proportions of less than 20% were recorded in *Basket Range* (10.1%), *North Adelaide* (17.6%), *Greenhill* (18.1%), *Unley* (18.6%) and *Glen Osmond* (19.2%). Relatively low proportions were also recorded in the postcode areas of *Burnside* (20.3%), *Walkerville* (20.5%), *Kingswood* (21.7%), *Glenside* (21.8%), *St Peters* (22.4%), *Montacute* (23.4%) and *Goodwood* (23.5%).

The largest numbers of dependent children in families receiving an income support payment were recorded in the outer postcodes areas of *Salisbury* (6,947 children), *Morphett Vale* (5,134 children), *Elizabeth North* (4,525 children), *Smithfield* (4,089 children) and *Elizabeth* (3,313 children).

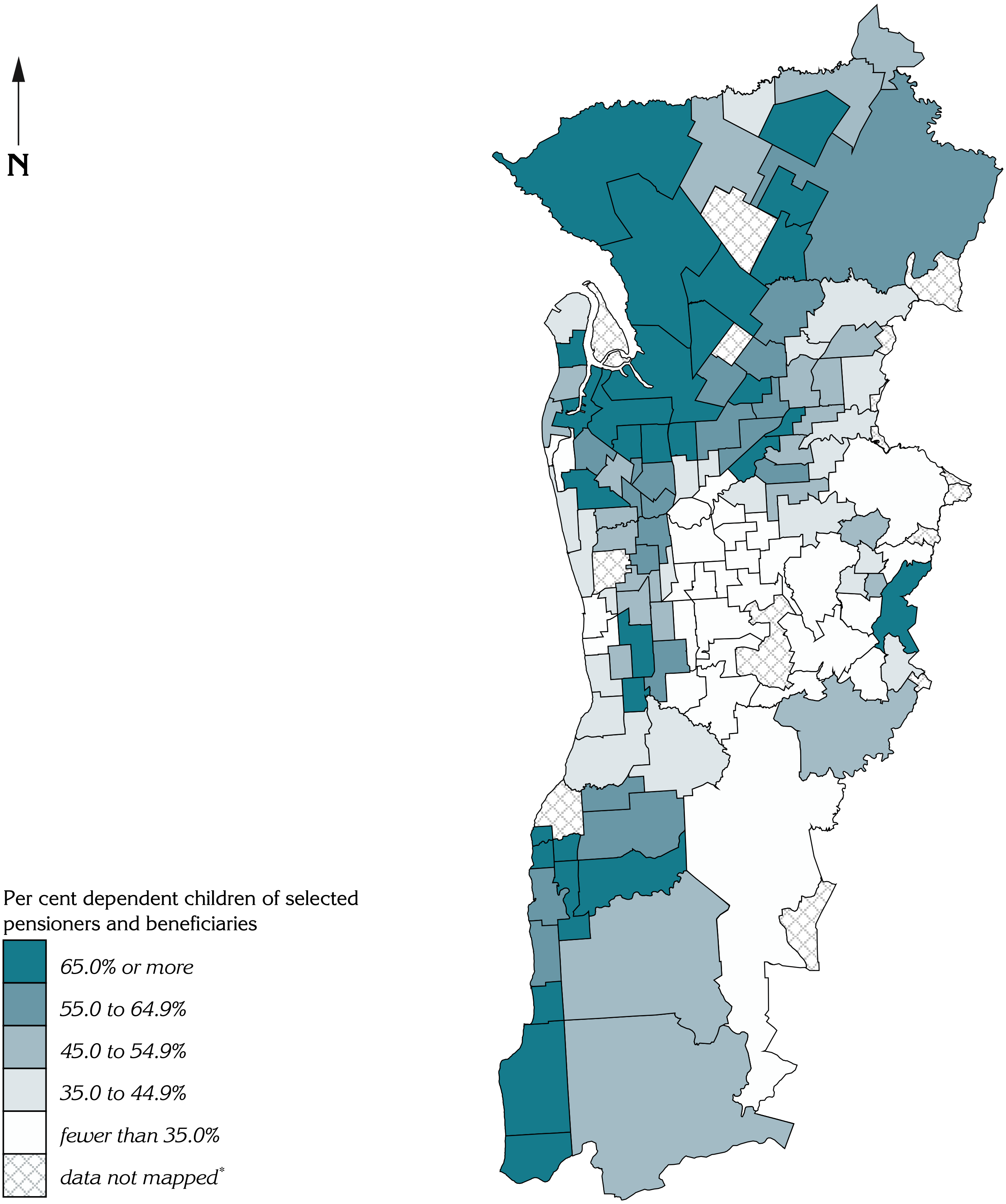
The correlation analysis showed a strong association at the postcode level with many indicators of socioeconomic disadvantage. Correlations of substantial significance were recorded with the variables for children aged 0 to 14 years living in low income families (0.83), people who left school at age 15 or earlier (0.82), and children aged 0 to 14 years living in single parent families (0.71). An inverse correlation of substantial significance was recorded with full-time students, 15 to 24 years (-0.77). The inverse correlation of substantial significance with the IRSD (-0.85) also indicates an association at the postcode level between high proportions of dependent children in families receiving an income support payment and socioeconomic disadvantage.

The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with correlations of substantial significance recorded with the variables for high income families (-0.86), female labour force participation (-0.82) and managers and administrators, and professionals (-0.81).

[3] In 1996 the income threshold for a couple with two dependent children was $23,000: in 2001 it was $28,200.

Map 3.49
Dependent children of selected pensioners and beneficiaries, Adelaide, 2001

as a percentage of all children aged from 0 to 15 years in each postcode area



Data were not mapped because either the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.

Source: Calculated on data from DFaCS ***Details of map boundaries are in Appendix 1.2***

Dependent children of selected pensioners and beneficiaries, 30 June 2001

Non-metropolitan South Australia

In 1989, 34,835 children under 16 years of age in the non-metropolitan areas of South Australia were living in families receiving an income support payment (36.9% of the population under 16 years of age). By 2001, both the number and proportion of children had increased to 53,055 children, 59.1% of the population at these ages (**Table 3.5**). This is an increase of 40.7% in the proportion of children in families receiving an income support payment.

It should be noted that these data are unlikely to include details of children in families receiving unemployment benefits through the Community Development Employment Program (CDEP), the Indigenous unemployment program.

Table 3.5: Dependent children of selected pensioners and beneficiaries, non-metropolitan South Australia

	1989	1992	1996	2001
number	34,835	45,177	48,545	53,055
per cent	36.9	47.5	51.5	59.1

Source: Calculated on data from DFaCS

The highest proportions of dependent children in families receiving an income support payment were recorded in the SLAs of Warooka (88.3%) and Wallaroo (78.8%), on the Yorke Peninsula; Orroroo (87.3%), Peterborough (M) (80.1%), Peterborough (DC) (80.1%), Eudunda (79.6%), Rocky River (79.1%), Hallett (78.1%), Spalding (72.6%) and Unincorporated Pirie (72.0%), situated in areas to the north of the city; Ceduna (78.8%), Unincorporated Far West (78.3%) and Streaky Bay (73.8%), located in the far west; and Meningie (76.4%), Port Elliot and Goolwa (74.0%) and Murray Bridge (72.4%), situated in close proximity to Adelaide.

SLAs with less than 45.0% of children under 16 years living in families receiving an income support payment were generally located either in the south-east or far northern and western areas of the State (**Map 3.50**). The SLAs located in the far northern and western areas included Roxby Downs (9.2%), Hawker (31.2%), Unincorporated Flinders Ranges (41.2%), Kimba (42.5%) and Unincorporated Far North (44.8%); while those in the south-east were Port MacDonnell (32.6%), Mount Gambier (DC) (33.7%), Robe (42.1%) and Lucindale (43.0%). Relatively low proportions were also recorded in Browns Well (37.3%) and Tanunda (37.7%).

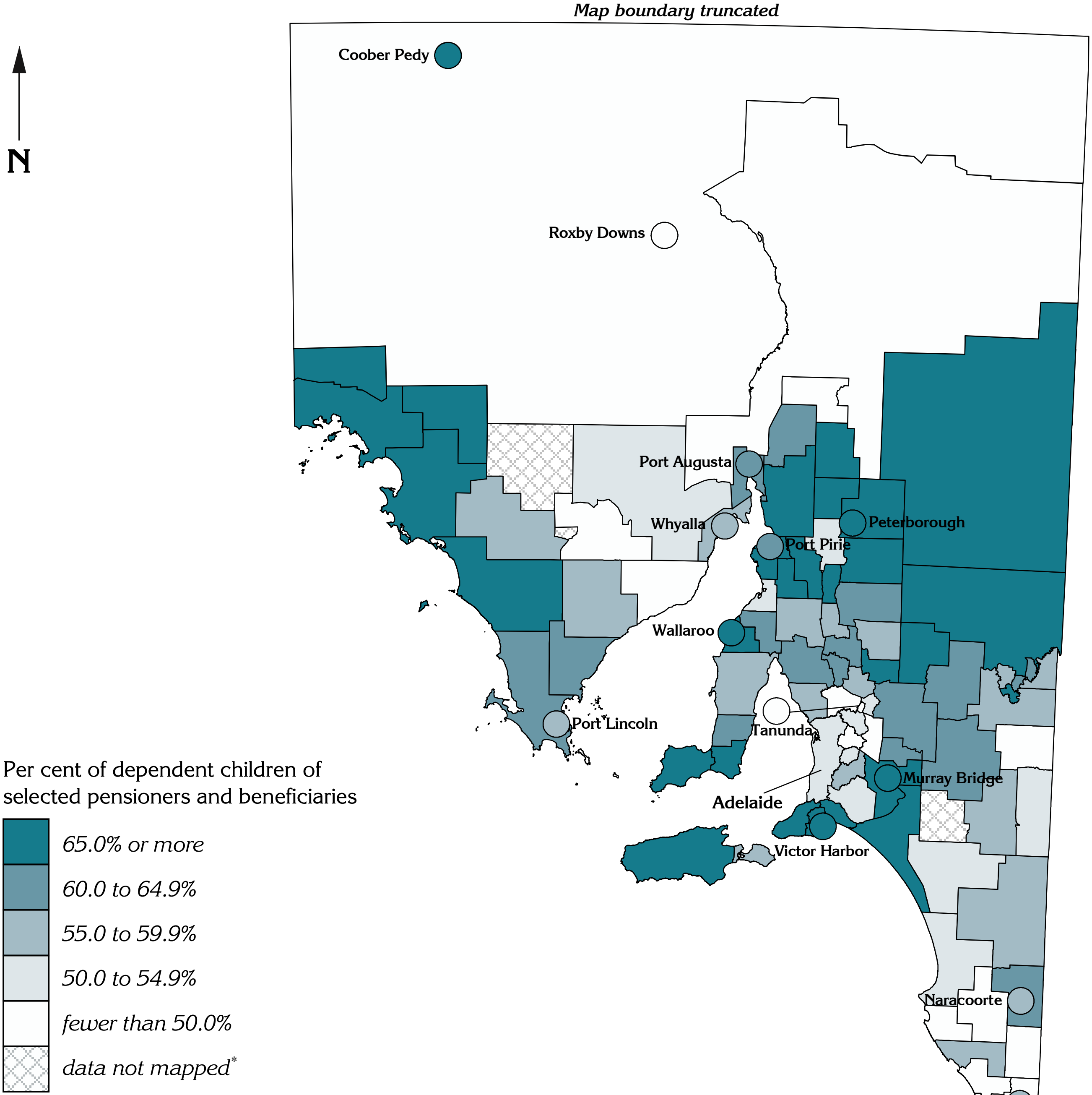
There were more than 2,000 dependent children in families receiving an income support payment in the towns of Mount Gambier (3,203 children), Whyalla (3,122 children), Murray Bridge (2,903 children), Port Pirie (2,068 children) and Port Augusta (2,015 children).

A correlation of substantial significance at the SLA level was recorded with the variable for children aged 0 to 14 years living in low income families (0.82). There were also correlations of meaningful significance with the other indicators of socioeconomic disadvantage. These results, together with the inverse correlation of meaningful significance with the IRSD (-0.58), suggest an association at the SLA level between high proportions of dependent children in families receiving an income support payment and socioeconomic disadvantage.

Map 3.50

Dependent children of selected pensioners and beneficiaries, South Australia, 2001

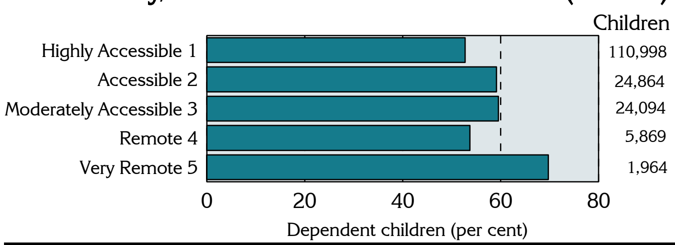
as a percentage of all children aged from 0 to 15 years in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100.

Source: Calculated on data from DFaCS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The proportion of the population aged under 16 years living in families receiving an income support payment is high in all of the ARIA+ classes, ranging from 52.7% in the Highly Accessible areas to 69.7% in areas in the Very Remote areas.

Source: Calculated on ARIA+ classification

This page intentionally left blank

Senior Secondary Assessment Board of South Australia (SSABSA) Achievement Scores

From 1992, students have been able to register with the Senior Secondary Assessment Board of South Australia (SSABSA) for the South Australian Certificate of Education (SACE), an upper secondary program of study normally undertaken over two years. Subjects within the SACE are classified as Stage 1, corresponding to Year 11 level of high school, and Stage 2, corresponding to Year 12 level (SSABSA 2000).

The data presented in the following maps are the average achievement score for all subjects completed[4] by students in each postcode (or group of postcodes, in the case of the country maps) in 2000. Data are presented separately for publicly examined subjects (PES), publicly assessed subjects (PAS) and school-assessed subjects (SAS). PES, PAS and SAS differ in the academic standard of the courses offered and in the method of assessment. The selection criteria for most university-level courses at the three metropolitan universities require the completion of at least four publicly examined subjects.

SSABSA allocates subject achievement scores and an associated grade to each student. The reporting scale approved by the Board is shown in **Table 3.6**.

Table 3.6: Subject achievement scores

Achievement score	Grade	Description
20	A	Outstanding achievement
17-19	A	Very high achievement
14-16	B	High achievement
11-13	C	Competent achievement
8-10	D	Marginal achievement
3-7	E	Low achievement
0-2		Requirements not met

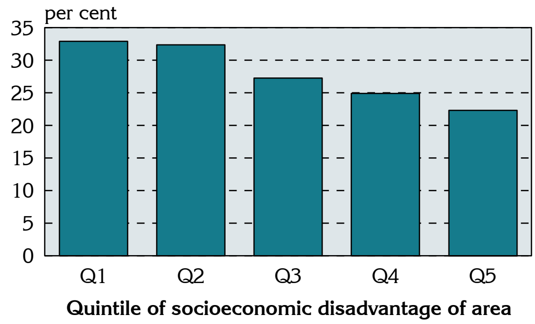
Source: SSABSA Handbook, 2000

For the following analysis, an average achievement score has been calculated for each postcode. The score has not been shown where there were fewer than five students in any postcode. The postcode is the postcode of the address given by students for the posting of their certificate or results. This should provide a good fit to the 'usual' address of the student as, for students living at a boarding school during term time, it is likely to be the address of the family home.

Figures 3.2 and **3.3** show the total number of SACE students (PES, PAS and SAS) as a proportion of the population aged 15 to 24 years by quintile of socioeconomic disadvantage of area. Areas for which the data are available have been grouped into quintiles of approximately equal population, based on the Index of Relative Socio-Economic Disadvantage (IRSD) score for the postcode as calculated from data collected at the 1996 Population Census[5]. Quintile 1 comprises the areas with the highest IRSD scores (highest socioeconomic status, or most advantaged, areas) and Quintile 5 comprises the postcodes with the lowest IRSD scores (lowest socioeconomic status, or most disadvantaged, areas).

The highest proportion of the 15 to 19 year old population in Adelaide registered with SSABSA lives in the most advantaged areas (Quintiles 1 and 2); the proportion in the most disadvantaged areas (Quintile 5) is 32.2% lower.

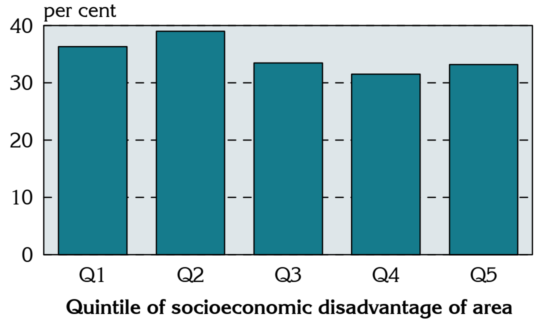
Figure 3.2: SACE students as a proportion of people aged 15-19 yrs, Adelaide, 2000



Source: Calculated on data from SSABSA

In the non-metropolitan areas of South Australia the gradient across the quintiles is less defined, although the proportion of the 15 to 19 year old population living in the most disadvantaged non-metropolitan areas is 8.5% lower than in the most well off areas.

Figure 3.3: SACE students as a proportion of people aged 15-19 yrs, non-metropolitan areas, 2000



Source: Calculated on data from SSABSA

[4] Includes details where students have gained a score in at least one subject in Stage 2 of SACE.

[5] The IRSD is described in Chapter 2, Methods.

Average publicly examined subject achievement scores, 2000

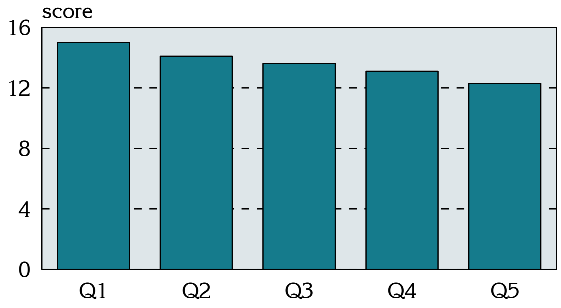
A general description of the South Australian Certificate of Education (SACE) is included on page 127.

For the following analysis, an average achievement score was calculated for each postcode. The score has not been shown where there were fewer than five students in any postcode.

Adelaide

The average publicly examined subject (PES) achievement scores in Adelaide are shown in **Figure 3.4** by quintile of socioeconomic disadvantage of area (quintiles are described on page 127). There is a gradient in achievement scores, from the highest PES score in Quintile 1 (the most advantaged areas, a score of 15.0) to the lowest score in Quintile 5 (the most disadvantaged areas, a score of 12.3).

Figure 3.4: Average publicly examined subject achievement scores, Adelaide, 2000



Source: Calculated on data from SSABSA

Students giving an address in Adelaide for the posting of their certificate or results undertook 25,673 publicly examined subjects[6], representing 51.9% of all SACE subjects undertaken by metropolitan students. The average achievement score for PES in Adelaide was 13.7.

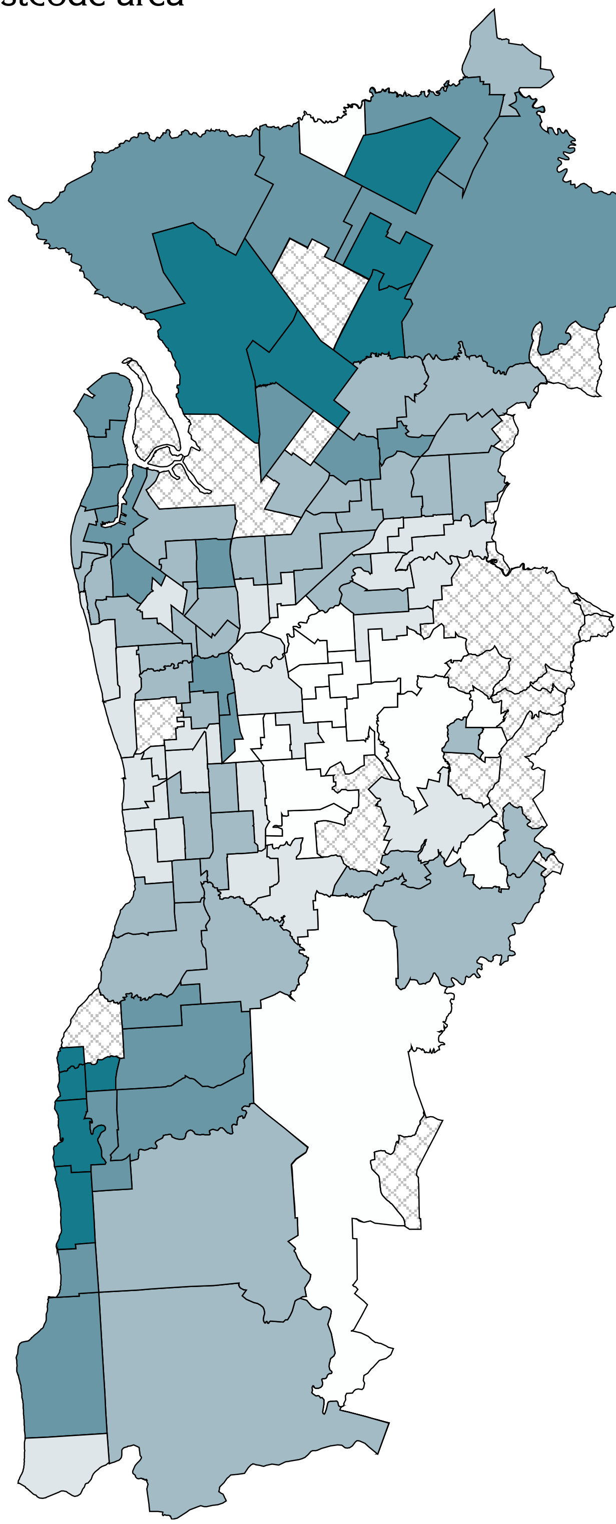
The lowest average achievement scores for publicly examined subjects by postcode areas (for postcode areas with 10 or more students) were generally recorded in the outer northern and southern costal suburbs (**Map 3.51**). They included postcodes located in the outer north at *Elizabeth North* (10.3), *Burton* (11.0), *Munno Para* (11.5), *Salisbury* (11.8) and *Elizabeth* (11.9); and in the southern coastal areas of *O'Sullivan Beach* (10.4), *Christies Beach* (10.5), *Christie Downs* (11.3), *Port Noarlunga* (11.4) and *Moana* (11.9).

The highest average achievement scores were in postcodes adjacent to the city (although not to the west) and in the eastern, south-eastern and inner southern suburbs. The highest of these were recorded for students in the postcode areas of *Greenhill* (17.2), *Burnside* (16.1), *Ashton* (16.0), *Goodwood* (15.9), *Walkerville* (15.8), *Glenside* (15.7), *Magill, Marden* and *Kingswood* (each 15.5), *Norwood* and *Kensington Park* (both 15.4), *Unley*, *St Peters* and *Uraidla* (each 15.3), *Aldgate* and *Blackwood Forward* (each 15.2), *Glen Osmond* (15.1) and *Belair* (15.0).

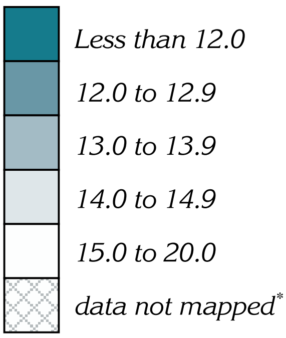
The correlation analysis showed a strong association at the postcode level between high PES scores and a number of indicators of socioeconomic disadvantage. Inverse correlations of meaningful significance were recorded with the variables for children aged 0 to 14 years living in low income families (-0.66) and single parent families (-0.52); and unemployed females (-0.56) and males (-0.61) aged 15 to 24 years. There was an inverse correlation of substantial significance with high proportions of dependent children of selected pensioners and beneficiaries (-0.78). The positive correlation of meaningful significance with the IRSD (0.68) also indicates an association at the postcode level between low average publicly examined subject achievement scores and socioeconomic disadvantage.

[6] In Stage 2 PES, a public examination usually provides 50% of the final score. The moderated school assessment provides the other 50%.

Map 3.51
Average publicly examined subject achievement scores, Adelaide, 2000
average achievement score in each postcode area



Average publicly examined subject achievement scores



* *Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five students.*

Source: Calculated on data from SSABSA ***Details of map boundaries are in Appendix 1.2***

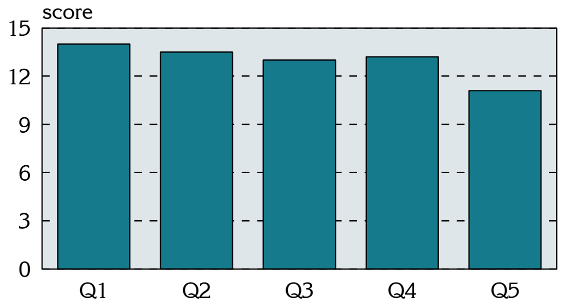
Average publicly examined subject achievement scores, 2000

Non-metropolitan South Australia

The average publicly examined subject (PES) achievement scores in the non-metropolitan areas of South Australia are shown in **Figure 3.5** by quintile of socioeconomic disadvantage of area (see page 127).

It is clear from the graph (**Figure 3.5**) that a gradient exists, from the highest PES score in Quintile 1 (the most advantaged areas, a score of 14.0) to the lowest score in Quintile 5 (the most disadvantaged areas, a score of 11.1). The score of 13.2 in Quintile 4 breaks this pattern.

Figure 3.5: Average publicly examined subject achievement scores, non-metropolitan SA, 2000



Source: Calculated on data from SSABSA

Students giving an address in the non-metropolitan area of South Australia for posting of their certificates or results undertook 6,830 publicly examined subjects. This represented 40.9% of all SACE subjects undertaken by non-metropolitan students. The average achievement score for PES in non-metropolitan South Australia was 12.7, slightly lower than the metropolitan figure of 13.7.

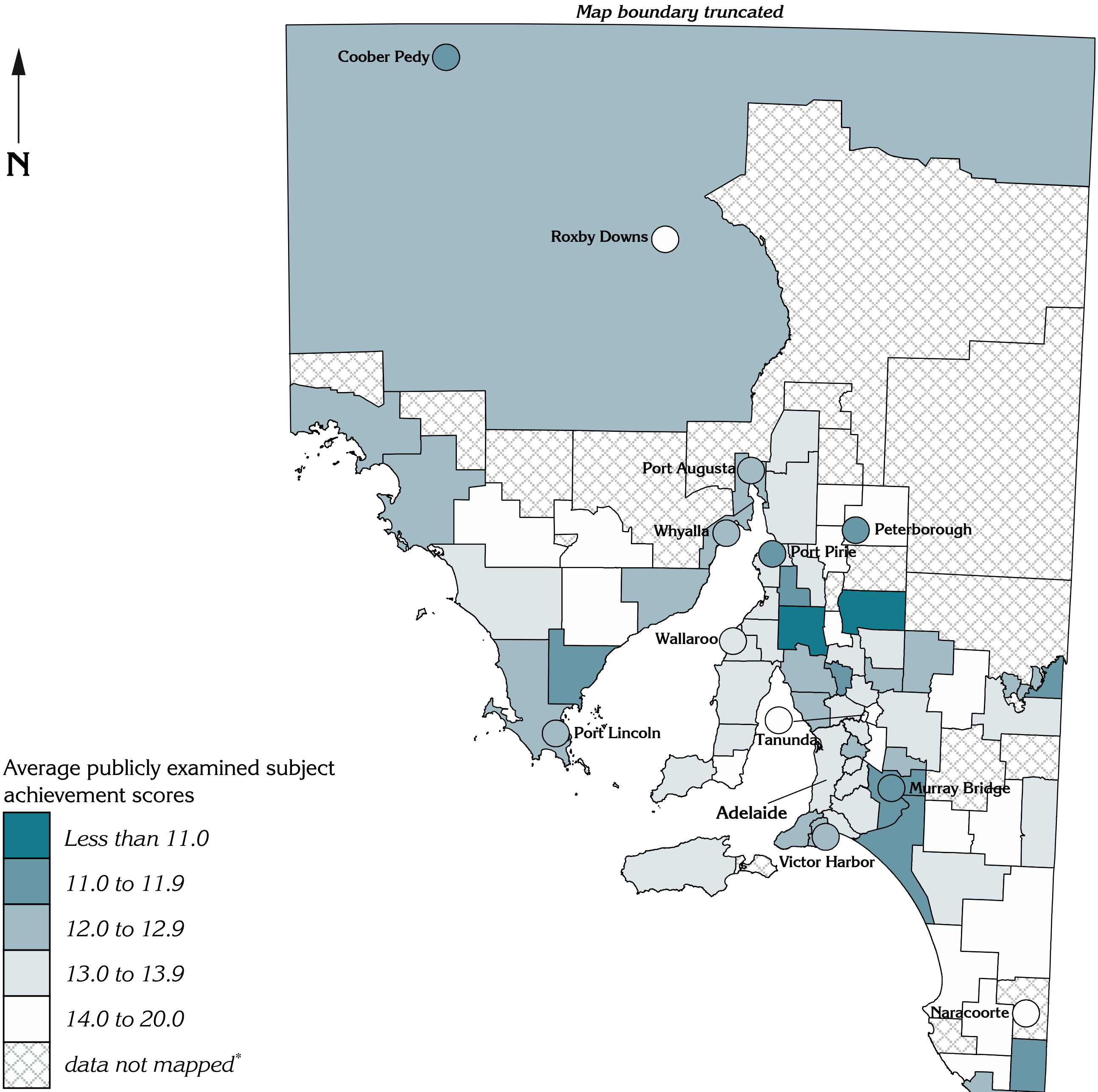
As relatively few country students undertook publicly examined subjects, a number of SLAs have been excluded from the analysis (**Map 3.52**). Of the areas mapped, the highest average achievement scores were recorded for students in Cleve (15.4), Jamestown (15.2), Clare (15.1), Le Hunte, Lucindale and Yorketown (each 14.9), Lacepede (14.7), Waikerie, Beachport and Lameroo (each 14.6), Naracoorte (DC) and Orroroo (both 14.5). Of the towns mapped, Tanunda and Naracoorte (C) (both with 14.4) had the highest achievement score.

The lowest achievement scores were recorded for students in Burra Burra (9.7), Blyth-Snowtown (10.6), Peterborough, Riverton and Crystal Brook-Redhill (both 11.9) and Port Pirie (12.0) to the north of the city; Coober Pedy (11.3) situated in the far north of the State; Penola (11.4) in the lower south east; Meningie (11.7) and Murray Bridge (11.9) in the Murray Mallee area; Paringa (11.8) and Berri (12.0) in the Riverland; and Tumby Bay (11.9) on the Eyre Peninsula.

Inverse correlations of meaningful significance were recorded with the variables for children aged 0 to 14 years living in dwellings with no vehicles (-0.64); and unemployed males (-0.67) and females (-0.61) aged 15 to 24 years. The positive correlation of meaningful significance with the IRSD (0.56) also indicates an association at the SLA level between low average publicly examined subject achievement scores and socioeconomic disadvantage.

Map 3.52
Average publicly examined subject achievement scores, South Australia, 2000

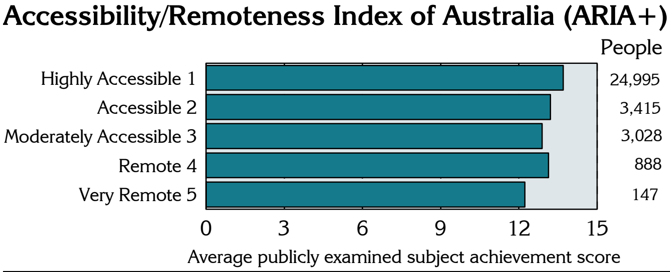
average achievement score in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100 or there were fewer than five students.

Source: Calculated on data from SSABSA — *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



Average achievement scores for publicly examined subjects decrease with increasing remoteness. The highest score of 13.7 was recorded in the Highly Accessible areas, with the lowest in the Very Remote areas (12.2).

Source: Calculated on ARIA+ classification

Average publicly assessed subject achievement scores, 2000

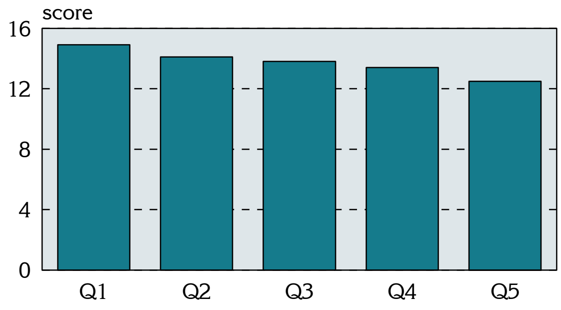
A general description of the South Australian Certificate of Education (SACE) is included on page 127.

For the following analysis, an average achievement score was calculated for each postcode. The score has not been shown where there were fewer than five students in any postcode.

Adelaide

The average publicly assessed subject (PAS) achievement scores in Adelaide are shown in **Figure 3.6** by quintile of socioeconomic disadvantage of area (quintiles are described on page 127). It is clear from the graph that a gradient exists, from the highest PAS score in Quintile 1 (the most advantaged areas, a score of 14.9) to the lowest score in Quintile 5 (the most disadvantaged areas, a score of 12.5).

Figure 3.6: Average publicly assessed subject achievement scores, Adelaide, 2000



Source: Calculated on data from SSABSA

Students giving an address in Adelaide for posting of their certificates or results undertook 8,452 publicly assessed subjects[7] (PAS). This was 17.1% of all SACE subjects undertaken by metropolitan students. The average achievement score for PAS in Adelaide was 13.8.

The lowest average achievement scores were in the outer northern and inner north-western suburbs (**Map 3.53**). Scores of less than 12.0 were recorded for students in the postcode areas of *Elizabeth North* (10.6), *Woodville North* (11.4), *Blair Athol* (11.6), *Ferryden Park* (11.8), *Salisbury* (11.8), *Smithfield* (11.8), *O'Sullivan Beach* (11.9) and *Cowandilla* (11.9). Relatively low scores were also recorded in the outer northern areas of *Elizabeth* (12.0), *Burton* (12.2) and *Parafield Gardens* (12.5); in the inner western suburb of *Keswick* (12.2); and in the outer southern postcodes of *Christie Downs* (12.4) and *Moana* (12.5).

The highest average achievement scores were largely confined to the inner city and to Adelaide Hills postcodes. Excluding areas with fewer than five students, the highest scores were recorded for students in *North Adelaide* (16.7), *Novar Gardens* (16.3), *St Peters* (16.0), *Walkerville* (15.8), *Glen Osmond*, *Kensington Park* and *Aldgate* (each 15.5), *Glenside* and *Stirling* (15.4), *Highbury* (15.3), *Kingswood*, *Burnside, Belair* and *Sellicks Beach* (each 15.2) and *Blackwood* (15.0).

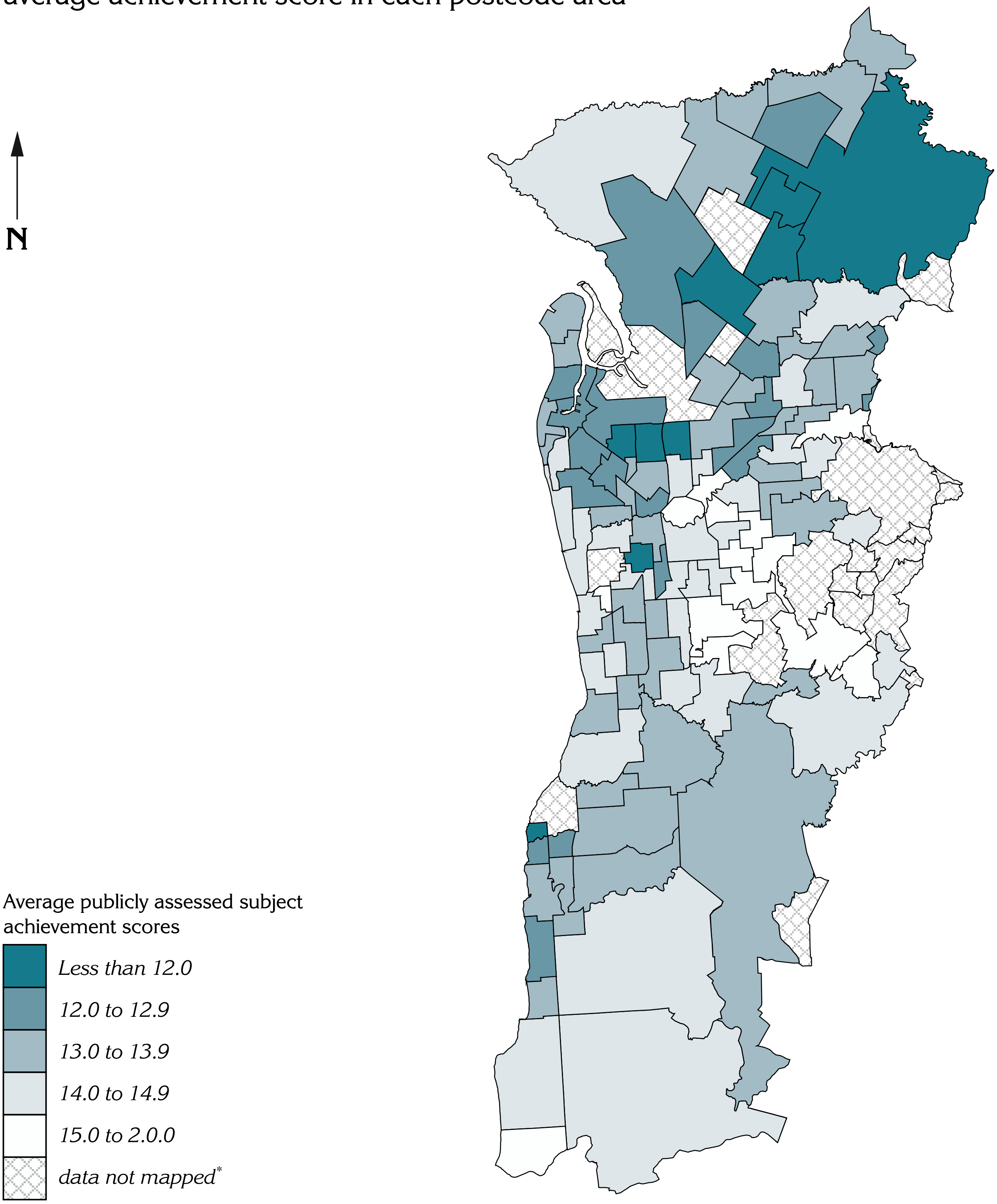
The correlation analysis showed a strong association at the postcode level with many indicators of socioeconomic disadvantage. Inverse correlations of significance were recorded with the variables for children aged 0 to 14 years living in low income families (-0.74), single parent families (-0.67), dwellings with no motor vehicles (-0.65) and dwellings rented from the SA Housing Trust (-0.62); and unemployed males and females (both -0.59) aged 15 to 24 years. An inverse correlation of substantial significance was recorded with dependent children of selected pensioners and beneficiaries (-0.78). The positive correlation of substantial significance with the IRSD (0.78) also indicates an association at the postcode level between low average publicly assessed subject achievement scores and socioeconomic disadvantage.

---

[7] Stage 2 publicly assessed subjects contain a common assessment task with a weighting of 30%.

Map 3.53
Average publicly assessed subject achievement scores, Adelaide, 2000

average achievement score in each postcode area



* Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five students.

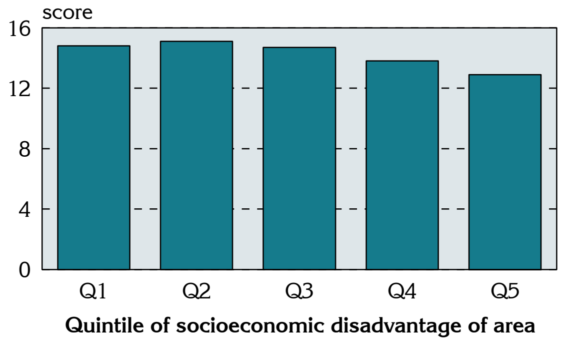
Source: Calculated on data from SSABSA *Details of map boundaries are in Appendix 1.2*

Average publicly assessed subject achievement scores, 2000

Non-metropolitan South Australia

The average publicly assessed subject (PAS) achievement scores in the non-metropolitan areas of South Australia are shown by quintile of socioeconomic disadvantage of area (quintiles are described on page 127). The graph (**Figure 3.7**) a drop in PAS scores from the highest in Quintiles 2 and 1 (the most advantaged areas; Quintile 2 with a score of 15.1 and Quintile 1 with a score of 14.8) to the lowest score in Quintile 5 (the most disadvantaged areas, with a score of 12.9).

Figure 3.7: Average publicly assessed subject achievement scores, non-metropolitan SA, 2000



Source: Calculated on data from SSABSA

Students giving an address in the non-metropolitan areas of South Australia undertook 3,072 publicly assessed subjects. This was 18.4% of all SACE subjects undertaken by non-metropolitan students. The average PAS score across non-metropolitan South Australia was 14.2, slightly higher than the metropolitan figure of 13.8.

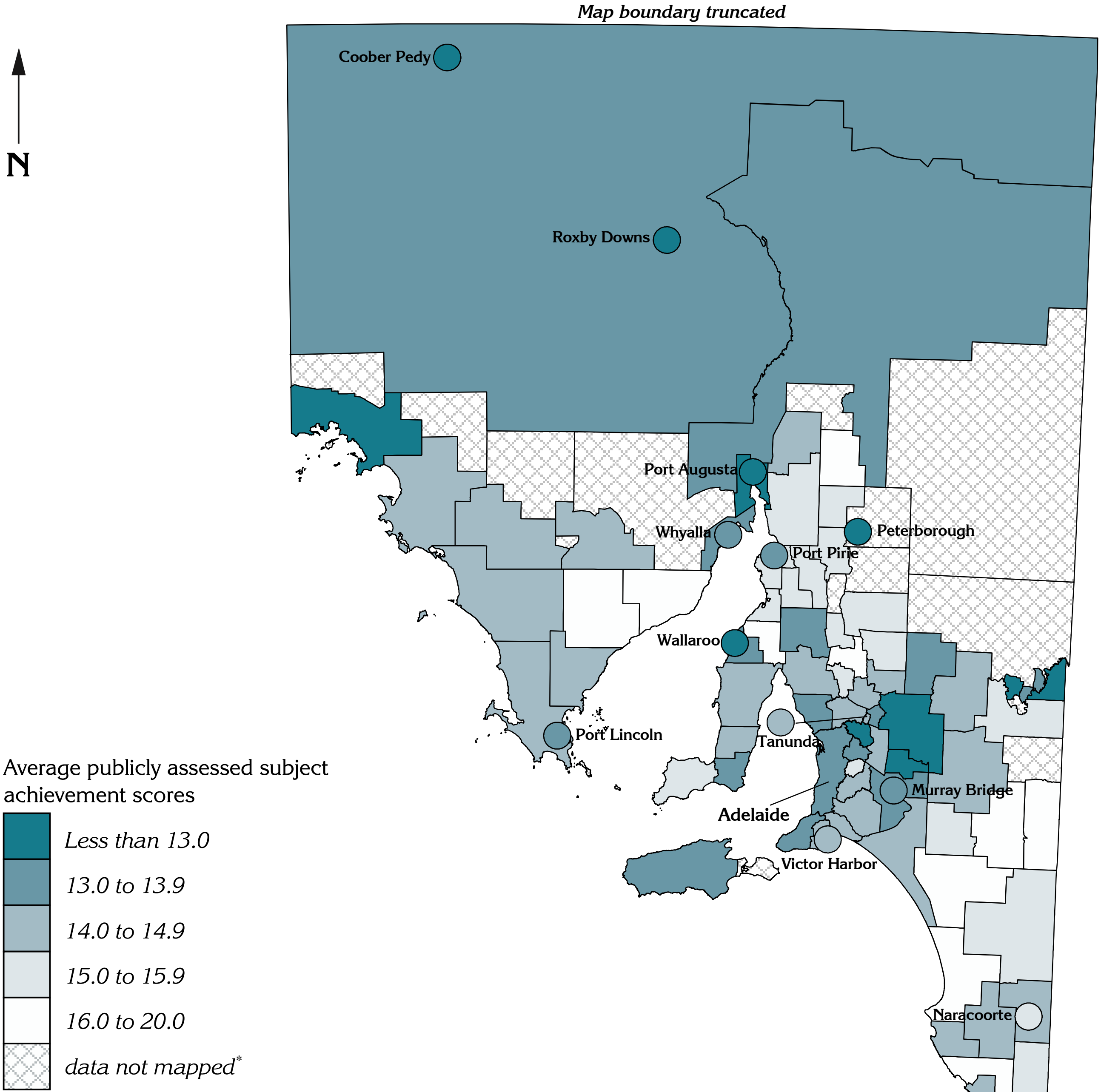
As relatively few country students undertook publicly assessed subjects, a number of SLAs have been excluded from the analysis (**Map 3.54**). Of the areas mapped, the highest average achievement scores were recorded for students in Cleve (17.3), Coonalpyn Downs (17.1), Franklin Harbor (16.9), Saddleworth and Auburn (16.7), Lameroo (16.2), Lacepede and Beachport (both 16.1) and Pinnaroo (16.0). Relatively high scores were also recorded in Loxton (15.9), Warooka and Jamestown (both 15.8), Crystal Brook-Redhill, Riverton, Tatiara and Mount Remarkable (each 15.7), Onkaparinga and Clare (both 15.6), Penola and Peake (both 15.5).

Students in Barossa had the lowest score for publicly assessed subjects, with an average score of 11.4. Relatively low scores were also recorded for students in the towns of Coober Pedy (11.5), Roxby Downs (12.2), Peterborough (12.5), Ceduna (12.7), Wallaroo (12.7), Port Augusta (12.8), Port Lincoln (13.1), Whyalla (13.4), Mount Gambier (13.6), Murray Bridge (13.9), Port Pirie (13.9) and Tanunda (14.0).

There was no consistent evidence in the correlation analysis at the SLA level between average publicly assessed achievement scores and socioeconomic status.

Map 3.54
Average publicly assessed subject achievement scores, South Australia, 2000

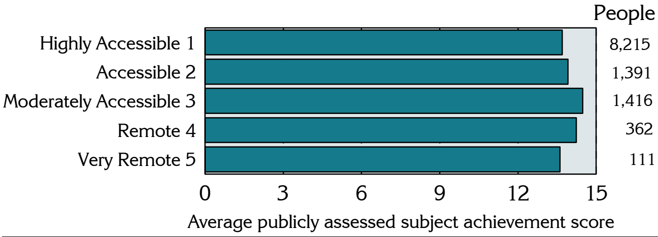
average achievement score in each Statistical Local Area



*Data were not mapped because the SLA population is less than 100 or there were fewer than five students.

Source: Calculated on data from SSABSA *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



Average achievement scores for publicly assessed subjects increase across the ARIA+ classes, from 13.7 in the Highly Accessible areas to 14.5 in the Moderately Accessible areas, before declining to an average score of 13.6 in the Very Remote areas.

Source: Calculated on ARIA+ classification

Average school-assessed subject achievement scores, 2000

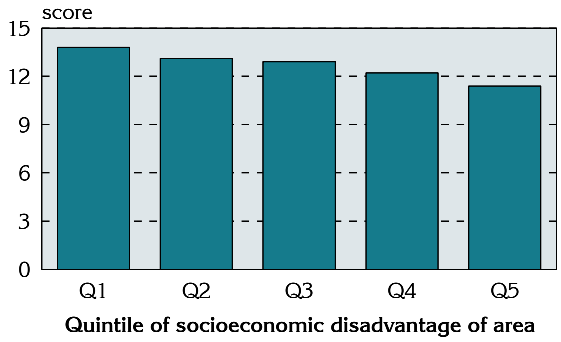
A general description of the South Australian Certificate of Education (SACE) is included on page 127.

For the following analysis, an average achievement score was calculated for each postcode. The score has not been shown where there were fewer than five students in any postcode.

Adelaide

The average school assessed subject (SAS) achievement scores in Adelaide are shown in **Figure 3.8** by quintile of socioeconomic disadvantage of area (quintiles are described on page 127). It is clear from the graph that a gradient exists, from the highest SAS score in Quintile 1 (the most advantaged areas, a score of 13.8) to the lowest score in Quintile 5 (the most disadvantaged areas, a score of 11.4).

Figure 3.8: Average school assessed subject achievement scores, Adelaide, 2000



Source: Calculated on data from SSABSA

Students giving an address in Adelaide for posting of their certificates or results undertook 15,370 school-assessed subjects[8]. This was 31.1% of all SACE subjects undertaken by metropolitan students. The average achievement score for school-assessed subjects in Adelaide was 12.7.

The lowest average achievement scores were largely found in Adelaide's outer northern postcodes (**Map 3.55**), with the lowest score recorded for students in *Elizabeth North* (9.4). The next lowest scores were recorded in the postcode areas of *Burton* (9.9), *Maslin Beach* (10.2), *Angle Vale* (10.3), *Munno Para* (10.4), *Smithfield* (10.6), *Norton Summit* (10.7), *Christies Beach* (10.7), *Salisbury* (10.8), *Woodville North* (10.8) and *Christie Downs* (10.8).

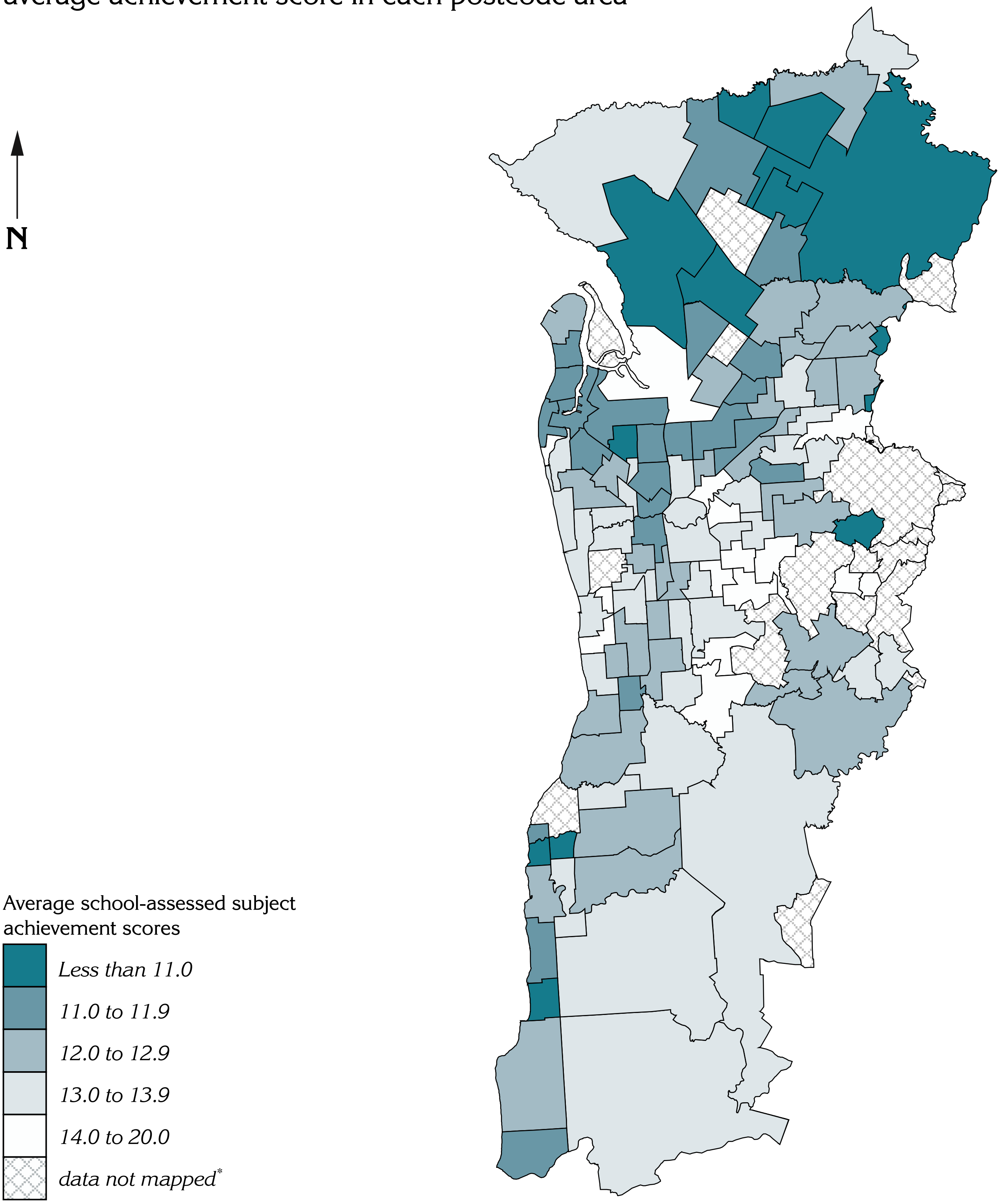
Relatively high average scores were recorded for students in postcodes in the inner eastern and inner southern suburbs, with the highest scores recorded at *Gepps Cross* and *Walkerville* (both 15.4), *Summertown* (15.1), *Belair* (14.7), *Blackwood* (14.5), *St Peters* (14.4), *Glenside*, *Somerton Park* and *Highbury* (each 14.3), *West Lakes Shores* (14.2), *Glen Osmond*, *Novar Gardens* and *Eastwood* (each 14.1), *Burnside*, *Uraidla*, *Eden Hills* and *Daw Park* (each 14.0).

The correlation analysis showed a strong association at the postcode level with many indicators of socioeconomic disadvantage. Inverse correlations of significance were recorded with the variables for children aged 0 to 14 years living in low income families (-0.76), single parent families (-0.66), dwellings with no motor vehicles (-0.62) and dwellings rented from the SA Housing Trust (-0.61); and unemployed males (-0.69) and females (-0.70) aged 15 to 24 years. An inverse correlation of substantial significance was recorded with dependent children of selected pensioners and beneficiaries (-0.79). The positive correlation of substantial significance with the IRSD (0.77) also indicates an association at the postcode level between low average publicly assessed subject achievement scores and socioeconomic disadvantage.

8 Stage 2 school-assessed subjects are wholly assessed by the school, using teacher judgments based upon the assessment provisions in the syllabus. These assessments are then moderated by SSABSA.

Map 3.55
Average school-assessed subject achievement scores, Adelaide, 2000

average achievement score in each postcode area



* *Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five students.*

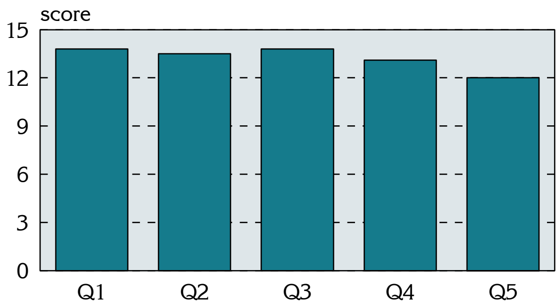
Source: Calculated on data from SSABSA ***Details of map boundaries are in Appendix 1.2***

Average school-assessed subject achievement scores, 2000

Non-metropolitan South Australia

Average school-assessed subject (SAS) achievement scores in the non-metropolitan areas of South Australia are shown in **Figure 3.9** by quintile of socioeconomic disadvantage of area (quintiles are described on page 127). There is little variation in SAS scores across the first three quintiles, with a score of 13.8 in both Quintiles 1 and 3. Over the next two quintiles, the score decreases to 13.1 in Quintile 4 and 12.0 in Quintile 5.

Figure 3.9: Average school assessed subject achievement scores, non-metropolitan SA, 2000



Source: Calculated on data from SSABSA

Students giving an address in the non-metropolitan areas of South Australia for posting of their certificates or results undertook 6,785 school-assessed subjects. This was 40.7% of all SACE subjects undertaken by non-metropolitan students. The average achievement score for school-assessed subjects across non-metropolitan South Australia was 13.0, slightly higher than the metropolitan figure (12.7).

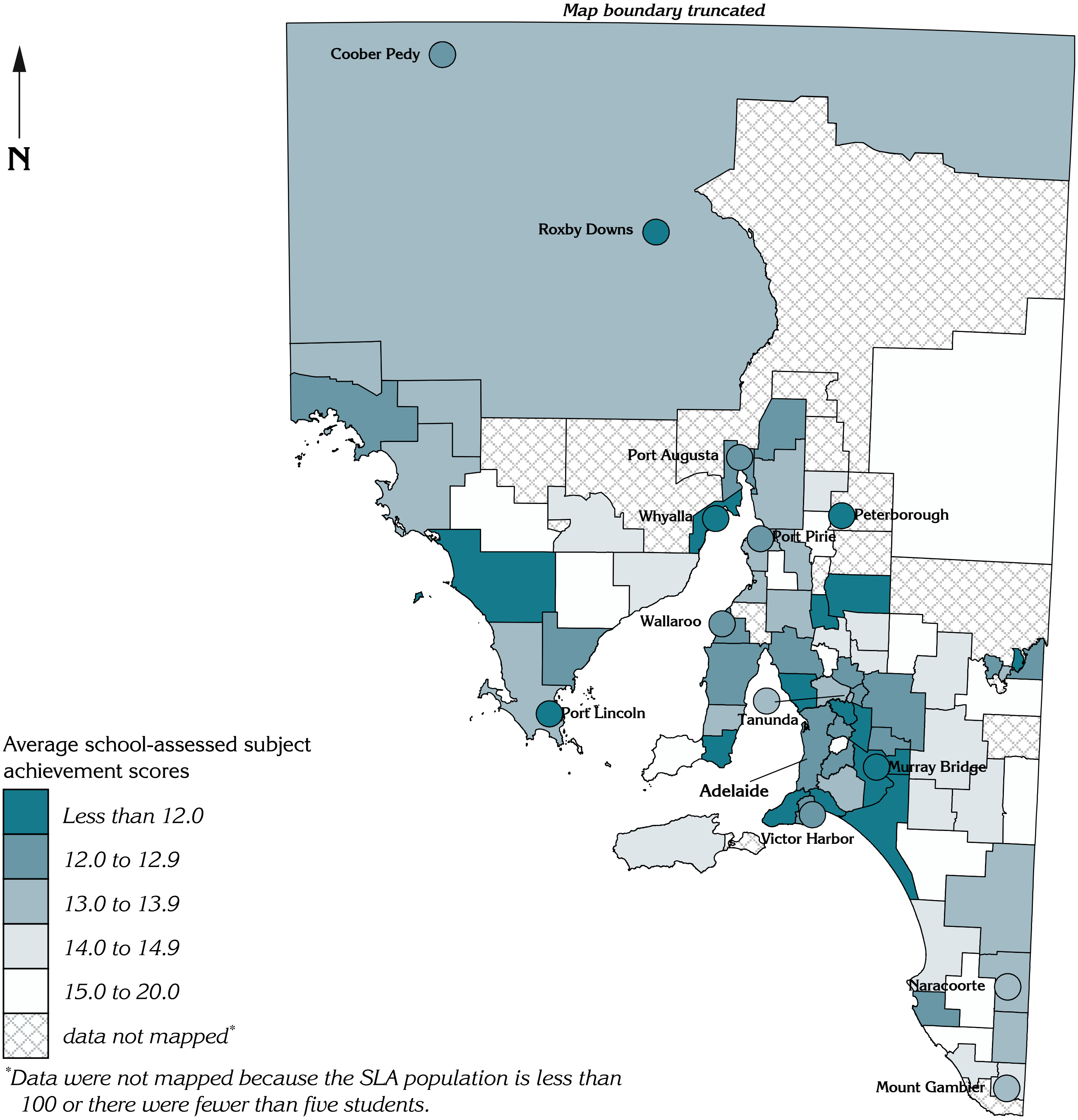
The lowest average achievement scores were located in SLAs at the fringe of the metropolitan area and in the towns (**Map 3.56**). The SLAs were Mount Pleasant (10.7), Murray Bridge (10.8), Yankalilla, Port Elliot and Goolwa and Barossa (each 11.9) situated in close proximity to the metropolitan area; Burra Burra (10.8) and Clare (11.8) in the mid north; in the towns of Peterborough (11.2), Roxby Downs (11.3), Whyalla and Port Lincoln (11.6); and in Renmark (11.3), Yorketown (11.6) and Elliston (11.8).

Higher than average scores were recorded for students in SLAs scattered throughout the State, in Beachport (16.6), Lucindale (16.1), Loxton (15.9), Riverton and Coonalpyn Downs (both 15.4), Jamestown and Warooka (both 15.3), Cleve, Le Hunte, Crystal Brook-Redhill, Onkaparinga and Pinnaroo (each 15.2) and Morgan (15.0).

Inverse correlations of meaningful significance were recorded with the variables for children aged 0 to 14 years living in single parent families (-0.57) and low income families (-0.55); and unemployed males (-0.68) and females (-0.52) aged 15 to 24 years. The positive correlation of meaningful significance with the IRSD (0.54) also indicates an association at the SLA level between low average school-assessed subject achievement scores and socioeconomic disadvantage.

Map 3.56
Average school-assessed subject achievement scores, South Australia, 2000

average achievement score in each Statistical Local Area



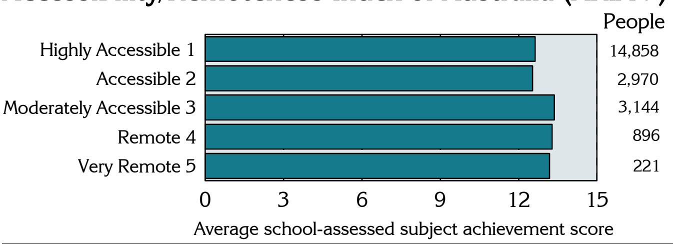
Average school-assessed subject achievement scores

- *Less than 12.0*
- *12.0 to 12.9*
- *13.0 to 13.9*
- *14.0 to 14.9*
- *15.0 to 20.0*
- *data not mapped**

**Data were not mapped because the SLA population is less than 100 or there were fewer than five students.*

Source: Calculated on data from SSABSA ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Average school-assessed subject achievement scores were lowest in the Highly Accessible (12.6) and Accessible (12.5) areas, while relatively high scores were recorded in the Moderately Accessible (13.4), Remote (13.3) and Very Remote areas (13.2).

Source: Calculated on ARIA+ classification

Total Fertility Rate, females aged under 25 years, 1996 to 1999

The Total Fertility Rate[9] measures the production of children and is calculated from details of the age of the female population, the number of births and the age of the mother at birth. Postcodes recording fewer than 20 births were excluded from the analysis.

Since the late 1960s, South Australia has had lower Total Fertility Rates than the Australian average, although the differential is narrowing. For example, in 1978 the differential was 10.5%; by 1998, this had declined to 3.1%, a rate of 1.70 in South Australia and 1.76 in Australia.

Adelaide

The Total Fertility Rate (TFR) for Adelaide over the four year period from 1996 to 1999 was 1.61, slightly lower than the State rate of 1.70. The TFR for Aboriginal and Torres Strait Islander women living in Adelaide was almost double, a TFR of 3.16.

Most of the postcode areas in Adelaide had TFRs of between 1.0 and 2.0, with rates of 2.0 and above in postcodes primarily located in the outer north (**Map 3.57**).

Female residents of *Norton Summit* (with a TFR of 2.72), *Virginia* (2.63), *Elizabeth North* (2.44), *Summertown* (2.24), *Parafield Gardens* (2.21), *Ferryden Park* (2.19), *Smithfield* (2.17), *Old Noarlunga* (2.13), *Angle Vale* (2.09), *Woodville North*, *Elizabeth* and *Christie Downs* (each 2.05), *Salisbury*, *Moana* and *Osborne* (each 2.01) had the highest TFRs.

Postcode areas located in the inner city suburbs generally had the lowest TFRs. These areas included *Adelaide* (with a TFR of 0.61), *Norwood* (0.93), *North Adelaide* (1.00), *Keswick* (1.11), *Glenside* (1.13), *Eastwood* (1.22), *Kensington Park* and *Marden* (both 1.23), *Hindmarsh* (1.25), *St Peters* (1.29) and *Walkerville* (1.30).

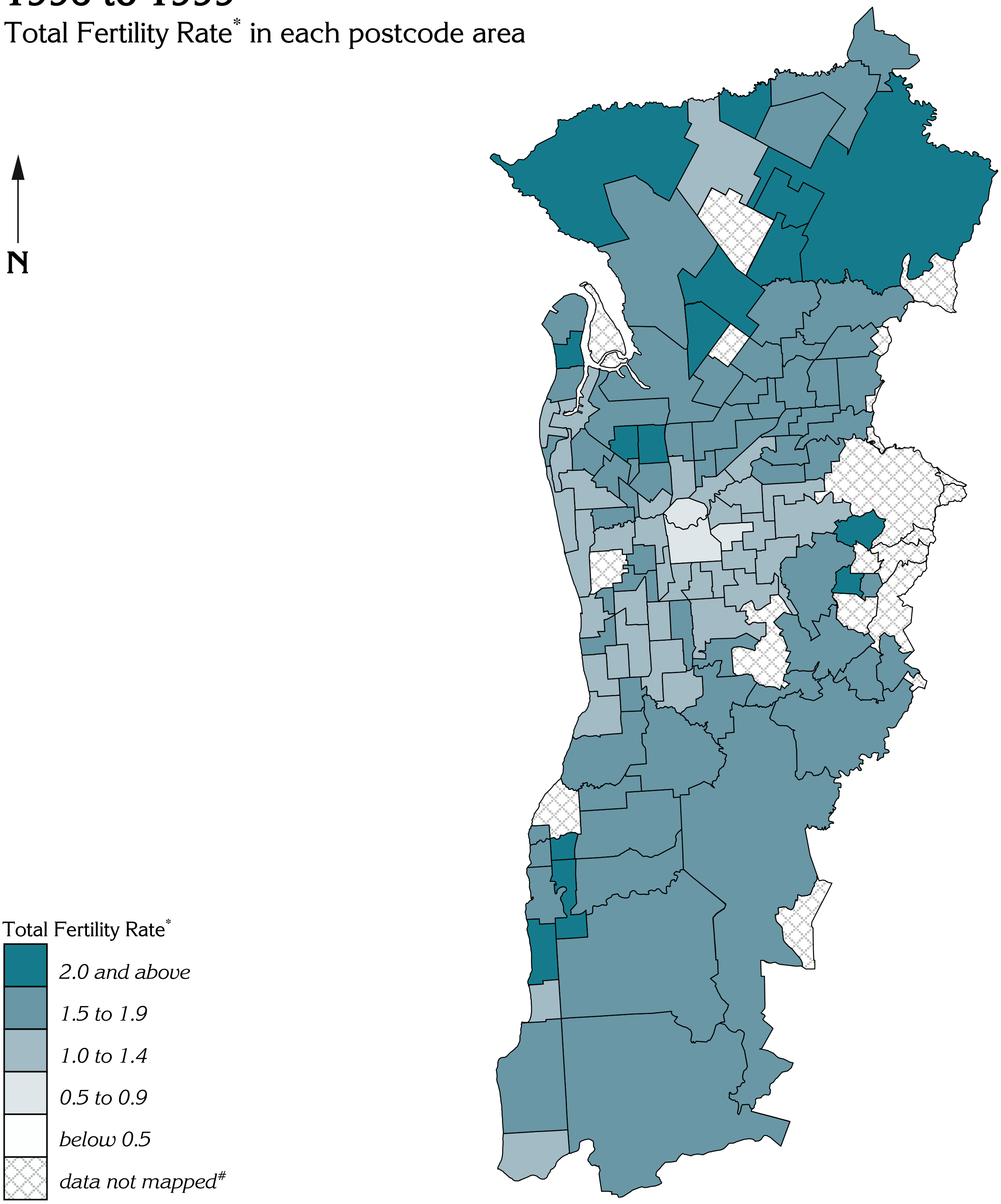
There were 52,218 births to mothers aged from 15 to 49 years over the four years from 1996 to 1999, with the largest numbers being in *Salisbury* (with 2,649 births), *Morphett Vale* (2,097 births), *Happy Valley* (1,720 births), *Smithfield* (1,477 births), *Elizabeth North* (1,344 births), *Salisbury East* (1,204 births), *Elizabeth* (1,166 births) and *O'Halloran Hill* (1,121 births).

As would be expected, there was a strong association at the postcode level between high TFRs and the variable for children aged 0 to 4 years (0.65). A correlation of meaningful significance was also found with the variable for people who left school at age 15 years or earlier (0.54).

[9] The *Total Fertility Rate* represents the mean number of children females living right through their child-bearing period will (on the average) bear, if they are subject to the fertility conditions holding in a particular area over the given period.

Map 3.57
Total Fertility Rate*, females aged under 25 years, Adelaide, 1996 to 1999

Total Fertility Rate* in each postcode area



*The Total Fertility Rate is a measure of the number of children a woman can expect to bear in her lifetime.

#Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than 20 births.

Source: Calculated on data from ABS — *Details of map boundaries are in Appendix 1.2*

Total Fertility Rate, females aged under 25 years, 1996 to 1999

Non-metropolitan South Australia

The Total Fertility Rate (TFR) for the non-metropolitan areas of South Australia over the four year period from 1996 to 1999 was 2.04, substantially (26.7%) above the Adelaide rate of 1.61. The TFR for Aboriginal and Torres Strait Islander women resident in these areas was higher, a TFR of 2.88.

As many of the TFRs in **Map 3.58** are higher than those in Adelaide, the ranges mapped have been changed to enhance the pattern of differentiation. The highest and lowest ranges have been set at 2.5 and above, and less than 1.0, respectively, rather than at 2.0 and 0.5, as in the map of Adelaide for this variable.

SLAs with high TFRs were distributed throughout the State in no notable pattern, however the lowest rates were generally in SLAs located in the far north (see Note, below).

By far the highest rate was recorded for female residents of Unincorporated Whyalla, with a TFR of 4.20 (and 6 births). Relatively high rates were also recorded in the SLAs of Ceduna (with TFR of 2.97), Wakefield Plains (2.91), Warooka (2.87), Streaky Bay (2.78), Eudunda (2.70), Elliston (2.68), Tatiara (2.61), Karoonda-East Murray (2.55), Crystal Brook-Redhill (2.54) and Kanyaka-Quorn (2.53).

The lowest TFRs were in the south-eastern SLAs of Beachport (with a TFR of 1.17), Naracoorte (DC) (1.49), Lacepede (1.66) and Mount Gambier (DC) (1.70); in the far northern areas of Unincorporated Far North (1.20) and Unincorporated Flinders Ranges (1.70); and in the fringe SLAs of Victor Harbor (1.53), Mount Pleasant (1.56), Tanunda (1.62) and Strathalbyn (1.65).

In the non-metropolitan areas of South Australia, the largest numbers of births to mothers aged from 15 to 49 years were in the towns of Whyalla (with 1,399 births), Mount Gambier (1,388 births), Mount Barker (1,322 births), Murray Bridge (968 births), Port Pirie (848 births), Port Augusta (845) and Port Lincoln (789 births).

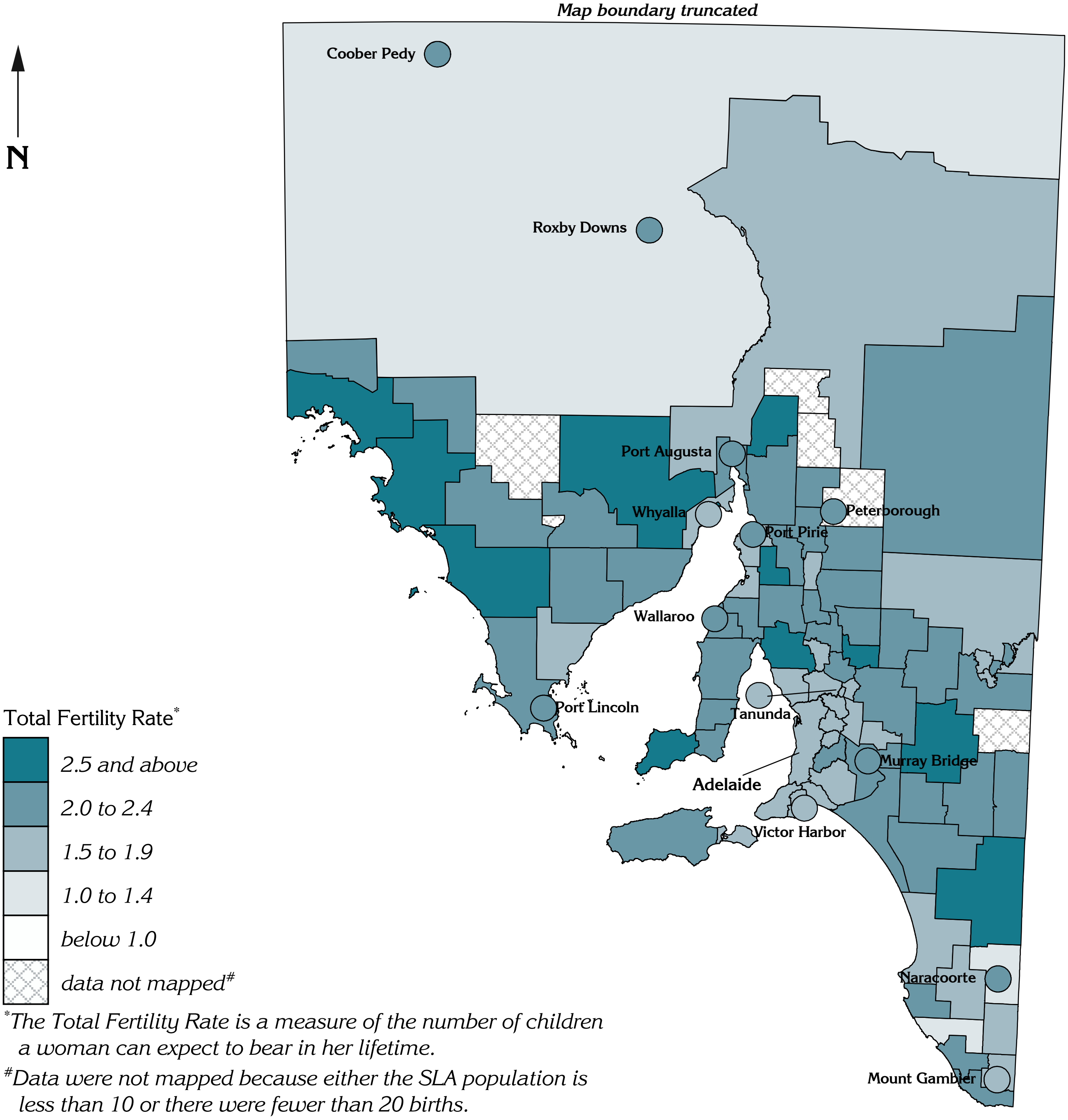
There was no consistent evidence in the correlation analysis at the SLA level of an association between high TFRs and socioeconomic status.

Note: The very low Total Fertility Rate in Unincorporated Far North (1.20) does not fit with the general pattern of higher TFRs among Indigenous women. Either the large Indigenous population in the far north of the State has very low fertility rates or there are problems with the quality of the data. The latter is a possibility. In theory all births are recorded to the address of usual residence of the mother, regardless of where in Australia the birth occurs. This may not be occurring for births to Aboriginal women who live in the far north of the State, in particular where the birth takes place in a hospital in Alice Springs, or in South Australia, for example in Adelaide and where a local postcode is given as the address (rather than the postcode of usual residence of the mother). This could also contribute to the very high TFR recorded for Indigenous women in Adelaide.

Map 3.58
Total Fertility Rate*, females aged under 25 years, South Australia, 1996 to 1999

Total Fertility Rate* in each Statistical Local Area

Map boundary truncated



Total Fertility Rate*

- *2.5 and above*
- *2.0 to 2.4*
- *1.5 to 1.9*
- *1.0 to 1.4*
- *below 1.0*
- *data not mapped#*

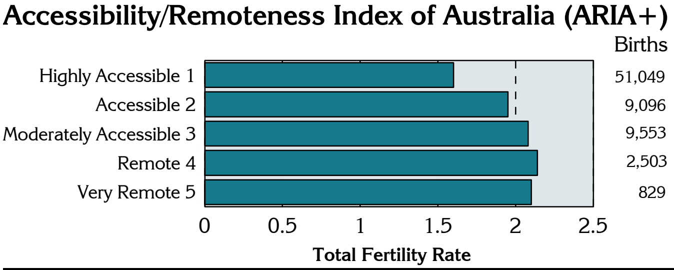
*The Total Fertility Rate is a measure of the number of children a woman can expect to bear in her lifetime.

#Data were not mapped because either the SLA population is less than 10 or there were fewer than 20 births.

Source: Calculated on data from ABS

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The Total Fertility Rate (TFR) increases by one third, from 1.60 in the Highly Accessible areas to 2.14 in the Remote areas, before decreasing slightly to a rate of 2.10 in areas in the Very Remote ARIA+ class.

Source: Calculated on ARIA+ classification

This page intentionally left blank

4 Health status

Introduction

Differences in social and economic circumstances across Adelaide and the non-metropolitan areas of South Australia have been illustrated in the previous chapters. The maps and analyses in this chapter illustrate differences in the health status of children and young people living in these areas.

The mapping technique is particularly useful in highlighting differences in the health status of the population (as measured by the indicators available), and in demonstrating associations with socioeconomic status and health services utilisation. The results of the correlation analysis (which shows the extent of interdependence between the measures) are included in the text to support the existence of these associations.

Background

Health status "refers to the level of health experienced by an individual or a community by placing them/it along a continuum, from health through distress, disease and disability, to death" (SAHC 1988). Health has been defined by the World Health Organization as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO 1948).

Despite a strong trend toward improvement in the health status of Australians as a whole over the last century, "overwhelming inequalities in the health of Australians" have been reported over a number of years, with the most disadvantaged groups having the poorest health and the lowest use of preventative services (National Health Strategy 1992).

Mathers (1995; 1996) reviewed in depth the link between the socioeconomic status of young Australians and their health. Generally speaking, he found children and youth of lower socioeconomic status face greater exposure to the risk of contracting disease, or to death: this was evident across a wide range of morbidity conditions and causes of mortality. For example, all cause mortality rates are, on average, around 50% higher for people aged 15 to 24 years who live in the lowest socioeconomic areas when compared with people of the same age and sex who live in the highest socioeconomic status areas (**Table 4.1**).

Young people from the lowest socioeconomic status areas are also more likely to report their health as being 'fair' or 'poor' (in comparison with 'excellent' or 'good') than those living in the areas of highest socioeconomic status. Most risk factors, for example smoking, are also highly elevated for both men and women in the 'young' age groups living in the most disadvantaged areas (by 24% for males and 22% for females).

Table 4.1: Health status indicators by socioeconomic disadvantage of area and sex, Australia, late 1980s
Note: First quintile is high socioeconomic status and fifth quintile is low socioeconomic status

Age group (years)		Rate ratio for quintile of socioeconomic disadvantage of area			
		Males		Females	
		1st quintile	5th quintile	1st quintile	5th quintile
Children (0 to 14 years):	Mortality	1.00	1.46***	1.00	1.63***
	Serious chronic illness	1.00	1.25	1.00	1.18
	Reduced activity	1.00	1.36***	1.00	1.03
	Not breastfed: 0 to 4 yrs	1.00	1.46*	1.00	1.09
Youth (15 to 24 years):	Mortality	1.00	1.46***	1.00	1.49***
	Serious chronic illness	1.00	1.03	1.00	1.03
	Reduced activity	1.00	0.74***	1.00	0.95
	Fair/poor health	1.00	1.33	1.00	1.40
	Inactivity	1.00	1.07	1.00	1.34**
	Smoking: 18 yrs & over	1.00	1.24*	1.00	1.22

Statistical significance: the greater the number of * the higher the level of significance :
*** $p < 0.05$: ** $p < 0.01$: *** $p < 0.001$**

Source: Mathers, C. Health Monitoring Series Nos. 3 and 4, Australian Institute of Health & Welfare, Canberra, 1995 & 1996

Despite an overall decline in mortality rates between 1985-87 and 1995-97 for the majority of conditions, the differentials observed in the earlier period are still evident a decade later (Turrell & Mathers 2000). For example, during 1995-97 infants and children living in the most disadvantaged areas experienced the highest mortality rates for perinatal conditions and Sudden Infant Death Syndrome, and for injury and poisoning (**Table 4.2**). Although data for the individual quintiles are not presented in the table, almost without exception, death rates for these quintiles exhibited a continuous gradient from high to low socioeconomic status.

For some conditions, the authors found an actual increase in the mortality rates over the decade. Among those aged 15 to 24 years, there was an increase in the rate of male suicide in the middle (third) and low (fifth) socioeconomic status quintiles, and a corresponding increase for females in the high (first) and middle socioeconomic status quintiles (and also in the rate ratio). These widening differentials give cause for concern.

There are large reductions in rate ratios for deaths of 15 to 24 year old males and females from causes of drug dependence, although these are not statistically significant. They may reflect an increase in deaths of residents of higher socioeconomic status areas from these causes, rather than a reduction in deaths in lower socioeconomic status areas.

Table 4.2: Rate ratio of mortality inequality by socioeconomic disadvantage of area, 1985-87 & 1995-97

Age group/Mortality type	Rate ratio [1]			
	Males		Females	
	1985-87	1995-97	1985-87	1995-97
0 to 14 years				
All Cause	1.50	1.62***	1.67	1.45***
Perinatal conditions	1.54	1.39***	1.90	1.41***
Sudden infant death syndrome	1.20	2.73***	1.69	3.24***
Injury and Poisoning	2.02	2.21**	1.84	1.75
MV Traffic Accident	1.53	2.49***	1.95	1.40***
15 to 24 years				
All Cause	1.49	1.78***	1.54	1.40***
Drug dependence	1.91	0.98	1.52	0.94
Injury and Poisoning	1.47	1.98***	1.66	1.49**
MV Traffic Accident	1.40	2.26***	1.56	1.83***
Suicide	1.35	1.75***	1.30	0.95***

[1]Ratio of Standardised Mortality Ratio for fifth quintile (low socioeconomic status) to first quintile (high socioeconomic status)

Note: Rate ratios of mortality inequality differ significantly from no inequality at significance level p<0.001

Asterisks indicate level of significance of the difference from the corresponding 1985-87 value:

*** p <0.05, ** p <0.01, *** p <0.001**

Source: Turrell G. and Mathers C., Socioeconomic inequalities in all-cause and specific-cause mortality in Australia: 1985-87 and 1995-97, International Journal of Epidemiology 2000;29

Measurement of health status

Current situation

In the absence of accepted measures of good health as a positive entity, health status is largely indicated by measures of morbidity (illness), mortality (death, in particular infant and other premature deaths, and life expectancy), disability, risk factors and, in some instances, utilisation of health services. Broader aspects of health, such as social and economic wellbeing, or of life satisfaction, are rarely measured in the administrative collections from which most health data are drawn. To be useful in describing health status at a local area level, datasets need to include descriptive information associated both with the particular event being recorded (eg. cause of death) and the person about whom it was recorded (eg. age, sex and place of usual residence).

The deaths' data collections, undertaken by the registration authorities in the States and the Northern Territory and compiled by the Australian Bureau of Statistics (ABS), have provided one of the few datasets to include such detail at a local area level. Therefore, mortality data have been the major indicator of health status used over the years in small area analyses. Data as to the extent in the community of morbidity (illness or disease) are not available at the local area level. However, an approximation of the variations in morbidity can in some instances be obtained from data relating to admissions to hospital for different causes. Some of this information has been included in the maps in Chapter 5.

Data mapped

In this chapter, data have been mapped for a number of measures of health status. These include deaths (infant deaths and deaths of people aged from 15 to 24 years, for all causes and from the combined external causes of injury and poisoning); overweight and obese four year old children; perinatal risk factors and substantiated cases of child abuse and neglect. These variables are discussed in more detail in the introduction to the maps on each topic.

A comparison of the mapped distribution of these measures of health status with the distributions in other chapters indicates the possible extent of association at the local area level between health status, and socioeconomic status (Chapter 3) and use of health and welfare services (Chapter 5). The extent of association is supported by the results of the correlation analysis (Chapter 6).

Gaps and deficiencies in the data

Health status of Aboriginal people and Torres Strait Islanders

Aboriginal people and Torres Strait Islanders (also referred to as Indigenous people) have the poorest health of any group in Australia: they are also the group least well identified in statistical collections. **Table 3.2** and the accompanying text in Chapter 3 document problems in the counts of Indigenous Australians at recent population censuses. Data for the birth and death records for Indigenous people used in this chapter are similarly affected by undercounting, the full extent of which is not known.

Despite the inclusion of a question to identify Indigenous people on the death information statements and medical certificates of cause of death, they are under-reported in death records[1]. Over the past few years only the Northern Territory, Western Australia, South Australia and the Australian Capital Territory are considered to have had reasonably complete coverage. The coverage in other States has not improved since the early 1990s, with the exception of Queensland, for which it is estimated that it has moved close to complete coverage since 1996. However, between the 1991 and 1996 Censuses, there has been a largely unexplained increase in the population of Indigenous people: see pages 23 and 24 for further details.

The Australian Bureau of Statistics and the Australian Institute of Health and Welfare (ABS & AIHW 1999) have identified that “among the most important issues relating to data quality are: the estimation of the size and composition of the Indigenous population; the identification of Indigenous people in administrative data collections; and issues related to the collection of survey data about Indigenous people. The availability of data is also affected by the number of Indigenous people included in surveys and the regularity with which the surveys are conducted”. The ABS, AIHW, State and Territory health authorities and the heads of Aboriginal and Torres Strait Islander health organisations are currently working together to reduce the long term issues related to the accurate and appropriate collection of an Indigenous people identifier for demographic and health collections.

Health status and socioeconomic status

As noted in Chapter 2 (Measurement of socioeconomic status), most collections of health statistics do not include data items which directly allow for analysis of socioeconomic status at the local area level. This is a major deficiency in Australian health information.

In the absence of any direct measure, the area of usual residence of children and young people about whom the event (eg. death) is recorded is therefore used as a proxy measure of socioeconomic status. The validity of using the area of usual residence in this way is discussed in Chapter 2, *Methods* under the heading *Usual residence*.

[1]The death information statement is authorised by a relative or other person who has knowledge of the deceased and is usually filled out by a funeral director: the medical certificate of cause of death is completed by a medical practitioner, or coroner.

This page intentionally left blank

Deaths

Introduction

Variations in death rates attributable to measures of equity (such as social class) are perhaps the most telling of all the indicators relevant to a social health analysis. An analysis of mortality by area can provide an insight into variations in socioeconomic status, health status and levels of exposure to high risk factors among the population that may contribute to an increased likelihood of premature death.

Variations in death rates by social class

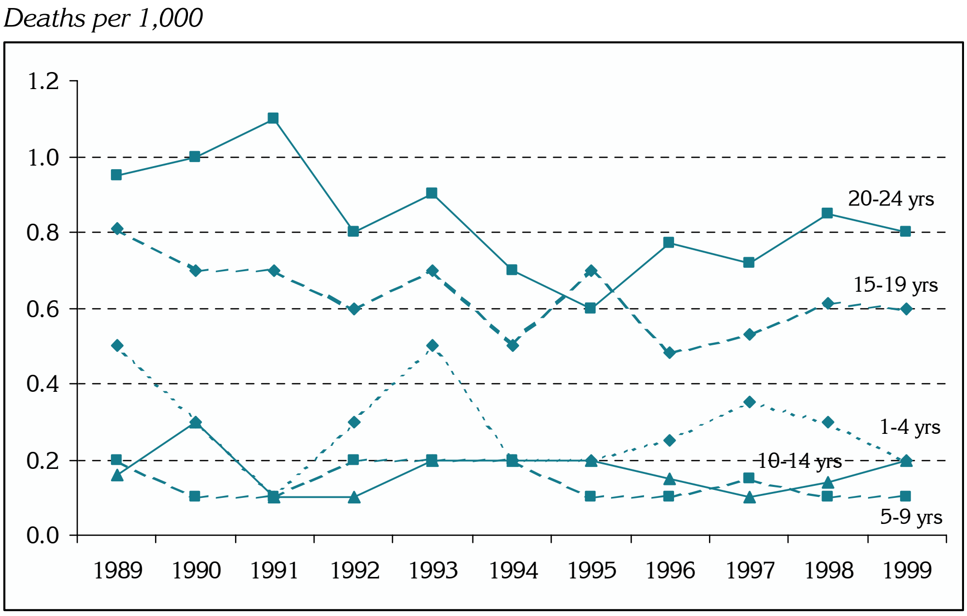
Variations in death rates related to social class have been shown in a wide range of studies in overseas countries, and in some studies in Australia. The most detailed Australian work in this area is an analysis of deaths occurring in 1985, 1986 and 1987, undertaken for the National Health Strategy (1992) and published in more detail by the Australian Institute of Health and Welfare as part of their Health Monitoring Series (Mathers 1995) (**Table 4.1**). As noted above, this work has been updated by adding the period 1995-97 (**Table 4.2**) to show that the differentials in mortality rates that were evident in 1985-87 have persisted over the decade. As noted below these differentials have, in some cases, increased.

Changes in numbers and rates, 1989 to 1999

The number of deaths in South Australia of people at ages 0 to 24 years decreased by 37.7% over the eleven year period from 1989 to 1999, dropping from 411 in 1989 to 256 in 1999. However the number of deaths varies, often markedly, between years. Male deaths decreased by 34.4%, while there was a more substantial decrease of 43.4% for female deaths. The largest decreases were evident for children aged from 0 to 4 years and 5 to 9 years, while the smallest decrease was recorded at ages 20 to 24 years.

Over the period from 1989 to 1999, death rates also declined in the five year age groups from 0 to 24 years. The marked variation noted in the number of deaths between years is also evident in death rates per 100,000 population (**Figure 4.1**).

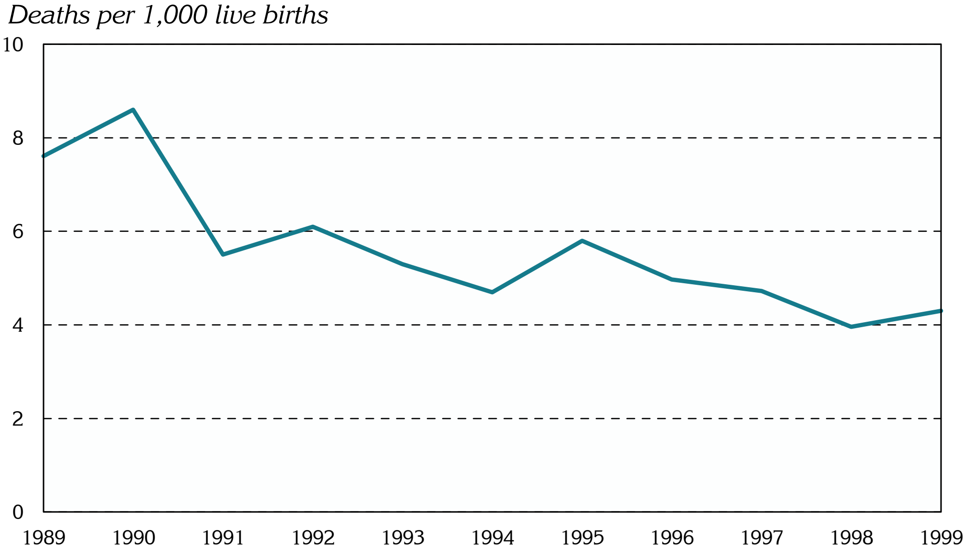
Figure 4.1: Death rates, by age, South Australia, 1989 to 1999



Source: ABS Deaths bulletins, ABS Catalogue No. 3312.4, 1989 to 1999

In 1999, there were 78 infant deaths (50 males and 28 females) recorded in South Australia, almost half (53.4%) the number in 1989 (146 infant deaths). The infant death rate has also decreased dramatically (**Figure 4.2**), from 7.6 infant deaths per 1,000 live births in 1989 to 4.3 in 1999 (a decrease of 43.5%). Much of the decline can be attributed to the substantial fall in deaths due to Sudden Infant Death Syndrome (SIDS) following the introduction of the educational campaign in 1990 aimed at reducing the prevalence of risk factors for SIDS, including prone sleeping (lying face downwards) (DHS 2001a). In 2000, there were only five post-neonatal SIDS deaths compared with an annual average of 38 in the period 1986-1990 (DHS 2001a).

Figure 4.2: Infant death rate, South Australia, 1989 to 1999



Source: ABS Deaths bulletins, ABS Catalogue No. 3312.4, 1989 to 1999

Data mapped

Age range

The data mapped in this section include infant deaths and deaths of people aged 15 to 24 years. Infant deaths (deaths at ages under 12 months) are analysed separately as they are recognised internationally as a group with historically high mortality rates, and rates with marked socioeconomic differentials. Deaths of people aged 15 to 24 years have been chosen as they provide a sufficient number of deaths (by aggregating four years of data, from 1996 to 1999) to be analysed at the SLA level (**Table 4.3**).

Table 4.3: Deaths by age, South Australia, 1996-99

Age	Deaths
<1 yr[1]	**320**
1-4 yrs	99
5-9 yrs	46
10-14 yrs	57
1-14 yrs	**202**
15-19 yrs	122
20-24 yrs	309
15-24 yrs	**431**

[1]Infant deaths

Source: Compiled in HealthWIZ from data supplied by the ABS

Measure mapped

Age-sex standardised ratios (Standardised Mortality Ratios, SMRs) have been calculated and mapped for the majority of variables in this section, by place of usual residence, to illustrate the extent of variation in death rates between the populations in the areas mapped. A brief description of the technique of standardisation, its purposes, and method of calculation is in Appendix 1.3. For infant deaths, infant death rate (infant deaths per 1,000 live births) has been mapped.

Area mapped

Due to the small numbers of deaths, the mortality data have been mapped by Statistical Local Area (SLA) for metropolitan deaths and by South Australian Health Region for non-metropolitan deaths, rather than by postcode as is used elsewhere in this atlas for Adelaide or SLA as used for the non-metropolitan areas. This larger scale of area was chosen in order to ensure the validity and reliability of the data.

Variables mapped

Due to the small numbers involved, only a selection of all causes of death has been mapped for the population aged from 15 to 24 years. These include deaths from all causes and from the external causes of injury and poisoning. **Table 4.4** shows the number of deaths for the age groups and causes for which data were analysed and mapped.

Some other important causes of death, which are of public concern and/or are important causes of death for the most disadvantaged in the population, have insufficient numbers for the production of meaningful statistics at the local level. Deaths from suicide are one example: these are discussed on pages 164 and 165.

Table 4.4: Deaths by selected causes and area, South Australia, 1996-99

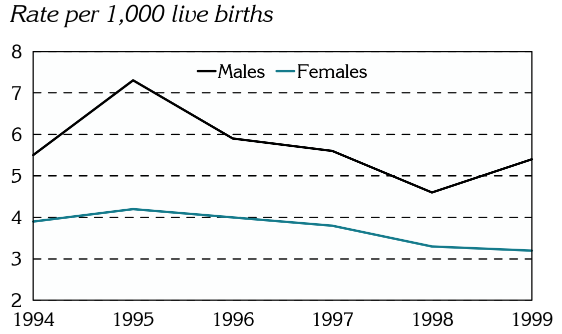
Cause of death	Adelaide	Rest of State	South Australia
Infant: all causes	209	111	320
15 to 24 yrs			
All causes	389	140	529
Injury and poisoning	261	104	365

Source: Compiled in HealthWIZ from data supplied by the ABS

Infant deaths, 1996-99

There has been a general downward trend in the infant death rate over the period from 1994 to 1999 in South Australia for both males and females (**Figure 4.3**). However, there are considerable fluctuations from year to year for males, and care must be taken when considering only short periods of time. Additionally, the death rates for the whole of South Australia mask important regional variations in rates that are demonstrated in the maps relating to this variable.

Figure 4.3: Infant deaths, South Australia, 1994 to 1999



Source: Issues of ABS deaths bulletins, 1994 to 1999

Adelaide

There were only 207 deaths of infants resident in Adelaide over the four years from 1996 to 1999, resulting in a relatively small number of deaths in this cause group for several SLAs (more than one third had fewer than five deaths). Overall there were 4.0 infant deaths per 1,000 live births.

The highest infant death rates were recorded in the areas to the north and south of the city centre (**Map 4.1**). A number of inner city suburbs and outer eastern and western areas were not mapped for this indicator as there were fewer than five infant deaths.

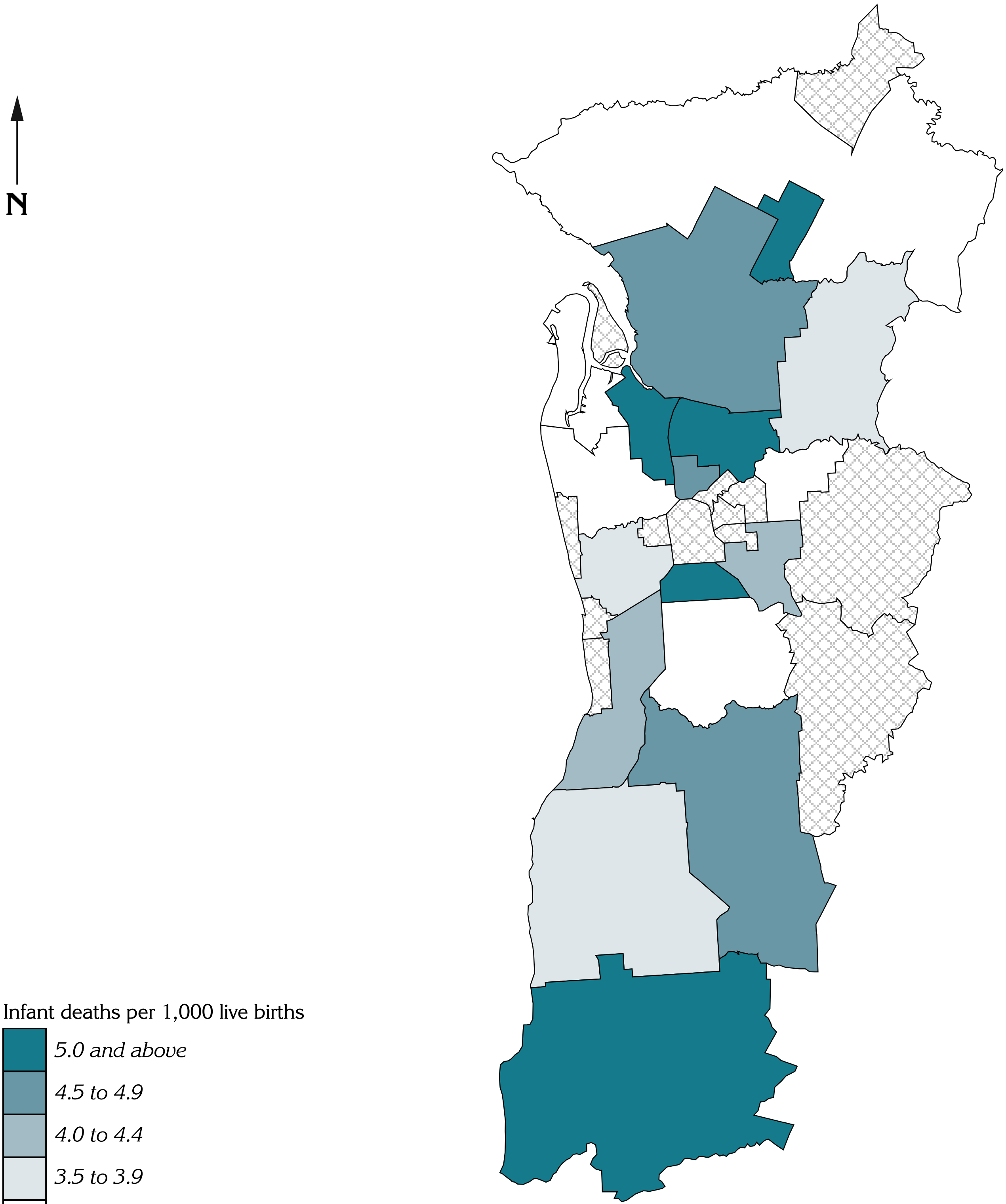
By far the highest infant death rate was recorded in Willunga, with 11.9 infant deaths per 1,000 live births. Rates of 5.0 infant deaths per 1,000 live births and above were also recorded in the north and north-western SLAs of Elizabeth (with 7.4 infant deaths per 1,000 live births), Enfield [Part A] (6.5) and Enfield [Part B] (5.1); and in the inner area of Unley (5.0).

Areas with the lowest infant death rates were situated to the south of the city in Mitcham (with 2.1 infant deaths per 1,000 live births); in the north-eastern SLA of Campbelltown (2.5); and in the north-western areas of Port Adelaide and Hindmarsh and Woodville (both 2.8).

The largest numbers of infant deaths were recorded in the outer northern and southern suburbs: SLAs recording more than 15 infant deaths over this four year period included Salisbury (with 34 deaths), Noarlunga (20 deaths) and Tea Tree Gully (18 deaths).

The correlation analysis was not undertaken as there were too many SLAs with a small number of cases.

Map 4.1
Infant deaths, Adelaide, 1996-99
deaths per 1,000 live births in each Statistical Local Area



Infant deaths per 1,000 live births

- *5.0 and above*
- *4.5 to 4.9*
- *4.0 to 4.4*
- *3.5 to 3.9*
- *below 3.5*
- *data not mapped**

**Data were not mapped because there were fewer than five deaths.*

Source: Compiled in HealthWIZ from data supplied by the ABS ***Details of map boundaries are in Appendix 1.2***

Infant deaths, 1996-99

Non-metropolitan South Australia

There were 111 deaths of infants resident in the non-metropolitan areas of South Australia over the four years from 1996 to 1999, a rate of 5.3 infant deaths per 1,000 live births.

The most highly elevated infant death rate was recorded in the ***Whyalla, Flinders and Far North*** Health Region, an infant death rate of 10.1. Relatively high rates were also recorded in the Country Health Regions of ***Yorke, Lower North and Barossa*** (with 6.1 infant deaths per 1,000 live births), ***Eyre Peninsula*** (5.3) and ***Mid North*** (4.8).

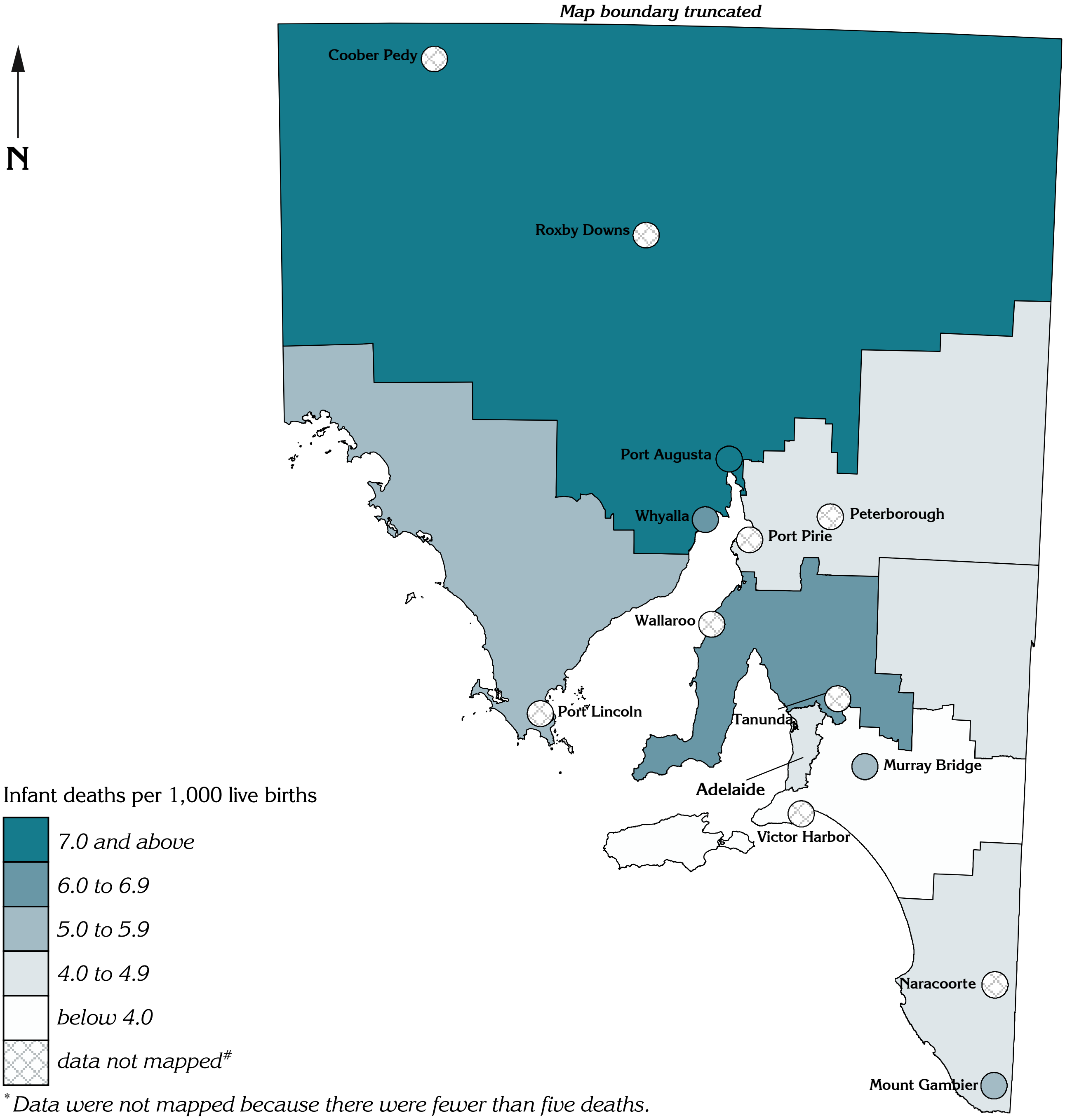
The ***Hills, Mallee and Southern*** Health Region had the lowest rate for this variable, with 2.9 infant deaths per 1,000 live births: infant death rates below 4.5 were recorded in the ***South-East*** and ***Riverland*** regions, with rates of 4.1 and 4.3 respectively.

Of the towns where there were 5 or more infant deaths, by far the highest rate was recorded in Port Augusta, with 15.3 infant deaths per 1,000 live births. Rates of 6.4, 5.8 and 5.2 were recorded in Whyalla, Mount Gambier and Murray Bridge, respectively.

The only two regions to record more than 20 infant deaths over this period were ***Whyalla, Flinders and Far North*** (with 31 infant deaths) and ***Yorke, Lower North and Barossa*** (23 infant deaths).

The correlation analysis was not undertaken as there were too few areas with sufficient cases on which to base reliable results.

Map 4.2
Infant deaths, South Australia, 1996-99
deaths per 1,000 live births in each Country Health Region



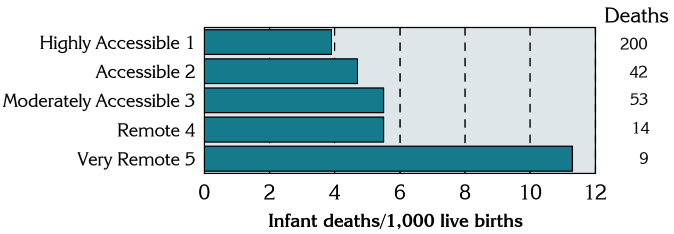
Infant deaths per 1,000 live births

- *7.0 and above*
- *6.0 to 6.9*
- *5.0 to 5.9*
- *4.0 to 4.9*
- *below 4.0*
- *data not mapped#*

[*] Data were not mapped because there were fewer than five deaths.

Source: Compiled in HealthWIZ from data supplied by the ABS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Infant death rates were highest in the Very Remote ARIA+ class (11.3 infant deaths per 1,000 live births), although there were just nine deaths in this four year period. Other rates ranged from 3.9 infant deaths per 1,000 live births in the Highly Accessible areas to 5.5 in both the Moderately Accessible and Remote areas.

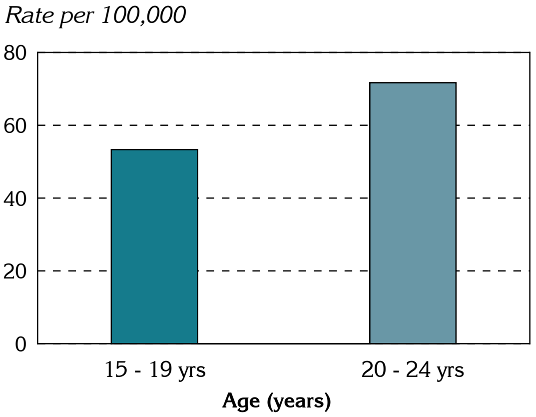
Source: Calculated on ARIA+ classification

Deaths of people aged 15 to 24 years from all causes, 1996-99

Adelaide

There is a considerable variation in death rates between the 15 to 19 and 20 to 24 year ages for deaths in Adelaide from all causes (**Figure 4.4**). Young people aged from 15 to 19 years have a death rate of 53.3 deaths per 100,000 population, with a higher rate of 71.7 per 100,000 in the 20 to 24 year age group.

Figure 4.4: Deaths from all causes, by age, Adelaide, 1996-99



Source: HealthWIZ 2002 deaths dataset, DoHA

There were five per cent fewer deaths of 15 to 24 year olds resident in Adelaide over the period from 1996 to 1999 than were expected from the State rates: this is a Standardised Mortality Ratio (SMR) of 95[**]. Males accounted for almost three quarters (72.5%) of the 389 deaths. The major causes of death in this age group were the external causes of injury and poisoning, a total of 261 deaths (67.1% of people at these ages).

The lowest SMRs were in the more affluent SLAs located in the eastern and southern areas of the city, and the highest were in the north-western and outer northern regions (**Map 4.3**).

The SLA of Elizabeth had the highest SMR for this variable, with 74% more deaths than were expected from the State rates (an SMR of 174[*]). Highly elevated ratios were also recorded in the outer northern SLAs of Gawler (with an SMR of 149) and Munno Para (138); and the north-western SLAs of Port Adelaide (136), Enfield [Part B] (123) and Hindmarsh and Woodville (120).

Marion (with an SMR of 42[**]), Payneham (49) and Brighton (54) all recorded SMRs substantially lower than expected; however these areas had only eleven, three and three deaths respectively.

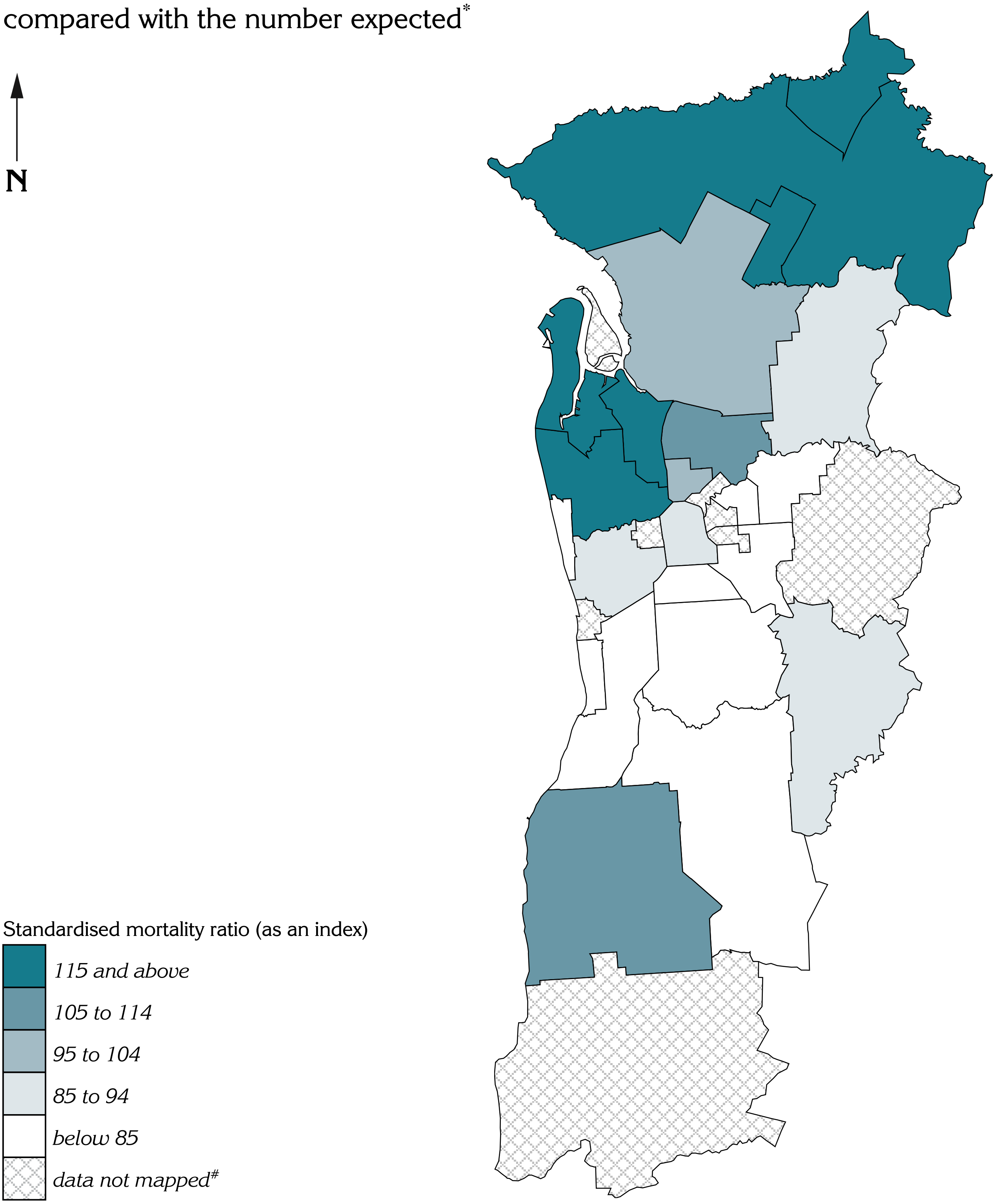
Relatively low ratios were also recorded for young people in Henley and Grange (with an SMR of 56; and three deaths), Happy Valley (an SMR of 58; and nine deaths) and Mitcham (an SMR of 77; and 18 deaths).

The SLA of Salisbury had the largest number of deaths at ages 15 to 24 years, with 44 deaths. More than 30 deaths were also recorded in the SLAs of Noarlunga (with 40 deaths), Hindmarsh and Woodville (37 deaths) and Tea Tree Gully (35 deaths).

There were correlations of meaningful significance with the variables for children aged 0 to 14 years living in dwellings rented from the State housing trust (0.60), people who left school at age 15 years or earlier (0.59), Indigenous people (a correlation of 0.58 for young people aged 15 to 24 years and 0.53 for children aged 0 to 14 years), dependent children in low income families) and the Total Fertility rate and unemployed females aged 15 to 24 years (both 0.52). These results, together with the inverse correlation with the IRSD (-0.54), indicate an association at the SLA level between high death rates at ages 15 to 24 years and socioeconomic disadvantage.

Map 4.3
Deaths of people aged 15 to 24 years from all causes, Adelaide, 1996-99

Standardised mortality ratio: number of deaths in each Statistical Local Area compared with the number expected*



Standardised mortality ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

Data were not mapped because there were fewer than five expected deaths.

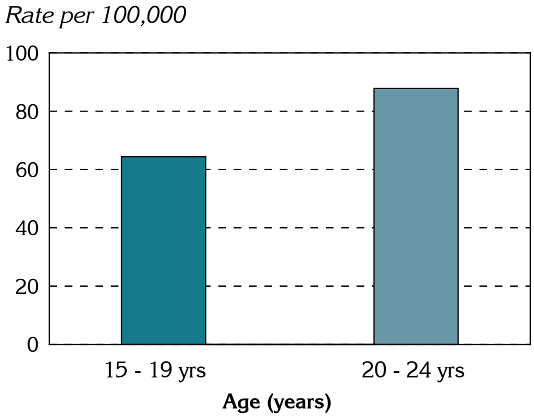
Source: Compiled in HealthWIZ from data supplied by the ABS ***Details of map boundaries are in Appendix 1.2***

Deaths of people aged 15 to 24 years from all causes, 1996-99

Non-metropolitan South Australia

People in the 15 to 19 year age group had a death rate of 64.4 deaths per 100,000 population, with a higher rate of 87.8 deaths per 100,000 in the 20 to 24 year age group (**Figure 4.5**).

Figure 4.5: Deaths from all causes, by age, non-metropolitan areas, 1996-99



Source: HealthWIZ 2002 deaths dataset, DoHA

People aged 15 to 24 years living in the non-metropolitan areas of South Australia recorded 15% more deaths than expected from the State rates (an SMR of 115). This was based on 140 deaths over the period from 1996 to 1999, of which more than three quarters (114 deaths) were of males. The major causes of death in this age group were the external causes of injury and poisoning, with a total of 104 deaths (74.3%).

The most highly elevated ratio was recorded in the ***Whyalla, Flinders and Far North*** Health Region, with an SMR of 139, indicating that there were 39% more deaths than were expected from the State rates. Ratios above the level expected were also recorded in ***Yorke, Lower North and Barossa*** (with an SMR of 134), ***Hills, Mallee and Southern*** (127), ***Eyre Peninsula*** (110) and ***Mid North*** (102).

The ***South East*** Health Region had the lowest death ratio, an SMR of 76.

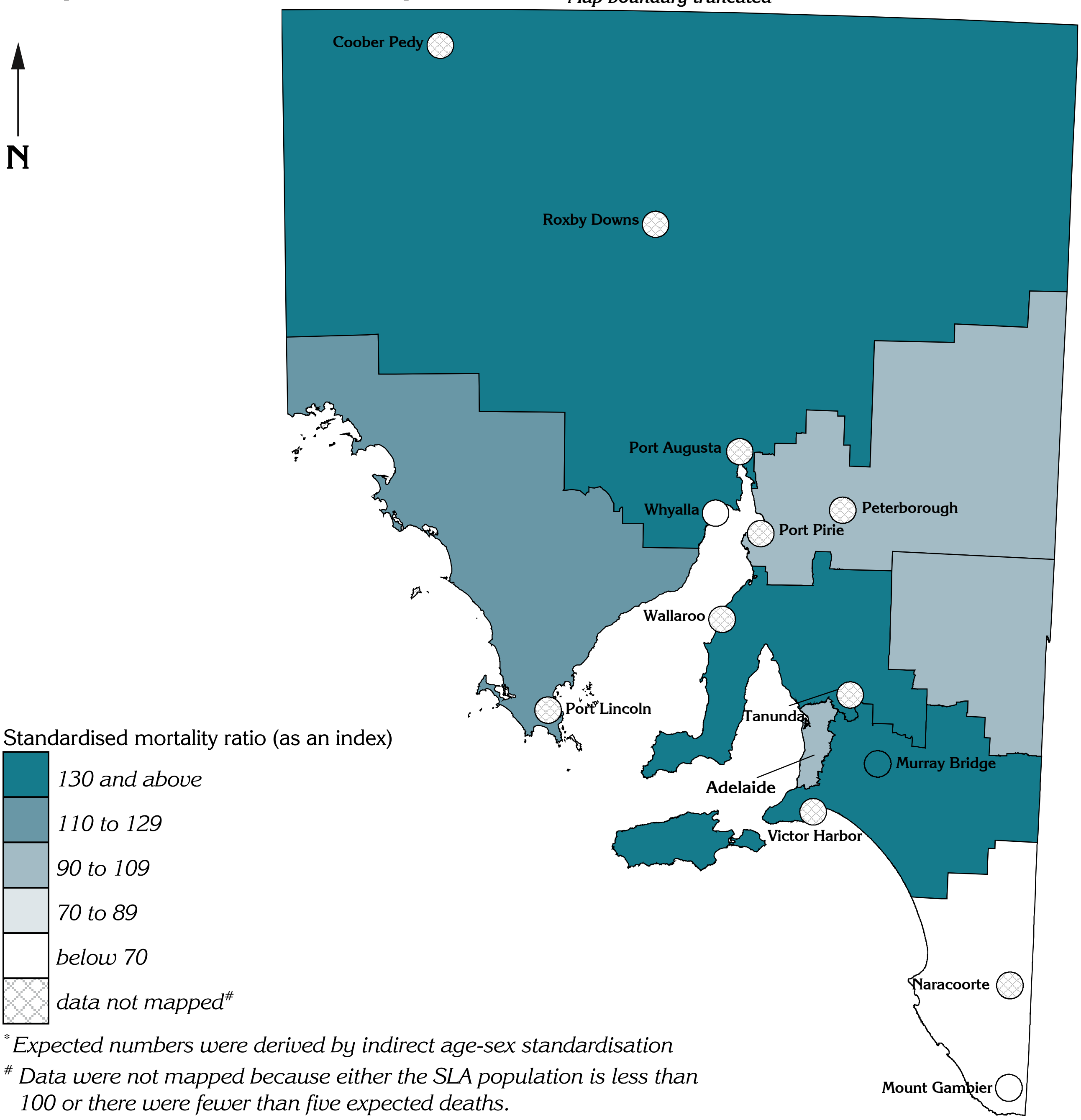
Of the towns mapped, only Murray Bridge had an elevated SMR, with more than twice the expected number of deaths at these ages (an SMR of 222** and 12 deaths). Mount Gambier and Whyalla had fewer deaths than expected, with ratios of 82 and 84 respectively.

The largest numbers of deaths among people aged 15 to 24 years in the non-metropolitan areas of South Australia were in the ***Hills, Mallee and Southern*** (37 deaths), ***Yorke, Lower North and Barossa*** (29 deaths) and ***Whyalla, Flinders and Far North*** (26 deaths) Health Regions.

The correlation analysis was not undertaken as there were too few areas with sufficient cases on which to base reliable results.

Map 4.4
Deaths of people aged 15 to 24 years from all causes, South Australia, 1996-99

Standardised mortality ratio: number of deaths in each Country Health Region compared with the number expected*

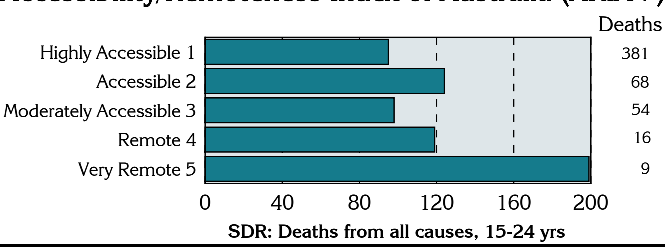


*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected deaths.

Source: Compiled in HealthWIZ from data supplied by the ABS *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



The lowest Standardised Mortality Ratio for deaths at ages 15 to 24 years was recorded in the Highly Accessible (95) areas, with higher ratios in the Accessible (124) and Remote (119) areas. The highly elevated SMR in the Very Remote areas shows there to be almost twice the number of deaths expected for a population of this age (199).

Source: Calculated on ARIA+ classification

Deaths of people aged 15 to 24 years from injury and poisoning, 1996-99

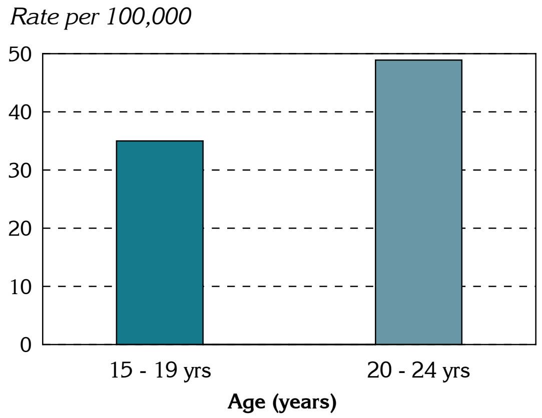
Accidental and violent deaths are classified according to the external cause of death; that is, to the circumstances of the accident or poisoning which produced the fatal injury, rather than the nature of the injury. This differs from other causes of death, which are classified according to the underlying disease or condition.

Death resulting from injury and poisoning is the leading cause of death amongst young adults in South Australia. This category includes accidents, adverse effects of drugs, suicide, homicide and other external causes. Over the period from 1996 to 1999, motor vehicle accidents accounted for almost half (44.1%) of all accidental deaths of males aged 15 to 24 years in South Australia, with deaths from intentional self harm responsible for a further one third (34.3%). The corresponding figures for South Australian females were a higher 49.3% (motor vehicle accidents) and a lower 24.6% (intentional self harm).

Adelaide

There is a considerable variation in death rates between the 15 to 19 and 20 to 24 year age groups for deaths from the external causes of injury and poisoning in Adelaide (**Figure 4.6**). People in the 15 to 19 year age group have a death rate of 35.0 deaths per 100,000 population compared with 48.9 per 100,000 in the 20 to 24 year age group.

Figure 4.6: Deaths from injury and poisoning, by age, Adelaide, 1996-99



Source: HealthWIZ 2002 deaths dataset, DoHA

There were 261 deaths from injury and poisoning, eight per cent fewer than expected from the State rates for young people in Adelaide over the period from 1996 to 1999, an SMR of 92. Over three quarters of the deaths were of were males (78.9%, 206 deaths) 21.1% (55 deaths) were females.

As would be expected (given that deaths from these causes represent a high proportion of all deaths), the spatial distribution of deaths from injury and poisoning (**Map 4.5**) is similar to that of deaths from all causes. A number of areas were not mapped for this variable as they had too few cases.

The northern SLAs of Elizabeth (with an SMR of 222**; and 14 deaths) and Munno Para (158; 15 deaths) had the most highly elevated ratios. Other elevated (although not statistically significant) ratios were recorded for young people in Port Adelaide (with an SMR of 140; and 12 deaths), Burnside (106; 11 deaths), Hindmarsh and Woodville (103; 22 deaths) and Enfield [Part A] (101; 12 deaths).

The lowest ratios were generally recorded in SLAs in inner suburban areas and to the south of the city, including Marion (with an SMR of 44*; and 8 deaths), Happy Valley (50; 5 deaths), Unley (69; 7 deaths) and Mitcham (69; 11 deaths).

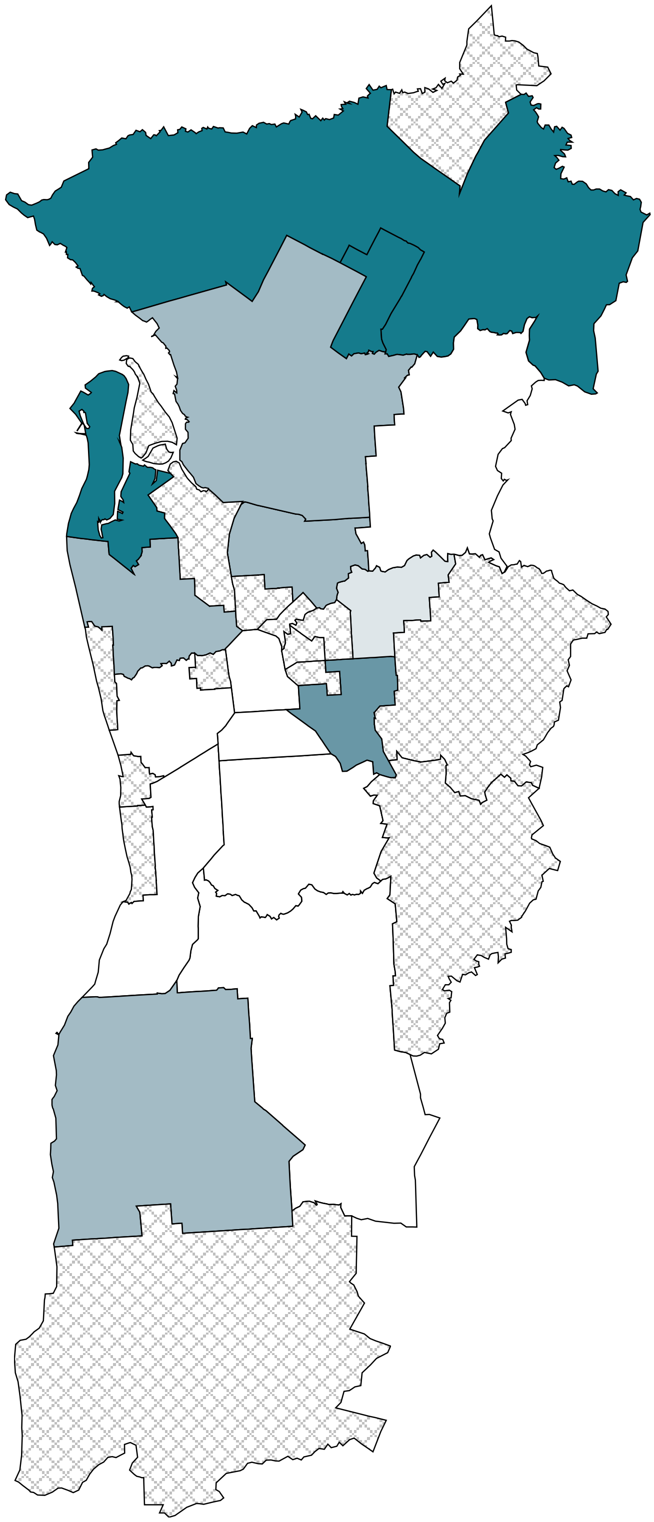
The SLA of Salisbury had the largest number of deaths from these external causes, a total of 31 deaths. Twenty or more deaths were also recorded in Noarlunga (with 25 deaths), Hindmarsh and Woodville (22 deaths) and Tea Tree Gully (20 deaths).

The correlation analysis was not undertaken as there were too many SLAs with a small number of cases.

Map 4.5
Deaths of people aged 15 to 24 years from injury and poisoning, Adelaide, 1996-99

Standardised mortality ratio: number of deaths in each Statistical Local Area compared with the number expected*

N



Standardised mortality ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected deaths.

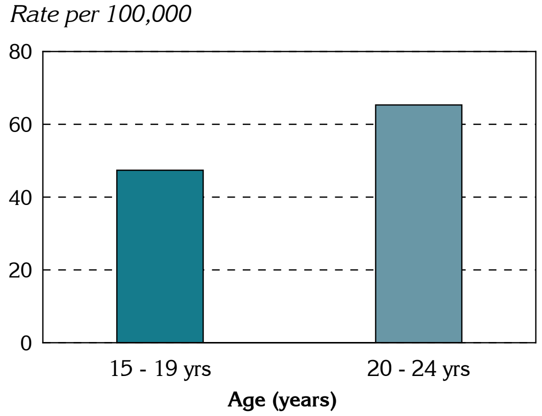
Source: Compiled in HealthWIZ from data supplied by the ABS ***Details of map boundaries are in Appendix 1.2***

Deaths of people aged 15 to 24 years from injury and poisoning, 1996-99

Non-metropolitan South Australia

There is a considerable variation in death rates between the 15 to 19 and 20 to 24 year age groups for deaths from the external causes of injury and poisoning in non-metropolitan South Australia (**Figure 4.7**). People in the 15 to 19 year age group have the lowest death rates (an average rate of 47.4 deaths per 100,000 population), compared with 65.3 deaths per 100,000 population in the 20 to 24 year age group.

Figure 4.7: Deaths from injury and poisoning, by age, non-metropolitan areas, 1996-99



Source: HealthWIZ 2002 deaths dataset, DoHA

There were 24% more deaths of 15 to 24 year old non-metropolitan residents from the external causes of injury and poisoning than were expected from the State rates, a Standardised Mortality Ratio (SMR) of 124*. In total, there were 104 deaths from these external causes, with males accounting for the majority (86.5%, 90 deaths).

The ***Hills, Mallee and Southern*** Health Region had the most highly elevated ratio for this variable, an SMR of 150*. Elevated (but not statistically significant) ratios were also recorded in the ***Whyalla, Flinders and Far North*** (an SMR of 147), ***Eyre Peninsula*** (144), ***Yorke, Lower North and Barossa*** (108) and ***Riverland*** (104) Health Regions.

The ***South East*** and ***Mid North*** Health Regions had the lowest ratios, with SMRs of 96 and 99 respectively.

The towns of Mount Gambier (with an elevated SMR of 103) and Whyalla (with an SMR of 70) were the only towns to be mapped for this variable, as there were too few cases in the other towns from which to calculate reliable results.

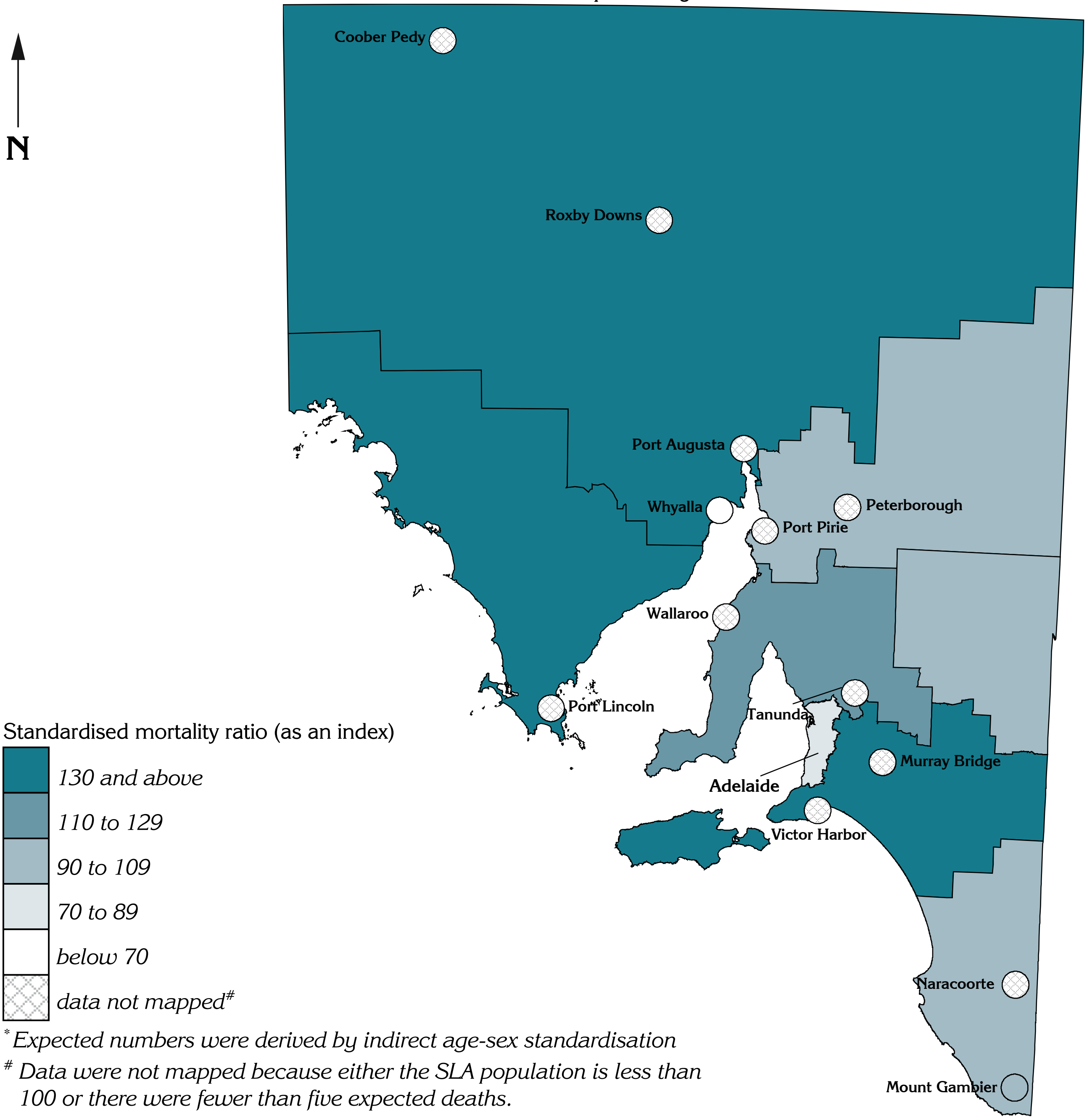
The largest numbers of deaths of people aged 15 to 24 years from the external causes of injury and poisoning were recorded in the Health Regions of ***Hills, Mallee and Southern*** (with 30 deaths), ***Whyalla, Flinders and Far North*** (19 deaths) and ***Yorke, Lower North and Barossa*** (16 deaths).

The correlation analysis was not undertaken as there were too few areas with sufficient cases on which to base reliable results.

Map 4.6
Deaths of people aged 15 to 24 years from injury and poisoning, South Australia, 1996-99

Standardised mortality ratio: number of deaths in each Country Health Region compared with the number expected*

Map boundary truncated



Standardised mortality ratio (as an index)

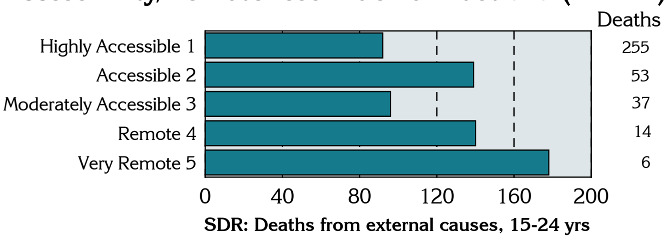
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected deaths.*

Source: Compiled in HealthWIZ from data supplied by the ABS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised Mortality Ratios (SMRs) for injury and poisoning show a similar pattern to those for all causes of death. SMRs range from a low 92 in the Highly Accessible areas to 140 in the Remote ARIA+ class and then to a highly elevated 178 in the Very Remote class.

Source: Calculated on ARIA+ classification

Deaths due to suicide, people aged 15 to 24 years

Despite being the leading cause of death amongst young people, deaths from suicide have not been mapped in this chapter. The number of recorded suicides is quite small at the SLA level, with many having no such deaths, with the possibility that mapping them will lead to misinterpretation of results. This page and the following one provide an overview of deaths recorded for suicides in the period from 1990 to 1999 in South Australia.

In Australia, deaths are classified as self-inflicted by the Coroner or a Government Medical Officer upon consideration of the evidence, but it is likely that the number of suicides is under-reported. A death intended as suicide may appear as the result of an unrelated cause, ie. a motor vehicle accident, and thus is not recorded as such by the Coroner. For example, young male residents of country areas are over represented in single motor vehicle accidents; although suicide may have been the intention in some of these cases, if there is no evidence to this effect, then they are not recorded as such.

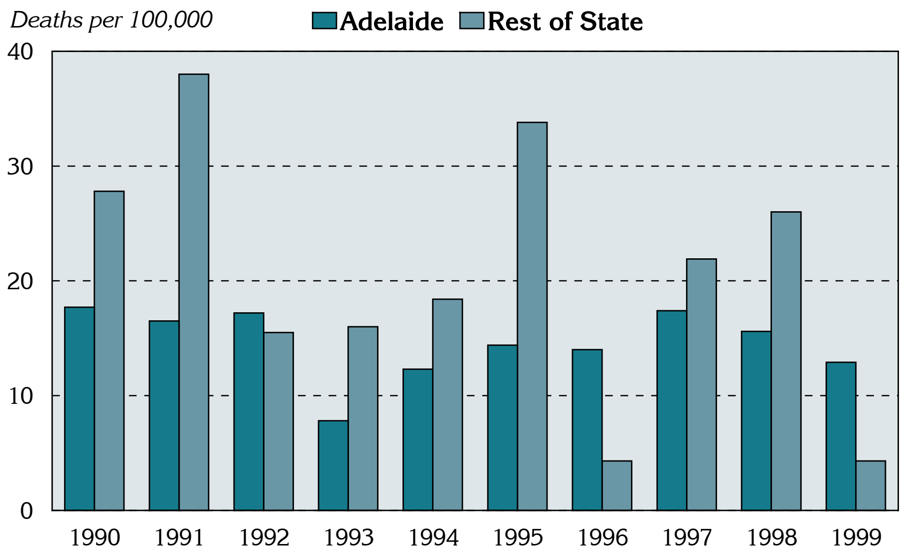
There were 338 deaths from suicide at ages 15 to 24 years in South Australia over the ten years 1990 to 1999. There has been a substantial decrease in the number of deaths recorded from suicide over this period, down by 51.1% from 45 deaths in 1990 to 22 deaths in 1999.

Males predominate in these deaths, accounting for the large majority (87.0%) of suicides between the ages of 15 and 24 years. However, research has suggested that females attempt suicide more often, but that males use more violent, and therefore more successful, means, such as firearms (Serafino et al, 1996).

Numbers of suicides not only vary by age and sex, but also by place of residence. While there were more deaths from suicide of young people in Adelaide (236 deaths) than in the non-metropolitan areas of South Australia (102) over the ten years from 1990 to 1999, Adelaide comprises almost three quarters of the State's population and so it is more informative to consider death rates, rather than absolute numbers.

The following chart shows suicide rates per 100,000 population for the years from 1990 to 1999 (**Figure 4.8**). Rates were higher in the non-metropolitan areas of South Australia in seven of the ten years of data analysed. Only in 1993, 1996 and 1999 were the rates higher in the metropolitan area. It is likely that the rates in country areas relate to factors such as a relative lack of job and training opportunities, the decline of many rural communities and the relatively larger numbers of Aboriginal and Torres Strait Islander people in the population, a group which has higher suicide rates than the non-Indigenous population.

Figure 4.8: Suicide rates of people aged 15 to 24 years, 1990 to 1999, Adelaide and Rest of State



Source: Various issues, ABS deaths bulletins

Deaths due to suicide, people aged 15 to 24 years, 1996-99

Adelaide

Over the years from 1996 to 1999, there were 14.9 deaths from suicide per 100,000 population in Adelaide at ages 15 to 24 years. However, rates vary considerably across the metropolitan area, as well as by age and sex. Both the highest rate (33.9 deaths per 100,000 population) and the largest number (56) of deaths from suicide were recorded for males aged 20 to 24 years. The next highest rates were recorded for males aged 15 to 19 years, females aged 20 to 24 years and females aged 15 to 19 years.

The highest death rate from suicide among males aged 15 to 19 years was recorded in the **Central (Western) Region** (27.8 deaths per 100,000 population, a total of seven deaths in the four years): this is more than twice the metropolitan rate for this age and sex group. The **Northern Region** had the highest death rate for males aged 20 to 24 years (41.3 deaths per 100,000 population), followed by **Central (Eastern)** (32.6) and **Central (Southern)** (31.8) **Regions**. For females in both age groups, rates were highest in the **Central (Eastern) Region**, although the absolute numbers are small and care should be taken in interpreting the results.

Non-metropolitan South Australia

The majority of deaths recorded as being the result of suicide in the non-metropolitan areas of South Australia were of males aged 20 to 24 years (19 deaths, a rate of 42.8 deaths per 100,000 population). In comparison, there were seven deaths of males aged 15 to 19 from suicide (a rate of 13.4 per 100,000) and no deaths of females from suicide.

Whyalla, Flinders & Far North Health Region recorded the largest number and highest rate of suicides at ages 15 to 24 years, with eight deaths, a rate of 28.1 deaths per 100,000 population. In the 20 to 24 year old male group, the highest rate (of any of the ages or areas shown in the table) was recorded in **Eyre Peninsula**, with 107.5 deaths per 100,000 population (four deaths over the four years). The next highest rates were recorded for residents of **Yorke, Lower North & Barossa** (54.3 deaths per 100,000 population) and **Whyalla, Flinders & Far North** (53.6 deaths per 100,000 population) Health Regions.

Table 4.5: Deaths due to suicide, people aged 15 to 24 years, 1996-99, South Australia

Health Region	15 to 19 years				20 to 24 years				Total	
	Males		Females		Males		Females			
	No.	Rate[1]	No.	Rate[1]	No.	Rate[1]	No.	Rate[1]	No.	Rate[1]
Metropolitan										
Northern	5	11.4	2	4.8	18	41.3	0	0.0	25	14.8
Central (Eastern)	7	20.2	3	8.6	15	32.6	6	13.3	31	18.6
Central (Western)	7	27.8	0	0.0	9	28.5	2	6.5	18	15.5
Southern	1	2.2	0	0.0	14	31.8	4	9.4	19	11.0
Total Metropolitan	**20**	**13.4**	**5**	**3.4**	**56**	**33.9**	**12**	**7.5**	**93**	**14.9**
Non-metropolitan										
Eyre Peninsula	0	0.0	0	0.0	4	107.5	0	0.0	4	26.9
Hills, Mallee & Southern	0	0.0	0	0.0	3	28.1	0	0.0	3	6.9
Mid North	0	0.0	0	0.0	1	32.7	0	0.0	1	7.8
Riverland	1	20.4	0	0.0	1	23.9	0	0.0	2	11.9
South East	1	11.5	0	0.0	2	25.1	0	0.0	3	9.6
Whyalla, Flinders & Far North	4	55.4	0	0.0	4	53.6	0	0.0	8	28.1
Yorke, Lower North & Barossa	1	9.5	0	0.0	4	54.3	0	0.0	5	15.9
Total non-metropolitan	**7**	**13.4**	**0**	**0.0**	**19**	**42.8**	**0**	**0.0**	**26**	**14.5**
Total	**27**	**13.4**	**5**	**2.6**	**75**	**35.8**	**12**	**6.0**	**119**	**14.8**

[1]Age standardised rates per 100,000 by region,
Source: Compiled in HealthWIZ from data supplied by the ABS

Perinatal risk factors, 1995 to 1997

The Pregnancy Outcome Unit, Epidemiology Branch, South Australian Department of Human Services, obtains data for births of at least 400 grams birthweight or 20 weeks gestation (terminations of pregnancy of at least 20 weeks gestation, most of which are for congenital abnormalities, are included). The data, provided by hospital and homebirth midwives through the Perinatal Statistics Collection, include maternal socio-demographic, medical and obstetric information, as well as characteristics and outcomes of the baby.

Studies undertaken by the Epidemiology Branch in the early 1980s on data in the Perinatal Statistics Collection identified a number of risk factors that were most predictive of adverse perinatal outcomes (see box).

Risk factors most predictive of adverse perinatal outcomes
Aboriginal maternal race; single marital status; high parity; previous stillbirth; previous neonatal death; previous pregnancy termination; few antenatal visits; young maternal age; obstetric complications; complications of labour/delivery; homebirth; low birthweight; pre-term birth; low Apgar score; prolonged time to establish regular breathing; congenital abnormality; perinatal death.

Risk factor analyses are useful for a number of reasons. Not only do they provide a range of variables for examination, but they also suggest reasons for any observed elevations in adverse perinatal outcomes. A number of these risk factors directly or indirectly reflect the socioeconomic status of the women for whom these events are recorded: for example, direct association with single, teenage and Aboriginal and Torres Strait Islander women; and indirectly with low birthweight babies, occurring more frequently among women who are of lower socioeconomic status.

Detailed analysis of the seventeen risk factors for adverse outcomes was subsequently published in 1988 (SAHC 1988) with a follow-up study published in 1995 (Taylor et al. 1995): the analysis was repeated by the Epidemiology Branch for the years from 1995 to 1997 for this atlas.

For the purposes of publication, a summary perinatal risk score has been calculated for each postcode. The score was calculated by examining the frequency with which a poorer outcome was recorded on individual risk factors (eg. percentage of mothers with low birthweight babies, or with previous stillbirths) in relation to the South Australian average. Postcodes were considered to be high risk for adverse perinatal outcomes if ten or more individual risk factors had a poorer outcome in comparison with the South Australian average.

Adelaide

Postcode areas considered to be most at risk for adverse perinatal outcomes have been mapped for each of the three periods for which the analysis has been undertaken – 1981-86, 1990-92 and 1995-97 (**Map 4.7**). Two main features are evident from a comparison of the three maps: that the number of postcode areas with ten or more elevated scores declines over the three periods of the analysis; and that some areas are present in each of the maps.

The reduction in the number of high risk postcodes over time points to an improvement in outcomes for mothers and babies in these areas. The presence of some areas in all three of the analyses indicates that women in these areas are not experiencing the quality of outcomes achieved in the State as a whole, nor are they experiencing significant improvement in maternal or perinatal outcomes. The areas are the postcodes of *Blair Athol, Darlington, Elizabeth, Elizabeth North, Ferryden Park, Greenacres* and *Woodville North*. Also of concern are the postcodes of *Christies Beach, Klemzig, O'Sullivan Beach, Rosewater, Salisbury* and *Semaphore* that were classified as at being high risk for adverse perinatal outcomes in 1990-92 and 1995-97, although not in 1981-86.

Areas which have seen an improvement in the quality of outcomes include *Alberton, Aldinga, Cowandilla, Enfield, Hindmarsh, Kilkenny, Osborne* and *Park Holme*.

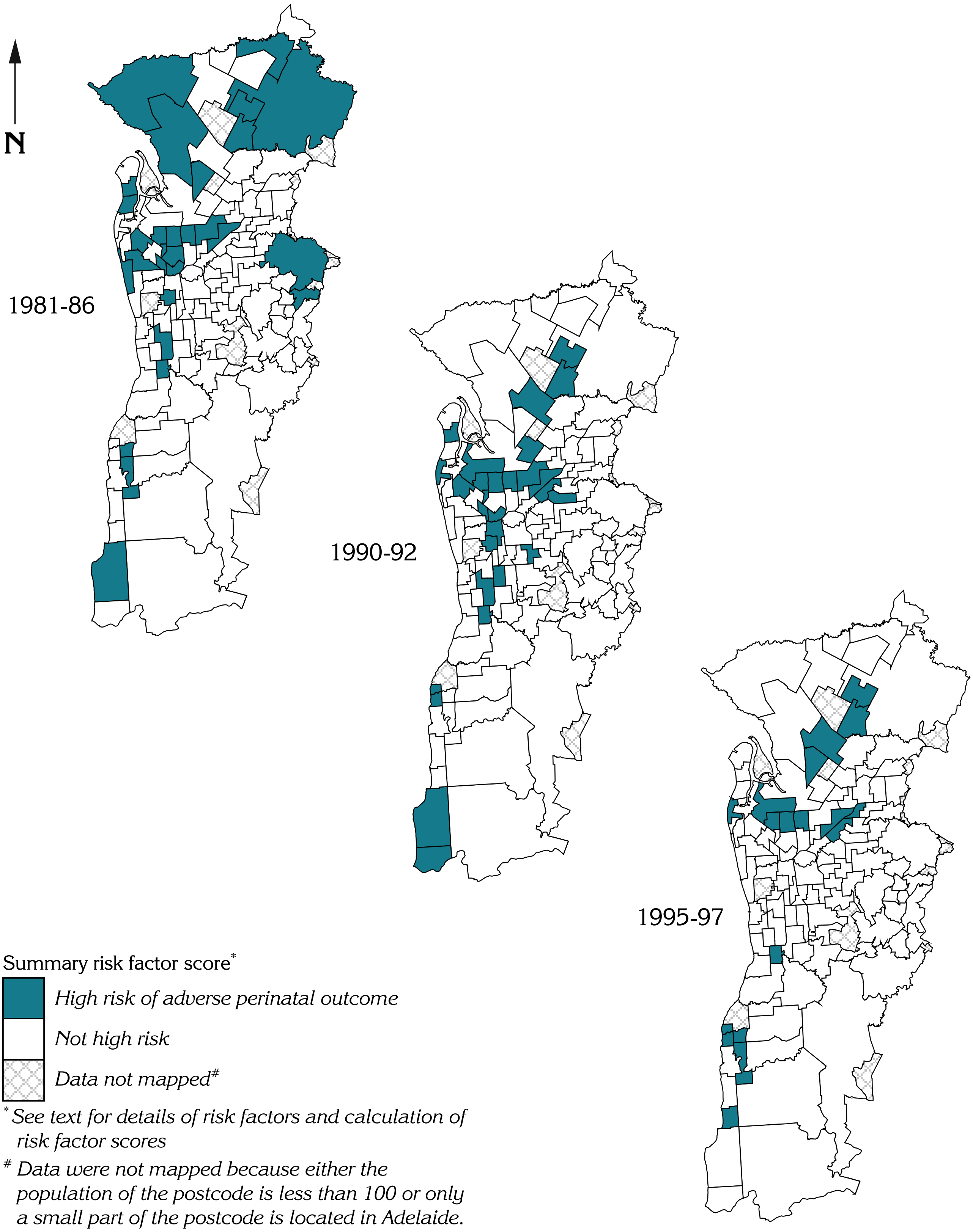
There were weak correlations at the postcode level in the metropolitan area with the indicators of socioeconomic disadvantage. These results, together with the weak inverse correlation with the IRSD (-0.46), suggest the existence at the postcode level of an association between perinatal risk factors and socioeconomic disadvantage.

Details of the number of risk factors with elevated scores in each postcode area are in Table A15 in Appendix 1.6.

Notes on this variable in non-metropolitan areas are on the following text page.

Map 4.7
Perinatal risk factors, Adelaide

Summary perinatal risk factor* score by postcode of residence of mother



Summary risk factor score*

High risk of adverse perinatal outcome

Not high risk

Data not mapped#

See text for details of risk factors and calculation of risk factor scores

 # Data were not mapped because either the population of the postcode is less than 100 or only a small part of the postcode is located in Adelaide.

Source: Compiled from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Low birthweight babies, 1995 to 1997

Low birthweight[2], calculated from data in the Perinatal Statistics Collection and included in calculations of the perinatal risk rating (described above), is a widely used indicator of mortality and of morbidity among newborn babies.

The significance of the relationship between low birthweight and mortality (of low birthweight babies) is striking. Research has shown that 14.6% of South Australian births of birthweight below 2,500 grams in 1994 were perinatal deaths, compared with a perinatal death rate of 0.99% in those with normal birthweight (2500 grams or more) (Taylor et al. 1995).

Adelaide

Of all births from 1995 to 1997 to women living in Adelaide, 6.9% were of babies weighing less than 2500 grams.

Postcodes with the highest proportions of babies born with a low birthweight are located in the inner north and north-western suburbs, as well as the outer northern and some southern areas (**Map 4.8**). Areas with fewer than five births over this period have been excluded from the analysis.

The highest proportions of low birthweight babies are recorded in the inner north and north-western postcode areas of *Ferryden Park* (with 12.8% of babies in this group), *Hindmarsh*, *Croydon* and *Nailsworth* (each 9.9%) and *Blair Athol* (9.7%); in the south at *Maslin Beach* (12.8%), *Christie Downs* (12.4%) and *O'Sullivan Beach* (10.7%); in the outer north at *Evanston* (11.6%) and *Elizabeth North* (10.7%); and in the Hills at *Blackwood Forward* (11.0%).

In contrast, relatively low proportions were recorded in postcodes scattered throughout the metropolitan area. The lowest proportions were in *Highbury* (with 2.3% of babies in this category), *Walkerville* (2.6%), *Oaklands Park* (3.6%), *Bridgewater* (3.8%), *Daw Park* (3.9%) and *St Marys* (4.0%). The Hills postcode areas of *Piccadilly*, *Carey Gully*, *Greenhill*, *Basket Range* and *Montacute* all had no babies in this category.

The largest numbers of low birthweight babies were generally in postcode areas in the outer northern and southern suburbs. Areas with more than 70 babies born with low birthweight over this period included *Salisbury* (with 198 babies), *Morphett Vale* (121 babies), *Elizabeth North* (115 babies), *Smithfield* (80 babies), *Happy Valley* (79 babies), *Elizabeth* and *Salisbury East* (both 72 babies).

There were weak correlations with a number of the indicators of socioeconomic disadvantage and weak inverse correlations with indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.49), suggest the existence of an association at the postcode level between high proportions of low birthweight babies and socioeconomic disadvantage.

Perinatal risk factors *...cont*

Non-metropolitan South Australia

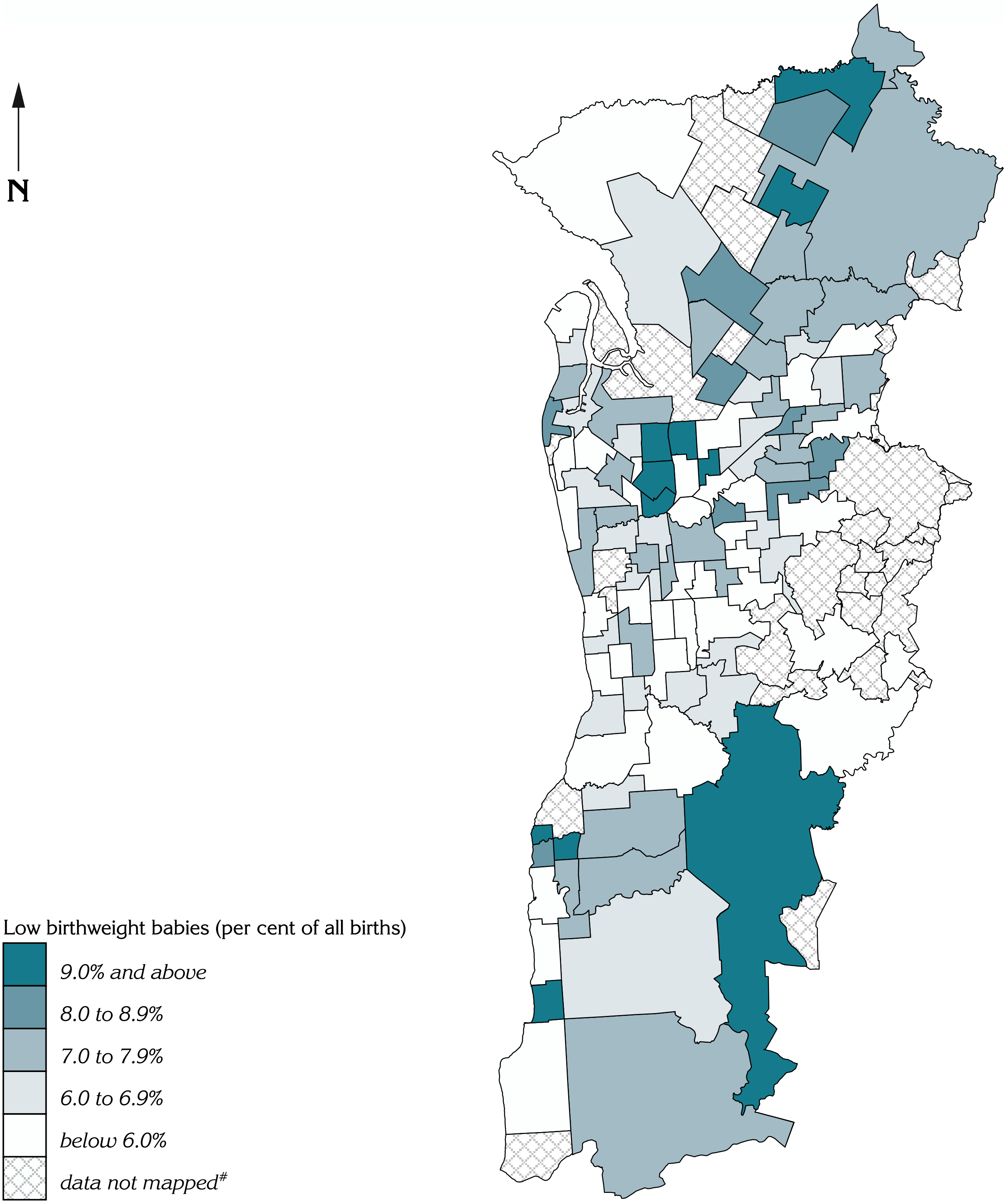
Data in the non-metropolitan areas of South Australia were only available at the postcode level for the periods 1981-86 and 1995-97. In both these periods the following postcode areas were classified as being high risk areas for adverse perinatal outcomes: Moonta (14 of the 17 risk factors had elevated scores), Whyalla, Tailem Bend and Oodnadatta (each 12), Port Augusta (11) and Leigh Creek (10).

In 1995-97 only fifteen postcode areas were classified as high risk compared with 46 in 1981-86: in addition to those mentioned above, these were Cowell (12 of the 17 risk factors had elevated scores), Glossop (12), Coober Pedy, Port Lincoln and Wallaroo (each 11), Ceduna, Kimba and Two Wells (each 10).

Details of the number of risk factors with elevated scores in each postcode area in non-metropolitan South Australia are in Table A16 in Appendix 1.6.

[2] Low birthweight babies are babies (both live-born and stillborn) weighing less than 2500 grams at birth.

Map 4.8
Low birthweight babies*, Adelaide, 1995 to 1997
Low birthweight babies*, as a percentage of all birth by area of postcode of mother



* *Low birthweight babies are babies (both live-born and still born) weighing less than 2500 grams at birth.*

\# *Data were not mapped because either, there were fewer than five births, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.*

Source: Compiled from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Low birthweight babies, 1995 to 1997

Low birthweight babies are those with a birthweight below 2,500 grams. Further information about low birthweight births is on the previous text page.

Non-metropolitan South Australia

Of all births over the four years from 1996 to 1999 to women with a postcode of usual address in the non-metropolitan areas of South Australia, 6.9% were of babies weighing less than 2500 grams.

Yorke, Lower North and Barossa and ***Whyalla, Flinders and Far North*** Health Regions (both with 7.6%) recorded the highest proportions of low birthweight babies. The ***Eyre Peninsula*** Health Region also had an above average proportion, with 7.2%.

The lowest proportion of low birthweight babies, 6.2%, was recorded in the ***Mid North*** Health Region, followed by the ***South East*** (with 6.3%), ***Hills, Mallee and Southern*** (6.7%) and ***Riverland*** (6.8%) Health Regions.

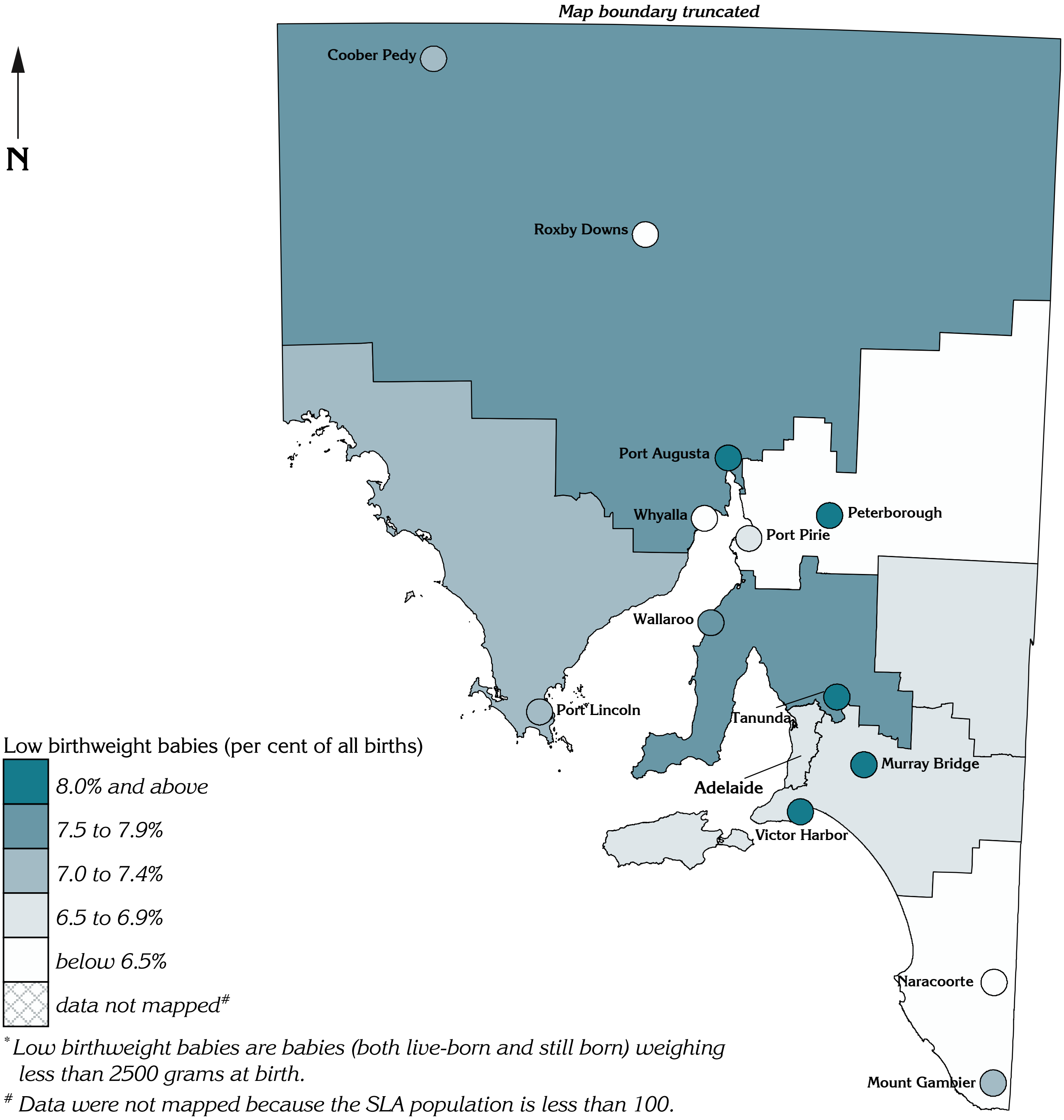
Of the towns mapped, Wallaroo recorded the highest proportion of low birthweight babies, with 17.7% of babies in this category. Relatively high proportions were also recorded in the towns of Peterborough (with 9.3%), Murray Bridge (9.2%), Port Augusta (8.9%), Tanunda (8.8%) and Victor Harbor (8.3%). In contrast, Roxby Downs (3.1%), Naracoorte (5.2%), Whyalla (6.4%) and Port Pirie (6.7%) all had proportions below the non-metropolitan average.

More than 150 babies were born with low birthweight in the ***Hills, Mallee and Southern*** (with 247 babies), ***Yorke, Lower North and Barossa*** (218 babies), ***Whyalla, Flinders and Far North*** (189 babies) and ***South East*** (168 babies) Health Regions.

The correlation analysis was not undertaken as there were too few areas with sufficient cases on which to base reliable results.

Map 4.9
Low birthweight babies*, South Australia, 1995 to 1997

Low birthweight babies* as a percentage of all births by area of residence of mother

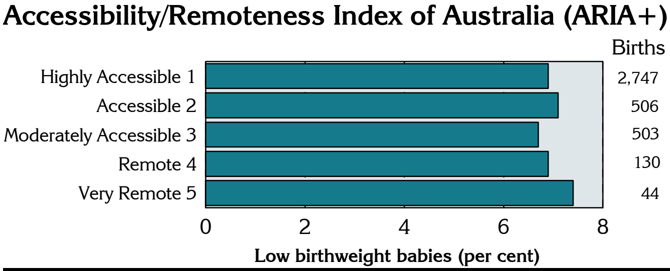


* *Low birthweight babies are babies (both live-born and still born) weighing less than 2500 grams at birth.*

\# *Data were not mapped because the SLA population is less than 100.*

Source: Compiled from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



There are two separate gradients evident in the graph of low birthweight babies. The first is between the Highly Accessible (6.9%) and Accessible (7.1%) areas; and the second is from the Moderately Accessible (6.7%, the lowest proportion) to the Very Remote (7.4%) areas.

Source: Calculated on ARIA+ classification

This page intentionally left blank

Body Mass Index

Significant physical and psychosocial health problems are associated with overweight and obesity in childhood and adolescence (Booth et al. 2001). Furthermore, obesity in childhood causes a wide range of serious complications, and increases the risk of premature illness and death later in life (Ebbeling et al. 2002).

A new definition of overweight and obesity in childhood, based on pooled international data for the Body Mass Index (BMI) has been proposed (Cole et al. 2000). The BMI is a measure of body fat, based on height and weight: it is defined as weight in kilograms divided by the square of height in metres (kg/m^2). Its value for individual children, especially at young ages, may be limited. However, when calculated for a population group (eg. four year old children), it becomes a useful indicator for monitoring change over time, as well as for monitoring variations between groups within the population.

Information on which to calculate the BMI is not available for the whole population. However, from 1995 onwards, Child and Youth Health (CYH) have collected height and weight information for children aged from four years three months to five years (collectively referred to as four year old children in the text). The measurements are taken at child care and pre-school centres by staff of CYH, achieving a coverage of 82.1% over 2000-01: coverage is calculated as the number of children measured, as a proportion of children aged from four years three months to five years. In more recent years, these data have been matched with records of birth registrations held by CYH, to improve accuracy (e.g., by removing possible duplications).

Table 4.6: Proportion of four year old children categorised as overweight and obese, by sex, South Australia, 2000-01
Per cent

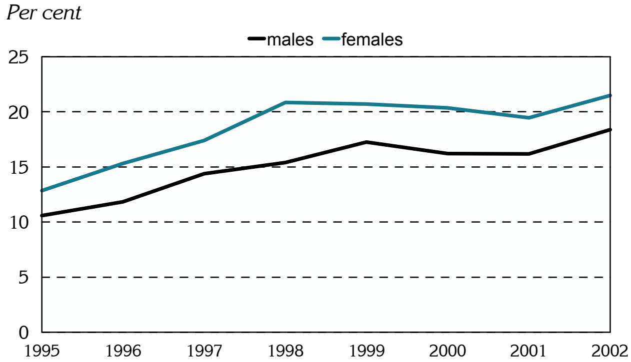
BMI category[1]	Male	Female
Overweight	11.8	14.5
Obese	4.4	5.4
Overweight & obese	16.2	19.9
Other	67.6	60.2
Total	100.0	100.0

[1]Based on the international standard definitions for overweight and obesity proposed by Cole et al. (2000). Using 4.5 years of age, the cut off point for BMI for overweight is 17.47 for males and 17.19 for females. For obesity, it is 19.26 and 19.12, respectively.
Source: Data provided by Child and Youth Health

The percentages in **Table 4.6** indicate a significant proportion of four year old children in South Australia are obese and overweight. Similar proportions of overweight and obese children in this age group have also been noted in the Health of Young Victorians Study 1997 (Booth et al. 2001).

There has been an increase in the proportion of overweight and obese four year old children from 1995 to 2002, from 12.9% to 21.5% for females; and from 10.6% to 18.4% for males (**Figure 4.9**). Similar trends have been noted in other Australian studies (Booth et al. 2001), where the prevalence of overweight and obesity among children and adolescents has been estimated to be between 19% and 23%. The prevalence of obesity in children has also risen greatly over the past two decades worldwide (Ebbeling et al. 2002). However, the Australian prevalence rates are high by international standards (Magarey et al. 2001) and, therefore, represent a significant public health concern.

Figure 4.9: Overweight and obese four year old children by sex, South Australia, 1995 to 2002



Source: Data provided by Child and Youth Health

There is a paucity of information about the BMI for particular groups of children and young people in South Australia. However, a recent study in one region of Sydney showed a significant association between BMI and ethnicity, with school students aged 5-12 years from Mediterranean cultural backgrounds having the highest BMI and those from Asian backgrounds, the lowest BMI (Lynch et al. 2000).

For Indigenous children, considerable variation exists. In the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS), both underweight and overweight were found to be more common than expected in Indigenous children, and there was greater than expected variability for all geographic locations studied (Cunningham & Mackerras 1998).

Body Mass Index for four year old children, 2000-01

The Body Mass Index (BMI) and associated measures are described on the previous page.

Over the two years 2000 and 2001, the average BMI for four year old children in Adelaide was 16.1. This figure was slightly higher for males (16.2) than for females (16.0).

More female children are overweight and obese than male children in Adelaide (19.2% for females and 15.4% for males, a difference of 24.7%) (**Table 4.7**). These levels are lower than the State average for both males and females.

Table 4.7: Proportion of four year old children categorised as overweight and obese, by sex, Adelaide, 2000-01
Per cent

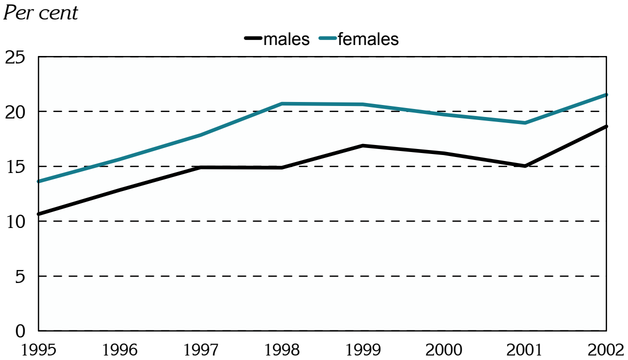
BMI category[1]	Adelaide		State	
	male	female	male	female
Overweight	10.9	13.7	11.8	14.5
Obese	4.5	5.5	4.4	5.4
Overweight & obese	15.4	19.2	16.2	19.9
Other	69.2	61.7	67.6	60.2
Total	100.0	100.0	100.0	100.0

[1]See footnote to Table 4.6.
Source: Data provided by Child and Youth Health

Adelaide

There has been an increase in the proportion of overweight and obese four year old children over the period 1995 to 2002, from 13.6% to 21.5% for females and from 10.7% to 18.7% for males (**Figure 4.10**).

Figure 4.10: Overweight and obese four year old children by sex, Adelaide, 1995 to 2002



Source: Data provided by Child and Youth Health

The sharp increase from 2001 to 2002 may, in part, reflect a change in collection practices. In 2002, staff resources were limited and those available were directed to ensuring that coverage in lower socioeconomic status areas was maintained. The effect of this was a reduction in coverage in higher socioeconomic status areas. It is not clear what impact, if any, this has had on the BMI or the proportions of overweight and obese children.

The distribution of overweight and obese children is different for males and females, with higher rates for females more heavily concentrated in the north and north-western suburbs (**Map 4.10**). Areas with low proportions were distributed throughout Adelaide, with the largest concentration for both males and females in the eastern, southern and some south-western suburbs.

Excluding areas with fewer than five four year olds, the highest proportion of overweight and obese males were recorded in *Klemzig* (with 34.5% of children in this category), *Adelaide* (28.6%), *Port Adelaide* (26.9%), *Kilkenny* (25.9%), and *Alberton, Greenacres* and *Summertown* (each with 25.0%); for females the highest proportions were recorded in *Ashton* (42.9%), *Osborne* (41.9%), *Novar Gardens* (35.7%), *Enfield* (35.3%), *Virginia* (34.6%), *Macdonald Park* and *Uraidla* (both 33.3%), *Rosewater East* (31.5%), *Prospect* (30.4%) and *Semaphore* (30.2%).

Proportions of 5.0% or below were recorded for four year old male children in *Upper Sturt* and *Gepps Cross* (both with no children in this category), *Bridgewater* (3.3%), *Christies Beach* (4.3%) and *Glenside* (5.0%); and four year old female children in *Maslin Beach* and *Gepps Cross* (both with no children in this category), *O'Sullivan Beach* (3.0%) and *Christies Beach* (4.5%).

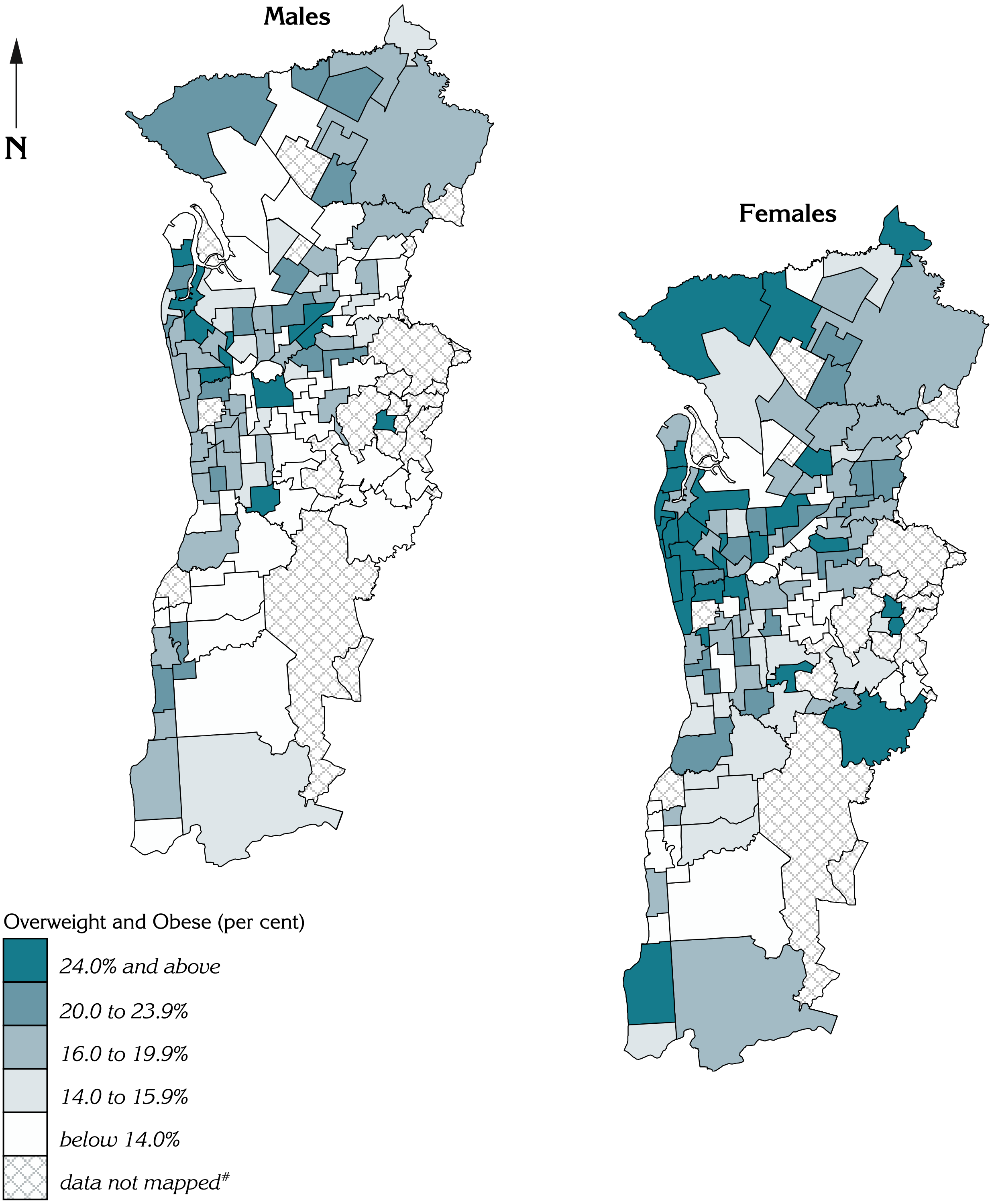
The largest numbers of overweight and obese children, for both males and females, were recorded for four year old residents of *Smithfield* (with 63 males and 69 females), *Salisbury* (57 and 82), *Elizabeth* (49 and 49), *Elizabeth North* (46 and 51) and *Morphett Vale* (40 and 59).

There were weak correlations at the postcode level with a number of the indicators of socioeconomic disadvantage.

When the data were aggregated to the SLA level, correlations of meaningful significance were found with the variables for Indigenous people aged 0 to 14 years (0.55 for males) and 15 to 24 years (0.52 for males and 0.51 females). These results, together with the weak inverse correlation with the IRSD (-0.44 for males and -0.45 for females), suggest the existence of an association at the SLA level between overweight and obese children and socioeconomic disadvantage.

Map 4.10
Body Mass Index for four year old children, Adelaide, 2000-01

Body Mass Index by postcode of residence of child



 # Data were not mapped because, either there were fewer than five children, the postcode population is less than 100 or only a small part of the postcode is located in Adelaide.

Source: Compiled from data supplied by Child and Youth Health *Details of map boundaries are in Appendix 1.2*

Body Mass Index for four year old children, 2000-01

The Body Mass Index (BMI) and associated measures are described on page 173.

Over the two years 2000 and 2001, the average BMI for four year old children in the non-metropolitan areas of South Australia was 16.2. This figure was slightly higher for males (a BMI of 16.4) than for females (16.0).

The proportion of overweight and obese children in the non-metropolitan areas of the State (21.5% for females and 18.0% for males) is higher than in Adelaide (19.2% for females and 15.4% for males). The difference is greater for males (16.9% higher in non-metropolitan areas) than for females (12.0% higher).

Table 4.8: Proportion of four year old children categorised as overweight and obese, by sex, Rest of State, 2000-01
Per cent

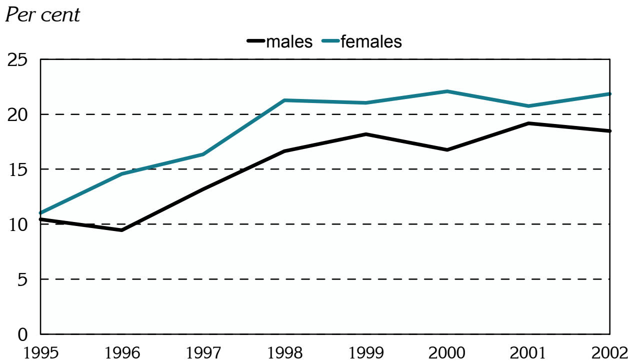
BMI category[1]	Rest of State		State	
	male	female	male	female
Overweight	13.6	16.3	11.8	14.5
Obese	4.3	5.3	4.4	5.4
Overweight & obese	18.0	21.5	16.2	19.9
Other	64.1	56.9	67.6	60.2
Total	100.0	100.0	100.0	100.0

[1]**See footnote to Table 4.6.**
Source: Data provided by Child and Youth Health

Non-metropolitan South Australia

There has been an increase in the proportion of overweight and obese four year old children from 1995 to 2002, from 11.0% to 21.9% for females and from 10.4% to 18.5% for males (**Figure 4.11**). The overall level is higher than in the metropolitan area.

Figure 4.11: Overweight and obese four year old children, Rest of State, 1995 to 2002



Source: Data provided by Child and Youth Health

There is no clear pattern in the distribution of overweight and obese children in the non-metropolitan areas, although rates for females are generally higher in the towns (**Map 4.11**).

The Unincorporated area of Flinders Ranges recorded the highest proportion of overweight and obese males (at 57.8%), while the highest proportion for females was recorded in the SLA of Lacepede (50.7%). The SLAs of Elliston (with 42.3% of males in this category), Lacepede (36.1%), Tumby Bay (34.4%) and Le Hunte (30.8%) recorded the next highest proportions among four year old males, while similarly high proportions among four year old females were recorded in Copper Coast (34.8%), Wattle Range – West (32.4%), Port Lincoln (32.0%), Lower Eyre Peninsula (31.6%), Port Pirie City (31.1%) and Loxton Waikerie – West (30.9%).

Residents of Yankalilla, Mount Barker Balance and Cleve had the lowest proportions for males, of 4.6%, 5.1% and 6.7% respectively. Relatively low proportions for females were recorded in Cooper Pedy (with no children in this category), Elliston (4.4%), Kangaroo Island (8.7%), Berri and Barmera - Barmera (9.3%) and Unincorporated Far North (11.1%).

The low BMIs in Coober Pedy and Unincorporated Far North may reflect the high prevalence of underweight in Indigenous children living in these remote areas, as reported in numerous studies over recent decades (e.g., Kirke 1969; Rousham & Gracey 1997). However, as access by Indigenous children in some remote communities to Child and Youth Health staff has been limited in the past, particularly in the remote north-west of the State, this may also reflect a lack of data. Coverage of CYH services to these remote areas is now being improved.

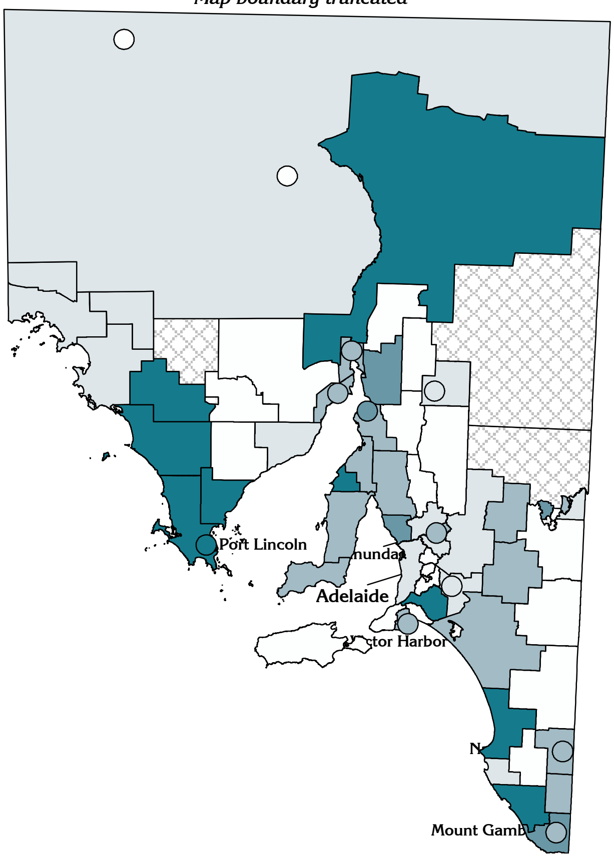
The largest number of overweight and obese children, for both males and females, were recorded for four year old residents of Mount Gambier (66 males and 69 females), Port Pirie City (57 and 61) and Whyalla (54 and 60).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia of an association between BMI and socioeconomic status.

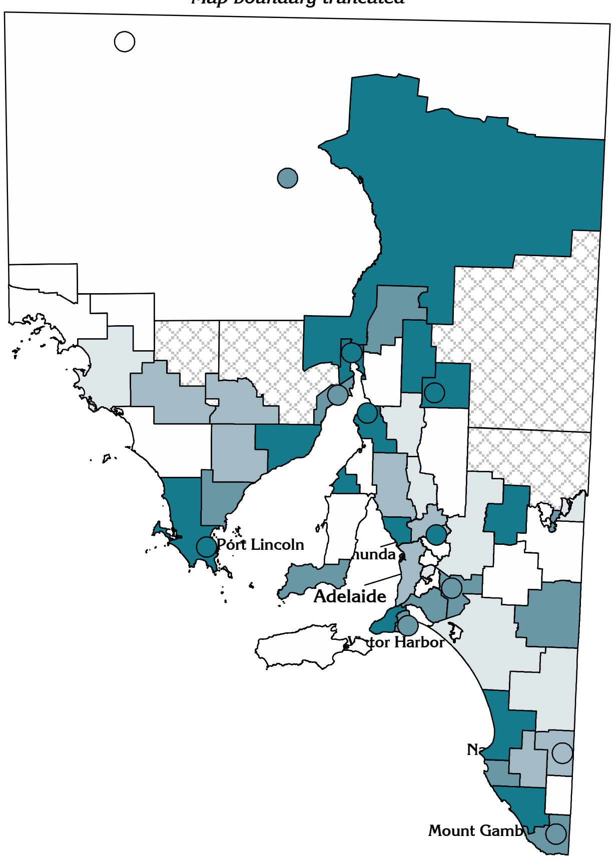
Map 4.11
Body Mass Index for four year old children, South Australia, 2000-01

Body Mass Index by Statistical Local Area of residence of child

Males



Females



Overweight and Obese (per cent)

- *16.4% and above*
- *16.2 to less than 16.4%*
- *16.0 to less than 16.2%*
- *15.8 to less than 16.0%*
- *below 15.8%*
- *data not mapped#*

 # Data were not mapped because there were fewer than five children or the SLA population is less than 100.

Source: Compiled from data supplied by Child and Youth Health ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)

The proportion of overweight and obese four year olds increases steadily over the first four ARIA+ categories, from 15.4% to 19.4% for males and from 19.1% to 23.1% for females. The proportions decreased in the Very Remote areas, to 19.1% for males and to a very low 11.4% for females.

Source: Calculated on ARIA+ classification

This page intentionally left blank

Child abuse and neglect

Child abuse and neglect is a significant issue in South Australia. Information regarding cases of child abuse and neglect was obtained from Family and Youth Services (FAYS) in the Department of Human Services. Reports of concern about a child may be made to FAYS by someone in the community, by a professional mandated by law to report suspected abuse and neglect, or by an organisation that has contact with the family or child. These reports may relate to abuse and neglect or to broader family concerns such as economic problems or social isolation. In South Australia, the mandatory reporting of suspected child abuse and neglect to FAYS is governed by the *Children's Protection Act, 1993*.

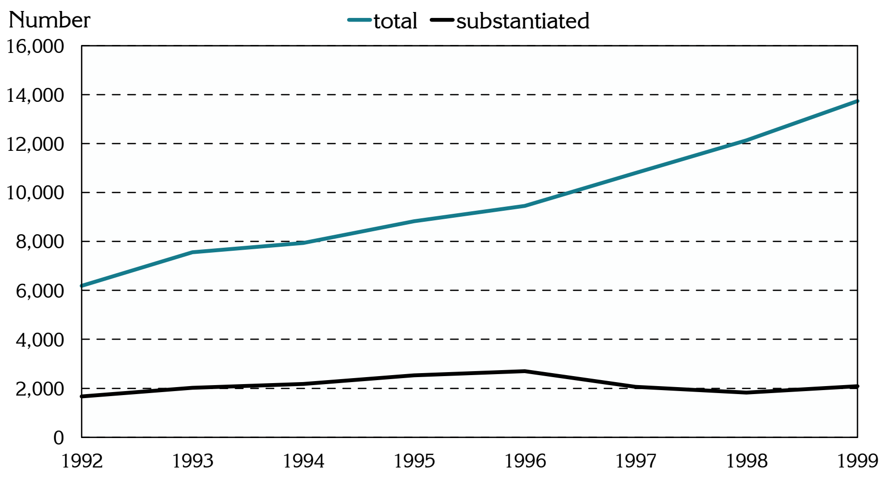
Workers in FAYS screen reports and may refer some to other agencies. Those reports that are deemed appropriate for FAYS are further assessed to determine if action is required. Such reports are generally classified as either a family support issue or a child protection 'notification'. A child protection notification is assessed by FAYS to determine whether it requires an investigation; whether it should be dealt with by other means, such as referral to other organisations or to family support services; or whether no further protective action is necessary or possible. An investigation is the process whereby FAYS obtains more detailed information about a child who is the subject of a notification, and makes an assessment of the degree of harm, or risk of harm, to the child.

After an investigation has been finalised, a notification is classified as a 'substantiated case', or as 'not substantiated'. The numbers of notified (total cases) and of substantiated cases are shown in **Figure 4.12**. Cases remained relatively stable, dropping to 2,082 cases in 1999 after a relatively small increase up to 1996. Note that trends should be interpreted carefully, as changes in policies and practices over the period may have impacted on the numbers; for example, the introduction of structured risk assessment tools to help workers identify children in high-risk circumstances (Cashmore 2001) and a centralised intake system to improve the consistency of response by FAYS. The increase in the number of notifications may also reflect an increase in the number of child protection matters that are notified (for example, an increased awareness about child abuse and neglect in the community); and an increase in the number of children who require a child protection response (for example, through an increase in the incidence of child abuse and neglect, or inadequate parenting causing harm to a child).

However, while the notification rates have risen, the rates of re-notification have also increased, indicating that many children and young people are being 'recycled' through the child protection system (Layton 2003). This highlights the ineffectiveness of the current intervention system for many children and young people, and the urgent need for more comprehensive, sustained and alternative solutions.

It is likely that there is still significant under-reporting of child abuse and neglect. However, Indigenous children are clearly over-represented in the child protection system (see page 182). The rate of Indigenous children who were the subjects of substantiations, for example, was more than seven times the rate for other children in South Australia in 2000/01 (AIHW 2002).

Figure 4.12: Total and substantiated cases of child abuse and neglect, South Australia, 1992 to 1999



Source: Compiled from data supplied by DHS

Substantiated cases of child abuse and neglect, children aged 0 to 19 years, 1996-1999

The data presented are of numbers of substantiated cases of child abuse and neglect, not of individual children. Thus, if a child is the subject of more than one substantiated notification, then they will appear in the statistics more than once. Data not coded by age or by area were excluded from the analysis.

In assessing variations between areas, readers should also bear in mind that there is likely to be an overall under-reporting of child abuse and neglect in these data.

Adelaide

There were 5,790 substantiated cases of child abuse and neglect of children aged 0 to 19 years in Adelaide over the period from 1996 to 1999, three per cent fewer than were expected from the State rates (a Standardised Ratio (SR) of 97*). Just over half of these cases were of females (52.7%).

In general, the distribution of standardised ratios for substantiated cases of child abuse and neglect across Adelaide closely follow the pattern of socioeconomic disadvantage displayed in a number of the maps in Chapter 3. Postcode areas with the highest ratios were primarily those in the north-western and northern suburbs of the city (**Map 4.12**).

Postcode areas with more than twice the number of cases expected were *Woodville North* (with an SR of 410**, more than four times the State rate), *Adelaide* (409**), *Ferryden Park* (404**), *Elizabeth North* (365**), *Blair Athol* (360**), *Old Noarlunga* (299**), *O'Sullivan Beach* (286**), *Christies Downs* (281**), *Enfield* (228**), *Darlington* (226**), *Elizabeth* (218**), *Port Adelaide* (210**), *Rosewater East* (206**) and *Osborne* (203**). Highly elevated ratios were also recorded for children and young people in *Hackham* (200**), *Klemzig* (179**), *Greenacres* (166**), *Park Holme* and *Seaton* (both 165**) and *Woodville* (163**).

While many postcode areas were not included in the analysis due to the small number of substantiated cases, there remains a distinctive pattern of low-rating areas concentrated in a band extending from the north-eastern suburbs to the outer southern suburbs. In areas with more than 20 substantiated cases of child abuse and neglect, the lowest ratios were recorded in *St Agnes* (with a standardised ratio of 32**; and 29 cases), *Happy Valley* (32**; and 72 cases), *Reynella* (32**; and 22 cases), *O'Halloran Hill* (34**; and 55 cases), *Daw Park* (34**; and 23 cases), *Golden Grove* (43**; and 43 cases), *Glenelg* (43**; and 22 cases), *Athelstone* (48**; and 26 cases), *Fairview Park* (48**; and 23 cases) and *Wynn Vale* (50**; 32 cases).

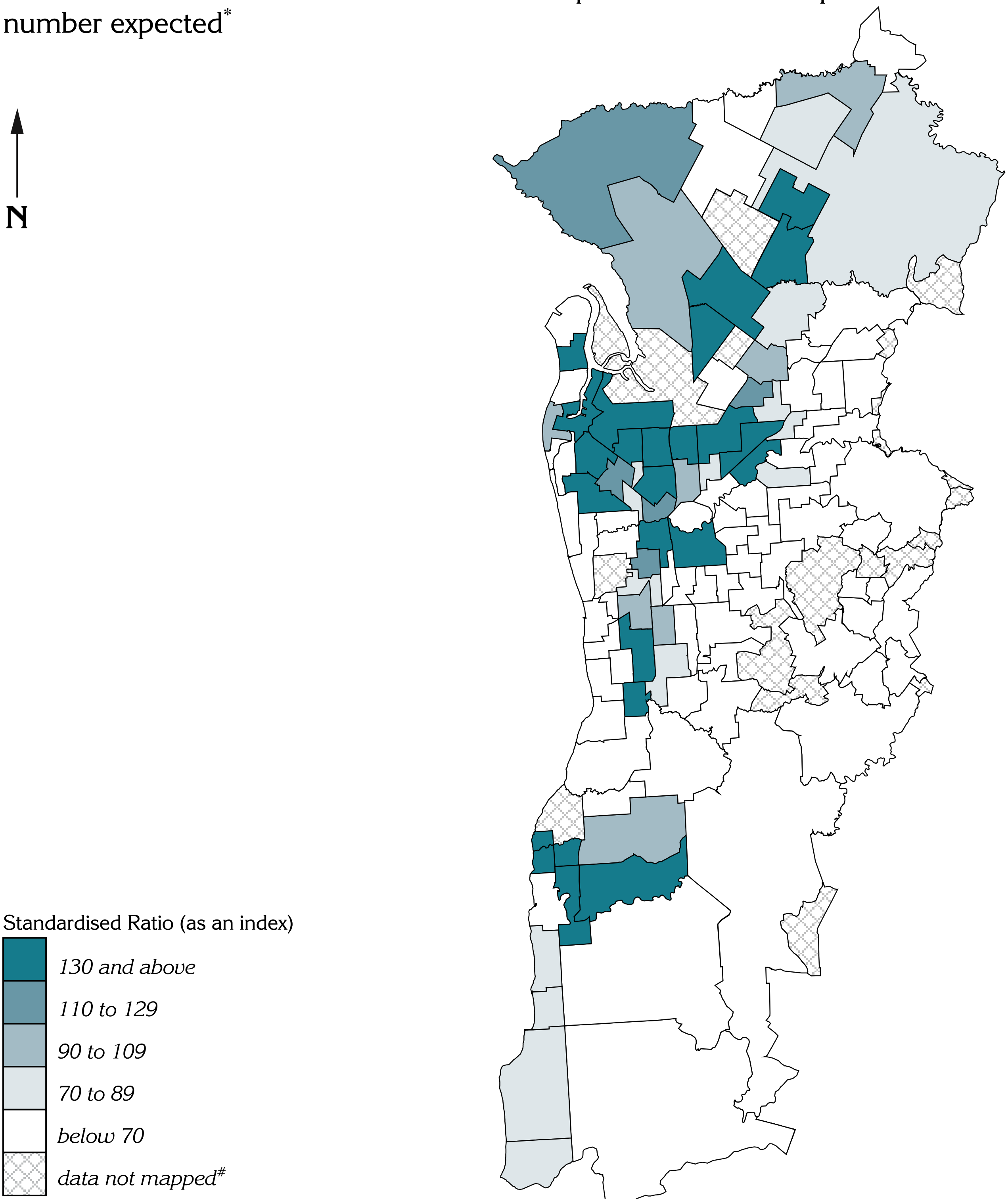
The largest numbers of substantiated cases of child abuse and neglect over this period were recorded in the outer northern suburbs of *Elizabeth North* (with 492 cases), *Salisbury* (400 cases) and *Elizabeth* (271 cases), and in the outer southern postcode areas of *Morphett Vale* (222 cases) and *Hackham* (212 cases).

There were correlations of substantial significance with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.86), dwellings rented from the SA Housing Trust (0.82), low income families (0.78) and single parent families (0.76). Inverse correlations of meaningful significance were recorded with the variables for publicly assessed (-0.61) and school assessed (-0.58) subject achievement scores. These results, together with the inverse correlation of substantial significance with the IRSD (-0.81), indicate an association at the postcode level between substantiated cases of child abuse and neglect, and socioeconomic disadvantage.

The correlation analysis also revealed a negative association with indicators of high socioeconomic status, with inverse correlations recorded with the variables for female labour force participation (-0.76), high income families (-0.63) and managers and administrators, and professionals (-0.56).

Map 4.12
Substantiated cases of child abuse and neglect, children aged 0 to 19 years, Adelaide, 1996-1999

Standardised Ratio: number of cases in each postcode area compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the SLA population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected cases.

Source: Compiled from data supplied by DHS — **Details of map boundaries are in Appendix 1.2**

Substantiated cases of child abuse and neglect, children aged 0 to 19 years, 1996-1999

Non-metropolitan South Australia

The data presented are of numbers of substantiated cases of child abuse and neglect, not of individual children. Thus, if a child is the subject of more than one substantiated notification, then they will appear in the statistics more than once. Data not coded by age or by area were excluded from the analysis.

There were 2,751 substantiated cases of child abuse and neglect in the non-metropolitan areas of South Australia over the four years from 1996 to 1999. The number of substantiated cases was ten per cent higher than expected from the State rates, an SR of 110**. Thus the non-metropolitan areas of the State have a higher rate of substantiated cases of child abuse and neglect than in Adelaide.

The areas with the highest rates of substantiated cases of child abuse and neglect were largely in the urban centres, or in the State's far north and west (**Map 4.13**). SLAs with more than twice the number of cases expected from the State rates were Coober Pedy (with an SR of 448**, almost four and a half times the State rate), Unincorporated West Coast (372**), Ceduna (333**), Port Augusta (296**), Berri (281**), Unincorporated Far North (243**), Mount Gambier (C) (239**), Unincorporated Far North (236**), Port Pirie (227**) and Murray Bridge (207**). Ratios elevated by 50% or more were recorded in the mid northern SLA of Pirie (196**); to the south-east of the city in Meningie (191**) and Robe (154**); in the Riverland SLAs of Paringa (183**) and Renmark (156**); and on the Eyre Peninsula in Port Lincoln (151**).

Excluding areas with fewer than 20 substantiated cases, the lowest ratio was recorded in Mount Barker, with 54% fewer cases than were expected from the State rates (an SR of 46**). The next lowest ratios were recorded in Barossa (51**), Loxton (58**), Naracoorte (61*), Millicent (69*), Onkaparinga (71*), Port Elliott and Goolwa (81) and Victor Harbor (85).

The largest numbers of substantiated cases of child abuse and neglect in the non-metropolitan areas of the State were recorded in the towns of Port Augusta (with 288 cases), Mount Gambier (270 cases), Murray Bridge (221 cases), Whyalla (208 cases), Port Pirie (198 cases) and Port Lincoln (125 cases).

Correlations of statistical significance were recorded with the variables for people aged 0 to 14 years living in dwellings with no motor vehicles (0.78) and dwellings rented from the SA Housing Trust (0.62); Indigenous children aged 0 to 14 years (0.54); and people who left school at age 15 years or earlier (0.50). These results, together with the inverse correlation with the IRSD (-0.72), indicate an association at the SLA level between high rates of substantiated child abuse and neglect and socioeconomic disadvantage.

The areas with the highest rates of substantiated cases of child abuse and neglect are also the areas where there are higher proportions of Indigenous residents. While the quality of the data on Indigenous status varies between States and Territories, Aboriginal and Torres Strait Islander children are clearly over-represented in the child protection system (AIHW 2002). The rate of Indigenous children who were the subjects of substantiations, for example, was more than seven times the rate for other children in South Australia in 2000/01 (AIHW 2002). Aboriginal and Torres Strait Islander children are also much more likely to be the subject of a substantiation for neglect than other children (AIHW 2002). For example, in South Australia, 52% of substantiated cases concerning Indigenous children were for neglect, compared with 31% of other children in 2000/01.

The reasons for the over-representation of Aboriginal and Torres Strait Islander children in child protection substantiations are complex (AIHW 2002). The report, *Bringing Them Home* (National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from their Families: HREOC 1997), examined the effects of child welfare policies on Indigenous people. It noted that some of the underlying causes of the over-representation of Aboriginal and Torres Strait Islander children in the child welfare system included the intergenerational effects of previous separations from family and culture, the poor socioeconomic status of Indigenous families, and cultural differences in child-rearing practices (HREOC 1997).

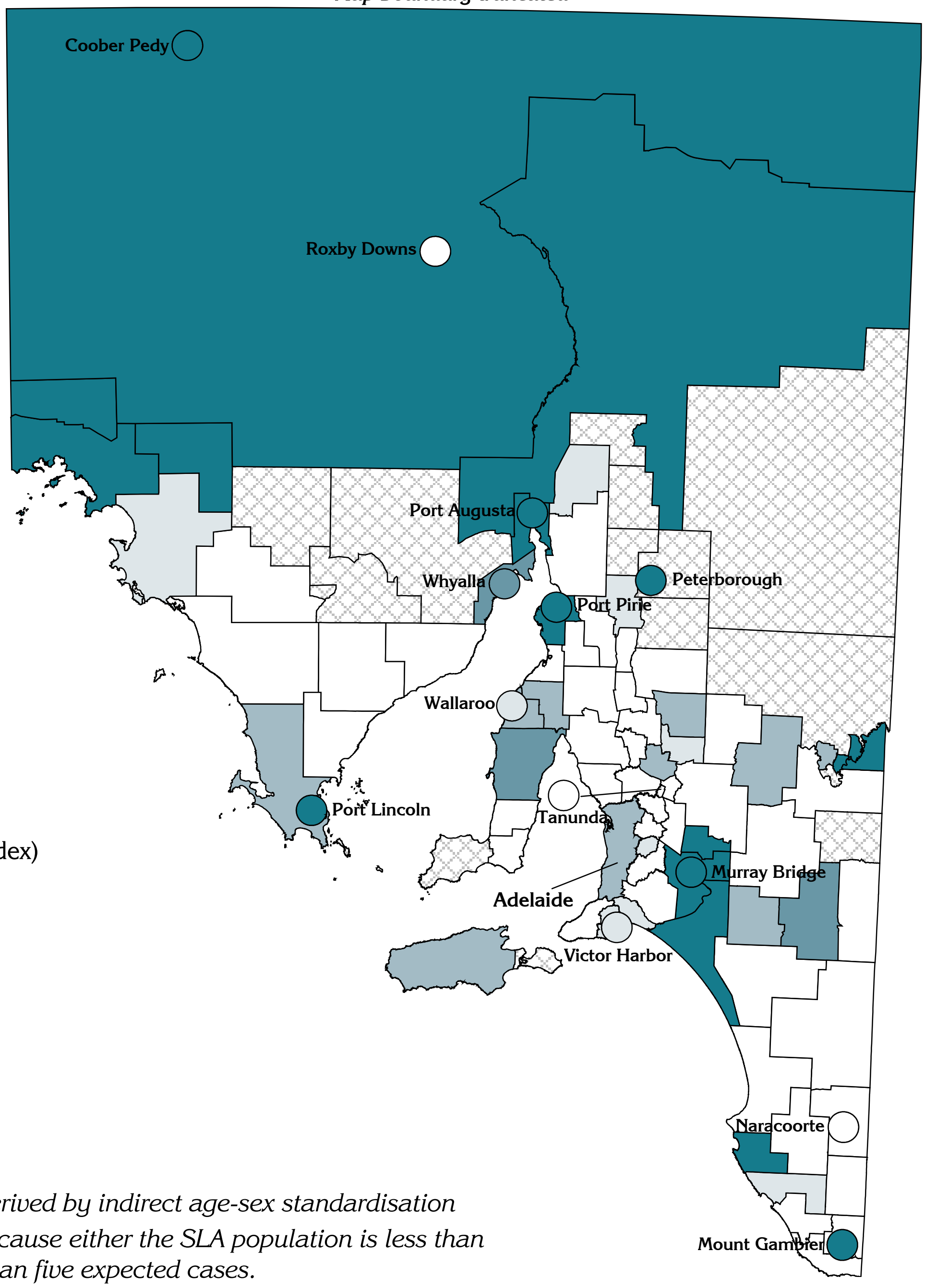
It is, therefore, likely that the greater proportions of Indigenous people resident in the areas represented as Moderately Accessible and Very Remote in ARIA+ contributed significantly to the resulting highly elevated Standardised Ratios (see graph opposite).

Map 4.13
Substantiated cases of child abuse and neglect, children aged 0 to 19 years, South Australia, 1996-1999

Standardised Ratio: number of cases in each Statistical Local Area compared with the number expected*

Map boundary truncated

N



Standardised Ratio (as an index)

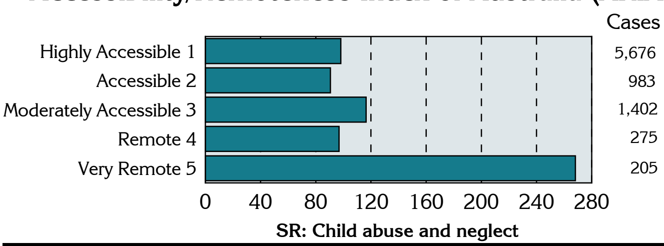
130 and above
110 to 129
90 to 109
70 to 89
below 70
data not mapped#

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected cases.*

Source: Compiled from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The lowest rates of substantiated cases of child abuse and neglect were recorded in the Accessible (with a Standardised Ratio of 91) and Remote (97) areas, with a higher ratio in the Moderately Accessible (116) areas. The highly elevated SR in the Very Remote areas represents more than two and a half times the number of cases expected from the State rates (an SR of 268).

Source: Calculated on ARIA+ classification

This page intentionally left blank

5 Utilisation of health and welfare services

Introduction

The analysis of data concerning the usage of health and welfare services by young South Australians is important for a number of reasons. At a basic level, it provides an indicator of usage rates among this sub-group of the population, highlighting how usage may vary by age, sex and socioeconomic status. Such variations are significant because they raise a number of important questions regarding interpretation of the rates. For instance, variations in usage rates could indicate differences in the need and demand for health services, inequality in geographical or financial access to services or, alternatively, differentials in the quality of information and care provided to the client.

Data analysis by area and over time can also be of significance to health planners and policy makers. Such information can assist in showing the consequences of the introduction of particular policies and be used to reveal mismatches between service provision and demand. Further, detailed data on health service usage can be used to inform discussion and development of theory concerning the link between health and other social variables, such as education.

It has been known for some time that the most disadvantaged groups make the most use of primary and secondary health services (especially when there is universal access to services) and make the least use of preventative services. It is also clear that their poorer health status largely explains their greater use. Details of some of the differentials evident in the earliest Australian data are shown in **Table 5.1.**

Table 5.1: Health service use by socioeconomic disadvantage of area and sex, Australia, late 1980s
Note: First quintile is high socioeconomic status and fifth quintile is low socioeconomic status

Age group (years)	Rate/ratio for quintile of socioeconomic disadvantage of area			
	Males		Females	
	1st quintile	5th quintile	1st quintile	5th quintile
Children (0 to 14 years)				
hospital episodes	1.00	0.89	1.00	2.21
doctor visits	1.00	1.02	1.00	1.16*
dental visits	1.00	0.80**	1.00	0.59***
Youth (15 to 24 years)				
hospital episodes	1.00	1.30	1.00	1.16
doctor visits	1.00	1.25**	1.00	1.18**
dental visits	1.00	0.70***	1.00	1.01

Statistical significance: the greater the number of * the higher the level of significance:
$p < 0.05$: ** $p < 0.01$: *** $p < 0.001$
Source: Mathers, C. Health Monitoring Series Nos. 3 and 4, Australian Institute of Health and Welfare, AGPS, Canberra, 1995 and 1996

Data mapped

The health and welfare services described in this chapter include public acute and private hospitals, Family and Youth Services (FAYS), one-to-one community health and community mental health services, services provided by general medical practitioners (GPs) and immunisation of children at 12 months of age. These are services for which data necessary for analysis at a small area level can be obtained: such data include the age, sex and postcode or Statistical Local Area (SLA) of usual residence of the patient or client.

Measure mapped

Age-sex standardised ratios have been calculated and mapped for admissions to hospital and use of health and welfare services by place of usual residence of the patient or client, to illustrate the extent of variation in health service use from State-wide rates. A brief description of the technique of standardisation, its purposes, and method of calculation, is in Appendix 1.3. For immunisation rates, the measure mapped is the proportion of children at one year of age who are fully immunised.

Variables mapped

The variables mapped represent only a selection of the full range of variables that could potentially be mapped from each data set. Many potentially useful variables have been excluded due to the relatively small numbers of cases available for analysis at the small area level. Additionally, there is a range of services for which data are not available in a form suitable to be mapped. These services include, among others, information on dental service usage and dispensing of prescribed pharmaceutical items by type of medication.

Therefore, the variables mapped are those for which an area dimension (eg. postcode) is available and that:

- have a sufficient number of cases for analysis at the small area level;
- represent a significant proportion of the activity for the topic;
- are more prevalent among a particular population group;
- have a distribution which varies regionally; or
- for which occurrences (admissions to hospital, use of services) are known to be associated with socioeconomic status.

Gaps and deficiencies in the data

Data collections

A major gap in the available data is that only the age and sex of patients of GPs are available at the small area level. There is, for example, no information at a small area level for consultations with GPs as to reason for attendance (eg. patient is unwell and nature of illness, has an injury, or is seeking advice), type of services provided (eg. patient referred to other health practitioner, pharmaceutical drugs prescribed or health advice given), or outcome (eg. patient referred to other health practitioner, course of treatment established). The lack of information on GP services represents a major gap in our ability to describe the work of these important primary care providers, to understand the appropriateness of the services provided, and to assess the outcomes achieved.

Other major gaps in the availability of service usage data at the small area level are those describing:

- services provided to those using public acute hospital outpatient clinics and accident and emergency departments (a majority of these services are specialist medical consultations);
- services provided by specialist public psychiatric hospitals and other specialist mental health services;
- services provided through community based care (eg. community health services, including community mental health services), domiciliary care services, disability support services and home based nursing and care services;
- health promotion and other public health programs, as well as information on community knowledge, attitudes and behaviours as to health, health status and health risks; and
- the dispensing of prescribed pharmaceutical items, especially by type of medication.

Other data issues

Due to inadequate identification of Indigenous people in the hospital inpatient collection, admissions to hospital of Indigenous people remain understated and have not been mapped separately. Some information as to the number and rate of episodes of hospitalisation for Indigenous children is available in the *Statistical Profile of Children & Young People* (DHS 2001b).

As discussed in Chapter 2, the lack of data items such as education or income in health and welfare statistics collections and the consequent inability to identify and analyse socioeconomic status directly is a major deficiency in the Australian data. Thus, the socioeconomic status of the area of usual residence of the client or patient is used as a proxy for the socioeconomic status of the client or patient. The limitations of this approach are discussed in Chapter 2, Methods, under the heading Major limitations, Usual residence.

An over-riding deficiency in the hospital inpatient data is the lack of a unique identifier to allow for the analysis of data for individuals rather than admissions. This is discussed in more detail under Deficiencies in the admissions data (page 191).

Admissions to hospital

Introduction

Information available for admissions (see box) includes the age, sex, diagnoses and surgical and other procedures as recorded in the patient's case notes at the time of discharge, transfer or death. Importantly, for spatial analysis, the postcode or SLA of the address of usual residence of the patient is also recorded.

The maps in this chapter show the spatial patterns of admissions for a range of conditions, diseases and procedures. The time period of the data in the analysis is the aggregate of the three years from 1996/97 to 1998/99. Analyses at the small area level can benefit from the aggregation of data over a number of years, by reducing the chance of abnormally low or high numbers of events occurring when using data for a single year. The following text describes some of the differences evident in hospitalisation rates for specific population groups.

Recording details for a hospital episode (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 of separation (discharge, transfer or death). 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.

Differences in admission rates for specific population groups

Differences related to socioeconomic status

Those who are socioeconomically disadvantaged have higher admission rates than the population in general. Esterman et al. (1990) examined admissions in Adelaide by postcode of usual residence, and compared standardised admission rates of residents of postcodes categorised as low, medium and high income (based on household income). They found that when Adelaide postcodes were divided into three categories according to household income, hospital admissions were found to be 34% more frequent for residents of the poorest than for the most affluent category. No condition showed a consistent upward trend in admission rates with increasing affluence, whereas the poorer areas had higher rates for a wide range of diseases and conditions, including ischaemic heart disease; infectious diseases; stroke; digestive system disorders; hypertension; cancer; skin diseases; respiratory diseases; genito-urinary conditions; injuries; musculo-skeletal conditions; diabetes mellitus; nutritional, immunity and other endocrine disorders; perinatal disorders; and metabolic disorders.

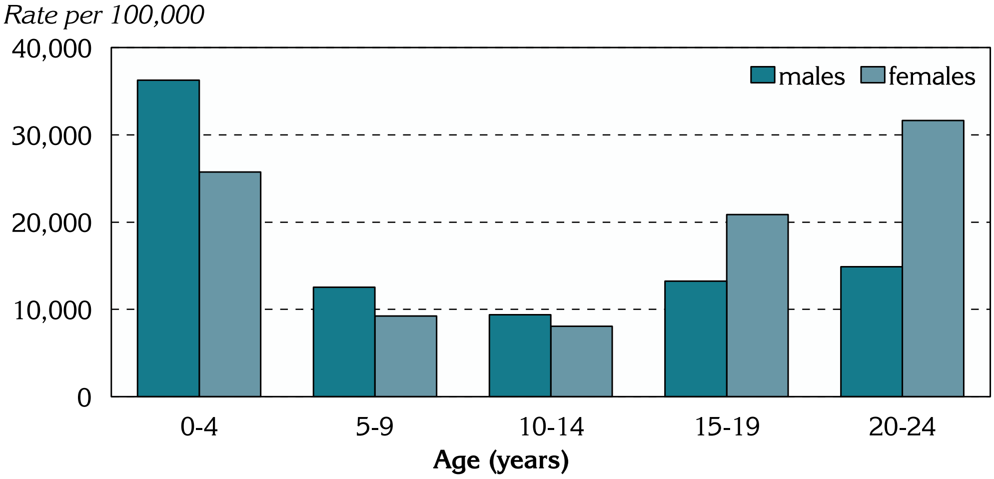
Differences related to age, sex and hospital type

Figures 5.1 to **5.6** show, for a selection of the variables mapped, the admission rates for each five year age group (in the range 0 to 24 years) per 100,000 population for residents of South Australia admitted to a hospital.

The highest admission rates for children and young people admitted to public acute and private hospitals (**Figure 5.1**) are in the 0 to 4 year age group for males and the 20 to 24 year age group for females. Admission rates for males are higher than for females at ages 0 to 4, 5 to 9 and 10 to 14 years; this pattern is reversed in the 15 to 24 year age groups. The largest differential in admission rates for males and females is in the 20 to 24 year age group, with the female rate just over twice (2.1 times) that for males.

More than two thirds (70.0%) of the State's admissions of children and young people are of residents of Adelaide; this is slightly lower than Adelaide's share of the State's population (73.2%).

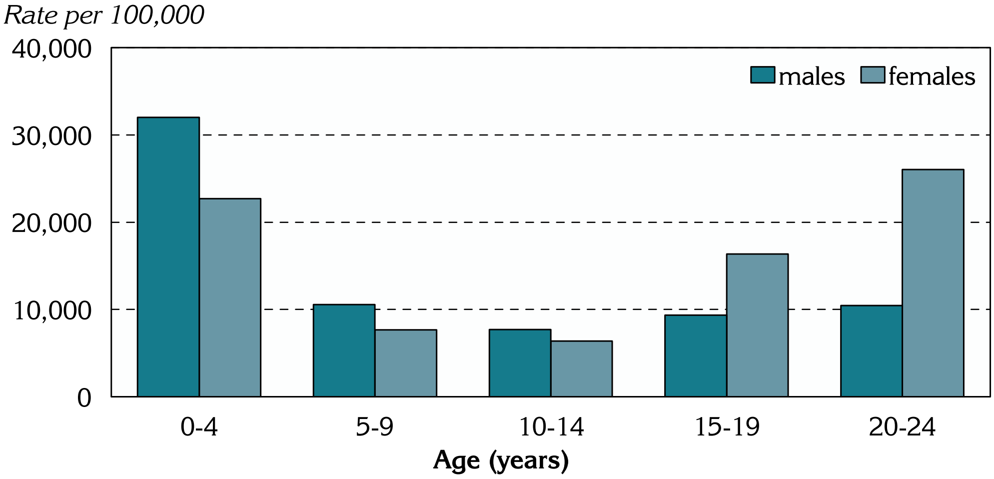
Figure 5.1: Admissions to public acute and private hospitals, by age and sex, South Australia, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

The age profile for admissions to public acute hospitals (**Figure 5.2**) is strikingly similar to that for all admissions (**Figure 5.1**). Male admission rates are higher than those for females in the younger age groups, but are lower at ages 15 to 24 years. Again, the largest differential in the male and female rates is in the 20 to 24 year age group, with female rates 2.5 times those for males.

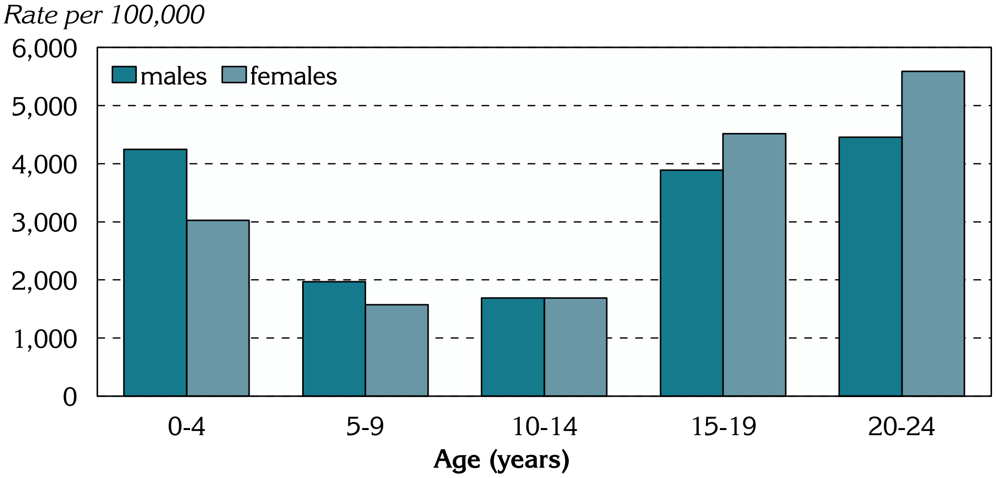
Figure 5.2: Admissions to public acute hospitals, by age and sex, South Australia, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Overall, private hospital admissions account for 18.1% of all admissions of people aged 0 to 24 years in South Australia. The age-specific admission rates are lower than those for public acute hospitals (**Figure 5.3**), with relatively higher rates in the 15 to 19 and 20 to 24 year age groups.

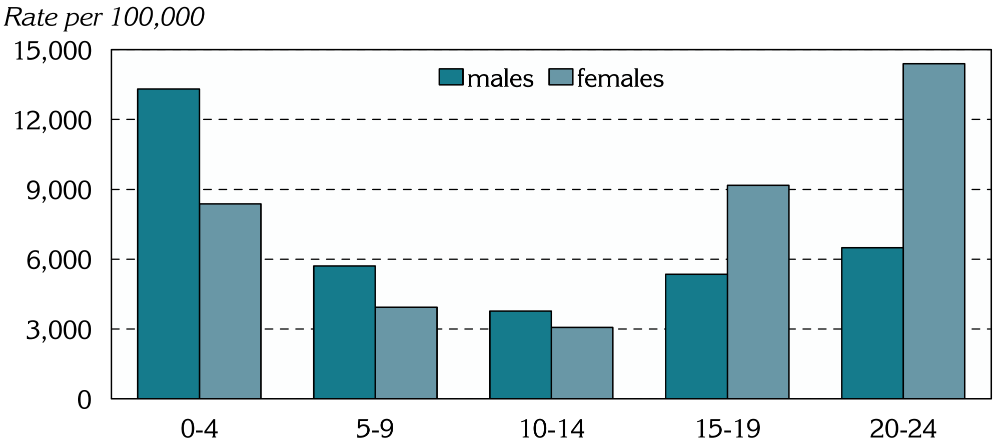
Figure 5.3: Admissions to private hospitals, by age and sex, South Australia, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

The pattern of higher admission rates among males aged 0 to 14 years and females aged 15 to 24 years is also evident for same day admissions (**Figure 5.4**).

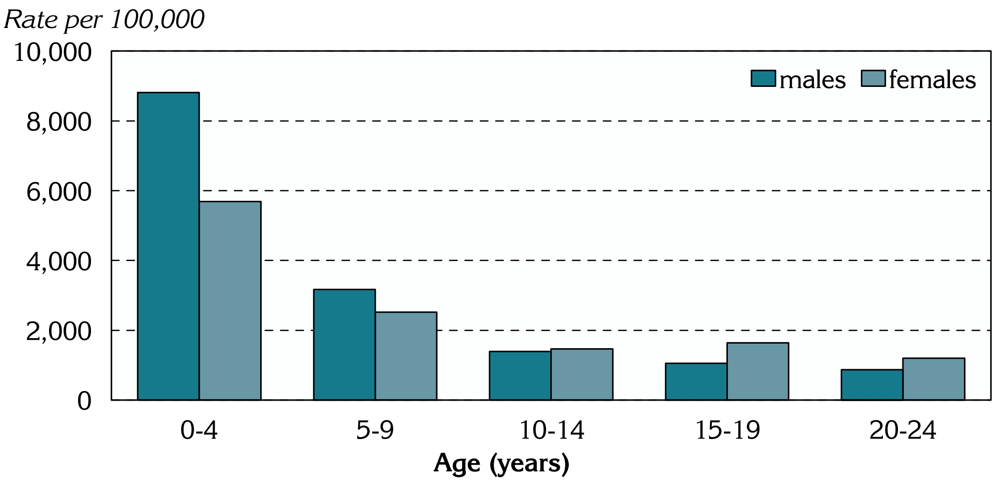
Figure 5.4: Same day admissions, by age and sex, South Australia, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Admission rates for respiratory system diseases are highest at ages 0 to 4 years, after which the rates begin to decline markedly (**Figure 5.5**). The largest differential in admission rates between males and females is in the 0 to 4 year age group, with male rates 1.6 times higher than female rates.

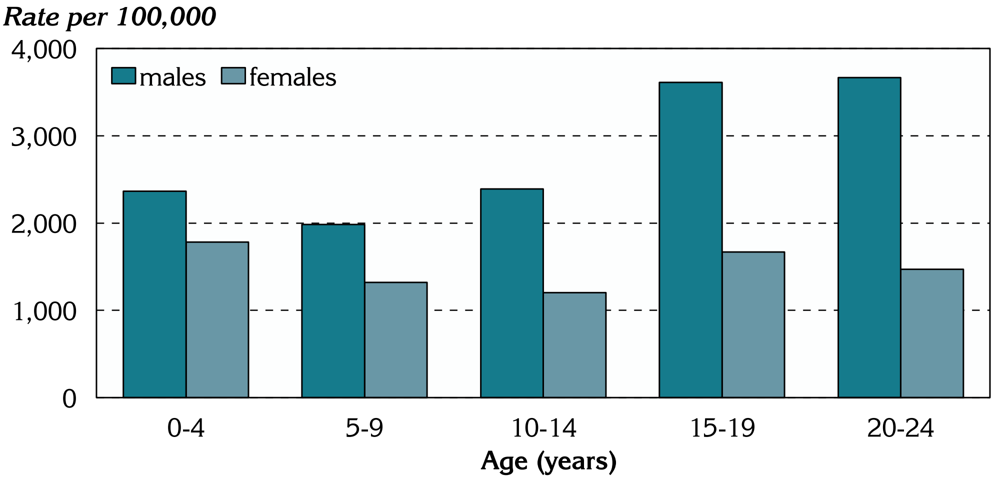
Figure 5.5: Admissions to hospital for respiratory system diseases, by age and sex, South Australia, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Admission rates of males and females from injury and poisoning (**Figure 5.6**) reveal a pattern across the age groups which is in direct contrast with the pattern evident for the other categories of admissions described above. Males predominate in each age group, with the largest differentials at ages 15 to 19 and 20 to 24 years (differentials of 2.16 and 2.49, respectively).

Figure 5.6: Admissions to hospital from injury and poisoning, by age and sex, South Australia, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Differences related to area of residence

In addition to the differences noted above in relation to variations in admission rates by age, there are notable variations in admission rates between residents of Adelaide and the non-metropolitan area of South Australia. In many instances, admission rates are considerably higher for country residents than they are for city residents. Some suggested reasons for the higher rates of admissions of residents of the non-metropolitan areas are given below.

Some suggested reasons for the higher admission rates of residents of the non-metropolitan area of South Australia:

Isolation and distance

Factors such as distance and isolation of people living in these, often remote, areas are important. In country areas, children and young people are more likely to be admitted 'for observation' than be sent home if their homes are a significant distance from the hospital.

Lack of, or inadequate, alternative options/ services such as community based care

In the absence of community-based care, hospitals in country areas often have a 'surrogate' caring role. This includes, in some instances, admitting people who would otherwise go to specialist psychiatric hospitals; and providing the respite care found in other types of institutions in major urban centres for young people with physical and intellectual disabilities. There are also occasions where the circumstances of individuals or families are such that they do not have adequate resources and/or support available which result in hospital admissions. For example, a child of a single parent, living in a country town where there are limited family or community support services, may be more likely to be admitted to hospital for a minor condition, or for observation. This type of situation is often referred to as a 'social admission'.

Ready availability of beds

There is clear evidence that if there is a ready supply of hospital beds, they will be used: this is particularly likely to occur when linked with a lack of appropriate alternative services as mentioned above. Generally more beds are available in country than in city hospitals, per head of population.

Higher rates of admission of Aboriginal people and Torres Strait Islanders

In addition to the greater burden of ill health among Indigenous people noted in Chapter 4, higher rates of hospitalisation for Aboriginal people and Torres Strait Islanders in some non-metropolitan areas are also likely to have an influence on non-metropolitan rates.

Explanatory notes

Classification of hospitals

Hospitals can be classified as 'acute hospitals' or 'psychiatric hospitals'. Acute hospitals are those which

> "provide at least minimal medical, surgical or obstetrical services for inpatients, and which provide round-the-clock comprehensive qualified nursing services as well as other necessary professional services. They must be licensed by the State health authority controlled by government departments. Most of the patients have acute conditions or temporary ailments and the average stay per admission is relatively short." (AIHW 1998).

Acute hospitals are further classified as 'public' (those hospitals recognised under the Medicare agreement, plus Veterans' Affairs hospitals) or 'private'.

Coverage

Hospital admissions' data presented in this atlas include episodes of hospitalisation in public acute and private (acute and psychiatric) hospitals. All admissions, including admissions of same day patients, have been included.

Data issues

Data mapped

Analysis of admissions has been restricted to examining admissions for total admissions (separately for public acute and private hospitals, and for females and males); and selected diagnoses (based on the patient's principal diagnosis) and selected procedures (based on the patient's principal procedure). The particular diagnoses and procedures selected are those which make a major contribution to variations in the pattern of distribution of hospitalisation at the regional and small level, and for which admissions are known to be associated with socioeconomic status.

Standardised admission ratios have been calculated for SLAs by indirect age-sex standardisation. A description of the technique of standardisation is in Appendix 1.3.

Deficiencies in the admissions data

Admissions and individuals admitted

The lack of a unique patient identifier is a major deficiency in analysing data for individuals rather than admissions. Although many hospitals have unique identifiers for patients within their hospitals, such identifiers do not exist between the hospitals[1]. Thus the data include repeat admissions and may, therefore, be of limited value in describing patterns of hospitalisation for individuals. These issues also apply to many other collections of service utilisation data.

An analysis of data in the Western Australian Data Linkage System – where data are available of the number of admissions per individual, over time – can assist in determining if area based analyses using data of admissions (rather than individuals) provide valid results. The analysis showed there to be both more people admitted from Perth's most disadvantaged areas (13% more), and more admissions of people from these areas (47% more) (Glover et al. 2002). The situation in Adelaide is likely to be similar: that is, if data as to admissions of individuals were available, the relationship between admission rates and socioeconomic status would most likely be stronger than is the case with the available admissions data.

Admissions and individuals admitted

Areas with high proportions of Indigenous children generally have high rates of admission: however, this is not the case for Unincorporated Far North. The low rates found for most variable mapped for this large, remote area are likely to reflect, at least in part, the quality of the data. Children from this area who are hospitalised may be admitted to a hospital in Alice Springs, or in Adelaide, and may not be recorded to their true area of residence in the hospital statistics. To the extent that this occurs, rates in the Unincorporated Far North will understate the true situation.

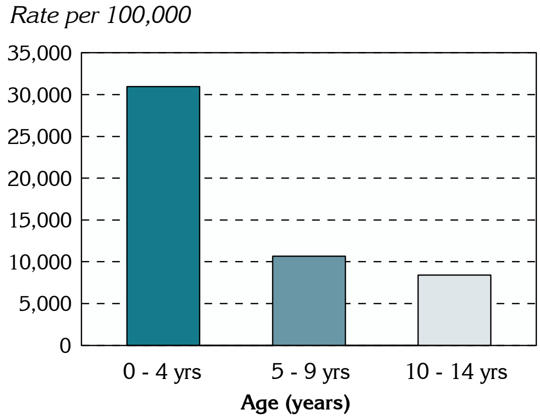
[1] Although potentially useful as an identifier, the Medicare number is not always included on inpatient records. Nor is it a unique identifier, with some individuals having more than one number.

Admissions to public acute and private hospitals, children aged 0 to 14 years, 1996/97-1998/99

Adelaide

Admission rates over the three years from 1996/97 to 1998/99 for children living in Adelaide vary substantially within the 0 to 14 year age category (**Figure 5.7**). Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 30,941 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (8,392 admissions per 100,000).

Figure 5.7: Admissions to public acute and private hospitals, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the three years 1996/97 to 1998/99, there were 102,394 admissions to public acute and private hospitals of children living in Adelaide aged 0 to 14 years, two per cent fewer admissions than were expected from the State rates (a standardised admission ratio (SAR) of 98**). Males accounted for over half (58.8%) of the admissions.

The highest admission rates were recorded in Adelaide's inner northern and north-western suburbs, with the lowest rates in the eastern and south-eastern suburbs and in a number of coastal areas (**Map 5.1**).

The highest SAR (160**) was recorded in *Prospect*, indicating that there were 60% more admissions of 0 to 14 year olds than were expected from the State rates. The next highest ratios were in the postcode areas of *Blair Athol* (an SAR of 159**), *Gepps Cross* (153**), *Ferryden Park* (149**), *North Adelaide* (133**), *Upper Sturt* (125**), *Rosewater East* (123**), *Thebarton* (121**), *Parafield Gardens* (120**), *Elizabeth North* (120**), *Klemzig* (119**), *Osborne* (118**), *Adelaide* (117**), *Woodville North* (117**), *Elizabeth* (117**), *Virginia* (117**) and *Wynn Vale* (115**).

The postcode area of *Carey Gully* had the lowest SAR for this variable, with 74% fewer admissions than were expected from the State rates (an SAR of 26**). Relatively low ratios were also recorded in the eastern areas of *Montacute* (37**), *Basket Range* (49**), *Stirling Forward* (56**), *Norton Summit* (57**), *Greenhill* (63**) and *Stirling* (67*); in the south-eastern coastal areas of *Maslin Beach* (63**), *Aldinga* (64**) and *Sellicks Beach* (65**); and in the far north in *MacDonald Park* (65**).

Salisbury had the largest number of admissions (5,639) to public acute and private hospitals over the period from 1996/97 to 1998/99. High numbers of admissions were also recorded for children resident in *Morphett Vale* (with 3,715 admissions), *Smithfield* (3,285 admissions), *Happy Valley* (3,122 admissions), *Elizabeth North* (2,972 admissions), *Elizabeth* (2,723 admissions) and *Salisbury East* (2,503 admissions).

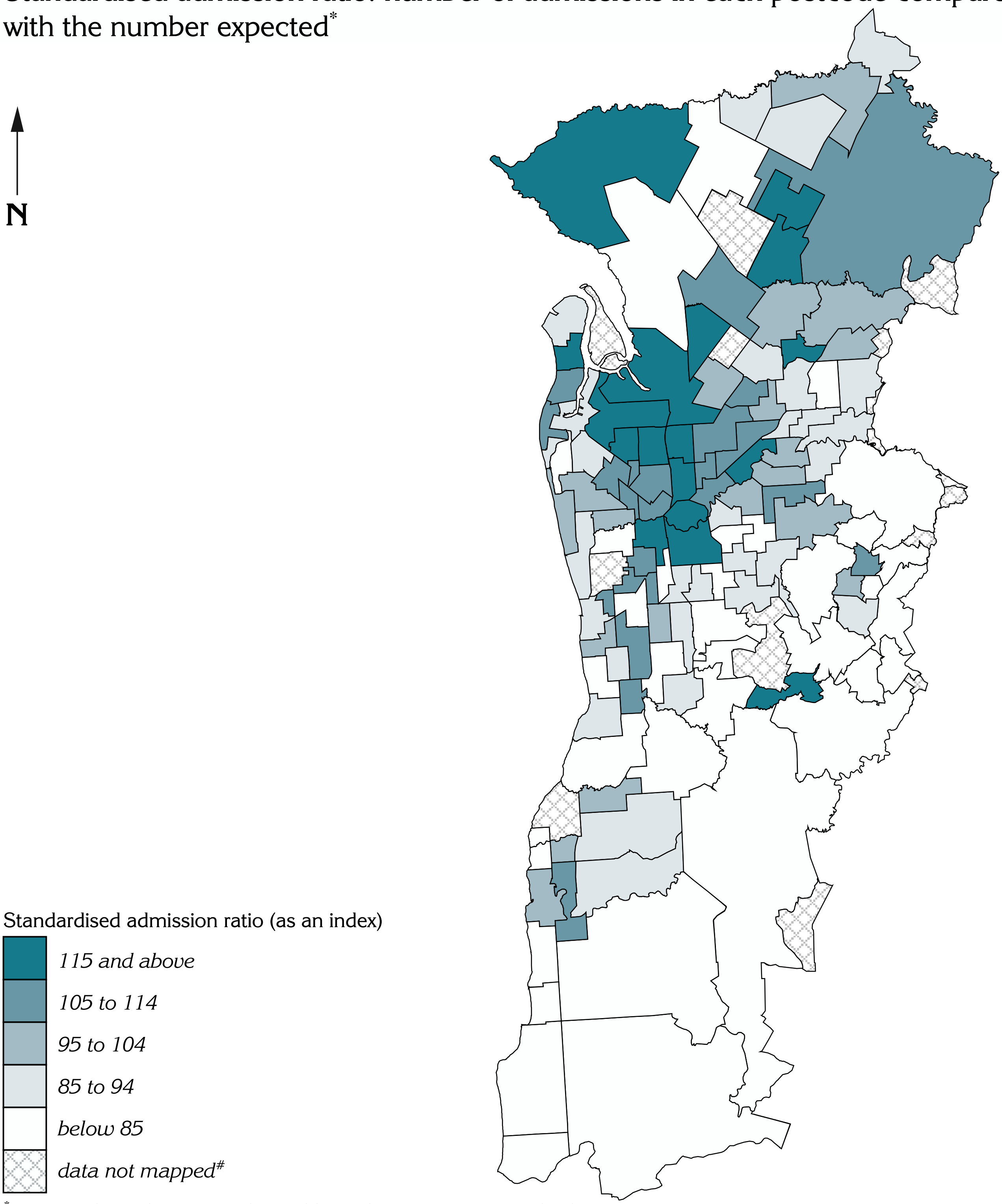
There were correlations of meaningful significance at the postcode level with the variables for children aged 0 to 14 years living in dwellings rented from the SA Housing Trust (0.55) and dwellings with no motor vehicles (0.54); and Indigenous people aged 15 to 24 years (0.52).

When the data were aggregated to the SLA level, correlations of meaningful significance were found with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.62) and dwellings rented from the SA Housing Trust (0.53); Indigenous people aged 0 to 14 years (0.67) and 15 to 24 years (0.61); and unemployed females (0.58) and males (0.50) aged 15 to 24 years.

These results, together with the inverse correlation with the IRSD (-0.54), indicate an association at the SLA level between high rates of hospital admission at ages 0 to 14 years and socioeconomic disadvantage.

Map 5.1
Admissions to public acute and private hospitals, children aged 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.*

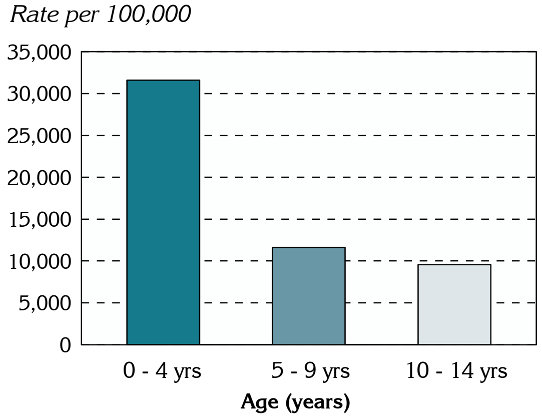
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions to public acute and private hospitals, children aged 0 to 14 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates over the three years from 1996/97 to 1998/99 of non-metropolitan South Australians vary substantially (**Figure 5.8**) between the five year age groups in the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 31,602 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (9,567 admissions per 100,000).

Figure 5.8: Admissions to public acute and private hospitals, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 46,644 admissions of children living in the non-metropolitan area of South Australia to public acute and private hospitals over the period 1996/97 to 1998/99 four per cent more than were expected from the State rates (a standardised admission ratio (SAR) of 104**). The elevated ratio is in contrast to the below average rate of admissions of children at these ages in Adelaide.

SLAs with ratios elevated by 30% or more were mainly located in the north and west of the State (**Map 5.2**), with a cluster south-east of Murray Bridge. Just under half (44.2%) of the State's SLAs had more admissions than were expected, with almost one fifth (20 SLAs) recording ratios in the lowest range mapped.

The most highly elevated SAR was recorded in Unincorporated West Coast, with just over nine times the number of admissions expected from the State rates (a ratio of 903** and 693 admissions). Relatively high ratios were recorded in the mid northern areas of Port Broughton (199**), Burra Burra (145**) and Crystal Brook/Red Hill (140**); in the far north in Carrieton and Unincorporated Flinders Ranges (both 177**), Coober Pedy (172**) and Port Augusta (141**); in the western area of Ceduna (an SAR of 171**); on the Yorke Peninsula in Warooka (170**) and Wallaroo (147**); in the south-east in Meningie (167**), Tatiara (164**) and Lameroo (151**); and in Dudley (164**) and Unincorporated Whyalla (140*).

Children in Pirie, Naracoorte (DC) and Browns Well had the lowest standardised admission ratios for this variable, with SARs of 16**, 29**, and 31** respectively. Other low ratios were recorded in Lucindale (an SAR of 46**), Mount Gambier (DC) (50**), Unincorporated Far North (51**), Karoonda-East Murray (52**), Robe (54**), Beachport (56**), Yankalilla (57**) and Light (58**). There were 58% fewer admissions than expected in Unincorporated Riverland, although this was calculated on only nine admissions.

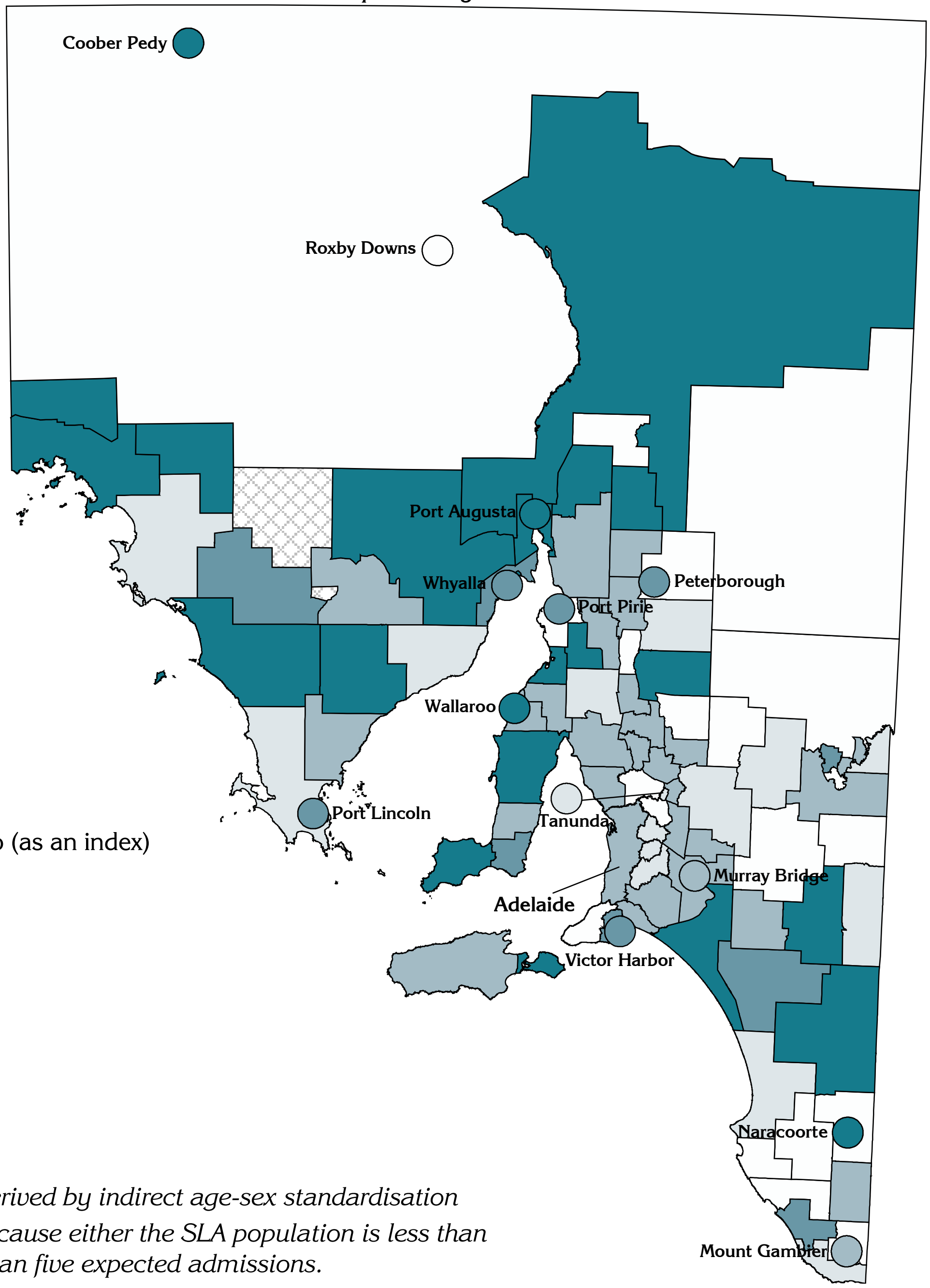
The largest numbers of admissions were recorded for young residents of the towns of Whyalla (with 3,647 admissions), Mount Gambier (2,491 admissions), Port Augusta (2,442 admissions), Murray Bridge (2,089 admissions), Port Lincoln (1,796 admissions) and Port Pirie (1,766 admissions).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia of an association between admissions to hospital at ages 0 to 14 years and socioeconomic status.

Map 5.2
Admissions to public acute and private hospitals, children aged 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

Map boundary truncated



N

Standardised admission ratio (as an index)

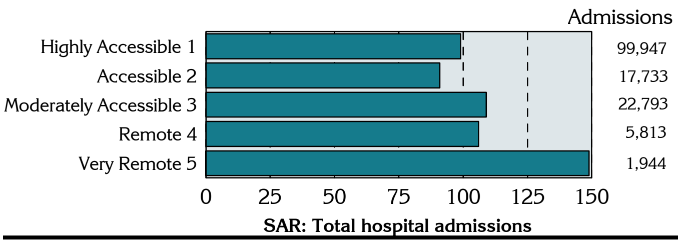
130 and above
110 to 129
90 to 109
70 to 89
below 70
data not mapped#

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for admissions to public acute and private hospitals decrease from an SAR of 99 in the Highly Accessible ARIA+ class to a low of 91 in the Accessible class, before increasing to a high of 149 in the Very Remote areas.

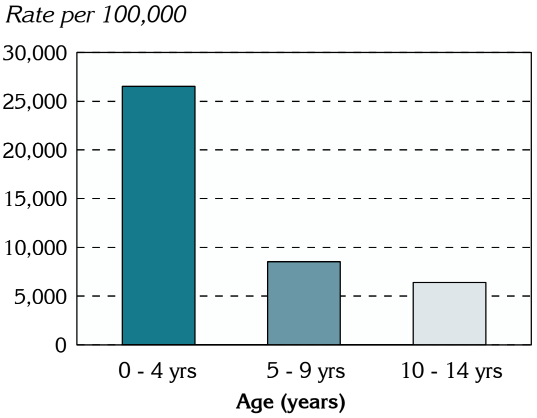
Source: Calculated on ARIA+ classification

Admissions to public acute hospitals, children aged 0 to 14 years, 1996/97-1998/99

Adelaide

Admission rates to public acute hospitals of children living in Adelaide vary substantially (**Figure 5.9**) within the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 26,515 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (6,385 admissions per 100,000).

Figure 5.9: Admissions to public acute hospitals, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 84,772 admissions to public acute hospitals of children aged 0 to 14 years living in Adelaide, five per cent fewer than were expected from the State rates (a standardised admission ratio (SAR) of 95**). This reflects a number of factors, including the greater availability in Adelaide of private hospitals, which reduces the demand for public hospital beds, as well as a higher overall hospital use by children resident in non-metropolitan areas.

Admissions to public acute hospitals accounted for 82.8% of Adelaide's admissions: the remaining 17.2% were to private hospitals. Males living in Adelaide had more admissions to public acute hospitals than females, accounting for 59.2% of all such admissions. The pattern of distribution of admission rates at the postcode level is strongly associated with socioeconomic disadvantage, with the highest ratios in the inner north, north-western and outer northern suburbs and the lowest across a broad area to the east and south-east of the city (**Map 5.3**).

The highest ratios were recorded in the inner northern areas of *Blair Athol* (with an SAR of 176**), *Gepps Cross* (166**), *Prospect* (159**), *North Adelaide* (134**), *Parafield Gardens* (128**) and *Klemzig* (126**); in the north-western suburbs of *Ferryden Park* (170**), *Rosewater* (134**), *Woodville North* (132**) and *Osborne* (128**); in the outer northern areas of *Elizabeth North* (134**) and *Elizabeth* (125**); and in the south at *Old Noarlunga* (121**).

In contrast, postcodes with fewer admissions than expected were located in the south-eastern and Hills areas of Adelaide, in the southern middle suburbs and in selected pockets along the coast. The lowest ratios (in areas with more than 20 admissions) were recorded in *Norton Summit* (an SAR of 48** and 23 admissions), *Stirling Forward* (50** and 297), *Uraidla* (50** and 29), *Stirling* (51** and 306), *Belair* (52** and 227), *Greenhill* (53** and 23) and *Kingswood* (55** and 539).

Postcode areas recording the largest number of admissions were predominantly located in the outer northern areas, and to a lesser extent in the southern suburbs. These areas included *Salisbury* (5,149 admissions), *Morphett Vale* (3,075 admissions), *Smithfield* (2,915 admissions), *Elizabeth North* (2,865 admissions) and *Elizabeth* (2,511 admissions).

There were correlations of meaningful significance with the variables for children aged 0 to 14 years living in dwellings rented from the SA Housing Trust (0.69), dwellings with no motor vehicles (0.68), single parent families (0.65) and low income families (0.65). Correlations of meaningful significance were also recorded with the variables for Indigenous people (a correlation of 0.65 at ages 15 to 24 years and 0.62 at ages 0 to 14 years), dependent children in low income families (0.53) and unemployed females aged 15 to 24 years (0.52). The correlation analysis also revealed a strong inverse association with indicators of high socioeconomic status, with inverse correlations of meaningful significance recorded with the variables for female labour force participation (-0.60), managers and administrators, and professionals (-0.55) and high income families (-0.55).

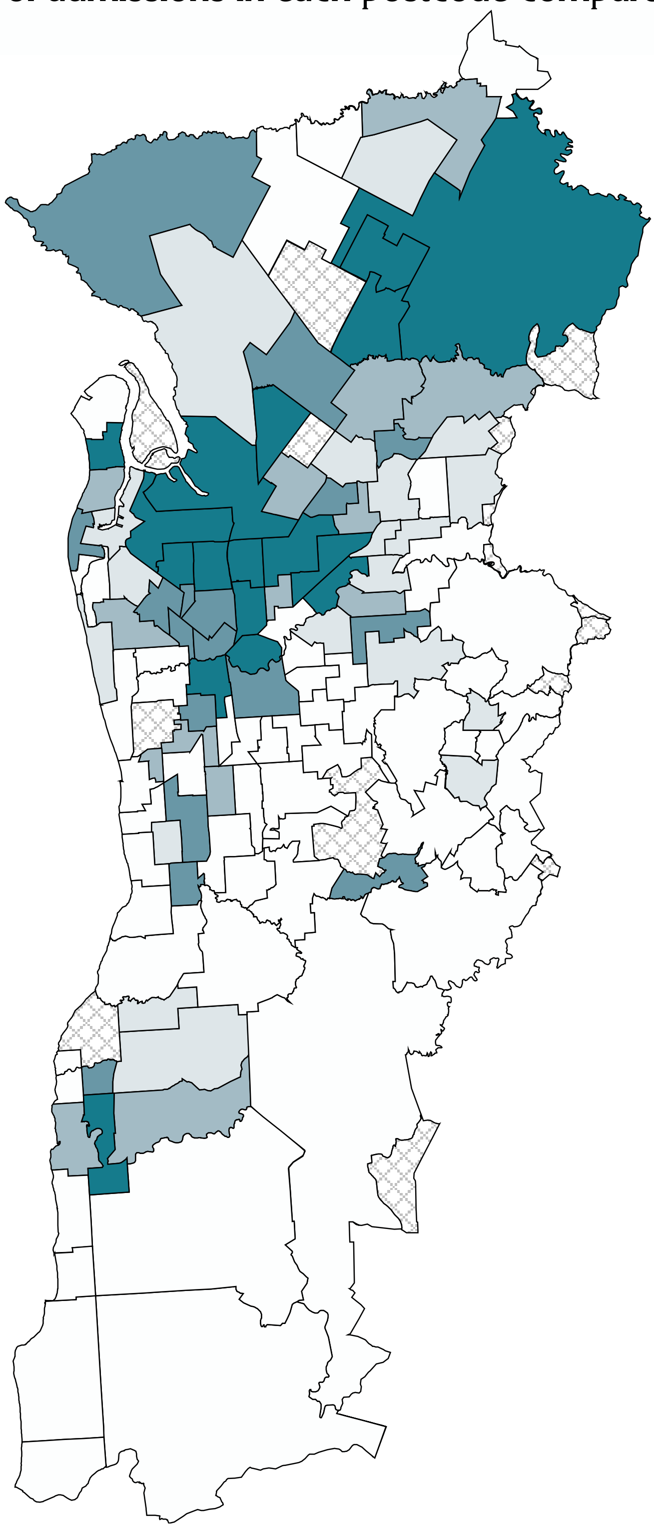
These results, together with the inverse correlation of meaningful significance with the IRSD (-0.69), indicate an association at the postcode level between high rates of admissions to public acute hospitals at ages 0 to 14 years and socioeconomic disadvantage.

Map 5.3

Admissions to public acute hospitals, children aged 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*

N



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

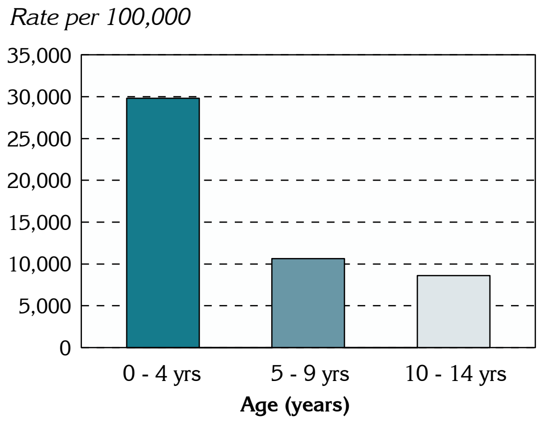
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions to public acute hospitals, children aged 0 to 14 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates to public acute hospitals of non-metropolitan South Australians vary substantially (**Figure 5.10**) between the five year age groups in the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 29,787 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (8,598 admissions per 100,000).

Figure 5.10: Admissions to public acute hospitals, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over three years 1996/97 to 1998/99, there were 43,292 admissions to public acute hospitals of 0 to 14 year olds living in the non-metropolitan area of South Australia, 12% more than were expected from the State rates (a standardised admission ratio (SAR) of 112**). Admissions to public acute hospitals accounted for 92.8% of all admissions in non-metropolitan areas: the remaining 7.2% were to private hospitals.

The high rate of public compared with private hospital (see page 202) usage in the non-metropolitan areas of South Australia is largely due to the relative availability of public acute hospitals and the lack of private hospitals in these areas. Note, however, that the figures shown here include admissions of children regardless of whether the admission was to a hospital in the non-metropolitan area or in Adelaide.

Reflecting the high overall standardised admission ratio for the non-metropolitan area of South Australia, more than half (51.0%) of the SLAs had admission rates above those expected from the State rates (**Map 5.4**).

The highest ratio was recorded for children resident in Unincorporated West Coast, with more than ten times the number of admissions expected from the State rates (an SAR of 1051** and 690 admissions). Highly elevated ratios were also recorded in Port Broughton (203**), Unincorporated Flinders Ranges (196**), Coober Pedy and Ceduna (both 194**), Meningie (187**), Dudley (184**), Carrieton (182**), Warooka (181**), Burra Burra (163**), Wallaroo (160**), Port Augusta (159**) and Kanyaka and Quorn (158**).

SLAs (with more than 20 admissions) in the lowest range mapped included Naracoorte (DC) (with an SAR of 32**), Lucindale (53**), Mount Gambier (DC) (57**), Robe (60**) and Beachport (62**), located in the south-east; Unincorporated Far North (51**) and Roxby Downs (67**) in the State's far north; and Karoonda-East Murray (52**), Yankalilla (54**), Light (57**), Barossa (60**).

Areas with high proportions of Indigenous children generally have high rates of admission: however, this is not the case for Unincorporated Far North. The low rate in this large, remote area is likely to reflect, at least in part, the quality of the data. Children from this area who are hospitalised may be admitted to a hospital in Alice Springs, or in Adelaide, and may not be recorded to their true area of residence in the hospital statistics. To the extent that this occurs, rates in the Unincorporated Far North will understate the true situation.

The largest numbers of admissions were recorded in the towns of Whyalla (with 3,573 admissions), Mount Gambier (2,435 admissions), Port Augusta (2,362 admissions), Murray Bridge (2,024 admissions), Port Lincoln (1,775 admissions) and Port Pirie (1,710 admissions).

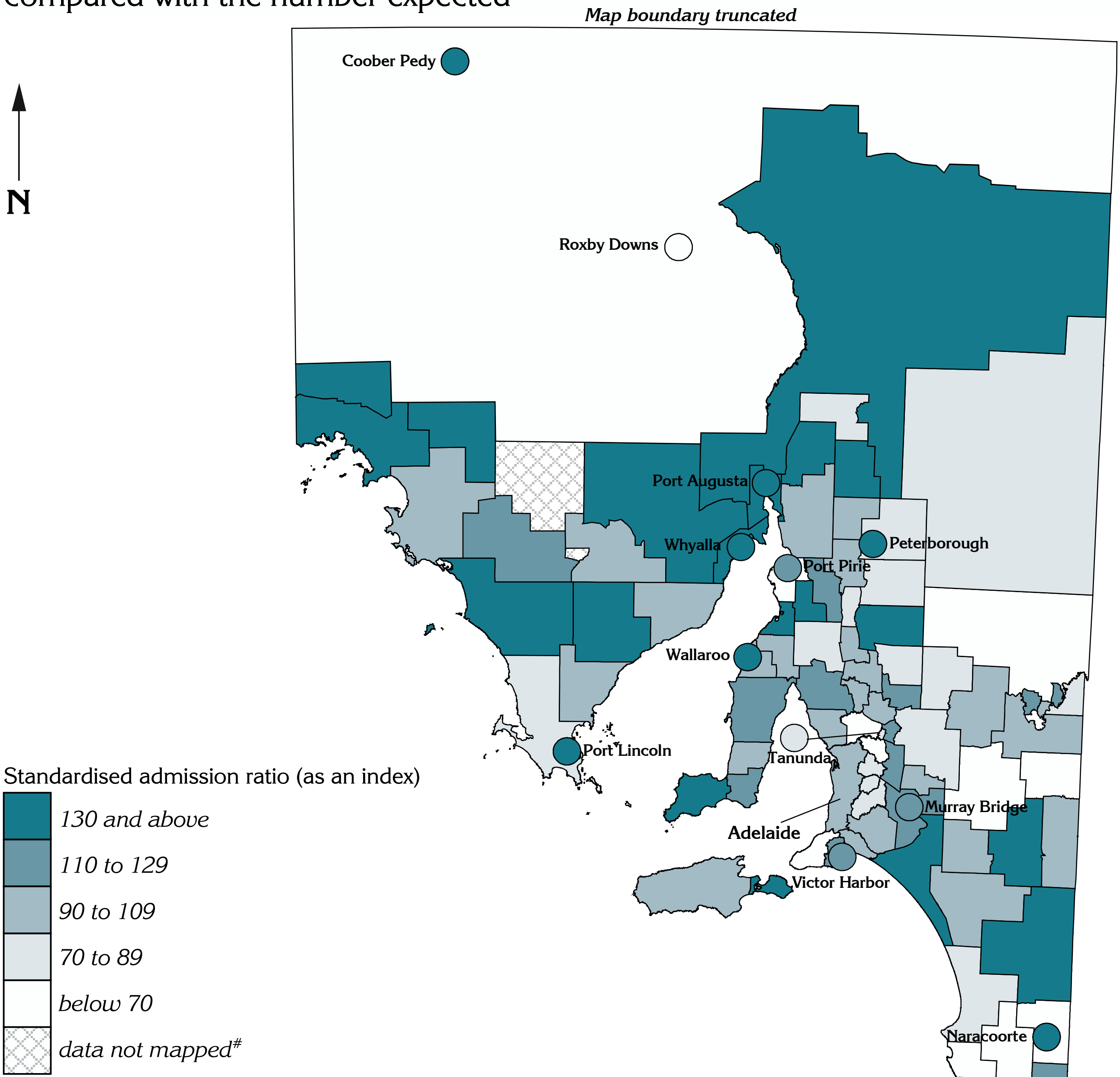
There were correlations of meaningful significance at the SLA level in the non-metropolitan area of South Australia with the variables for children aged 0 to 14 living in SAHT rented dwellings (0.63), single parent families (0.60) and dwellings without a motor vehicle (0.53).

These results, together with the inverse correlation of meaningful significance with the IRSD (-0.50), indicate an association at the SLA level between high rates of admissions to public acute hospitals at ages 0 to 14 years and socioeconomic disadvantage.

Map 5.4

Admissions to public acute hospitals, children aged 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

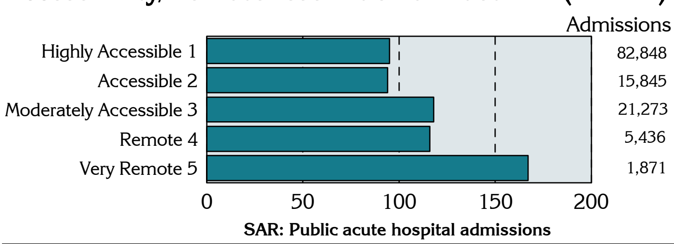


* Expected numbers were derived by indirect age-sex standardisation

\# Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS — *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for admissions to public acute hospitals increase markedly across the ARIA+ classes, from an SAR of 95 in the Highly Accessible areas to an SAR of 167 in the Very Remote areas.

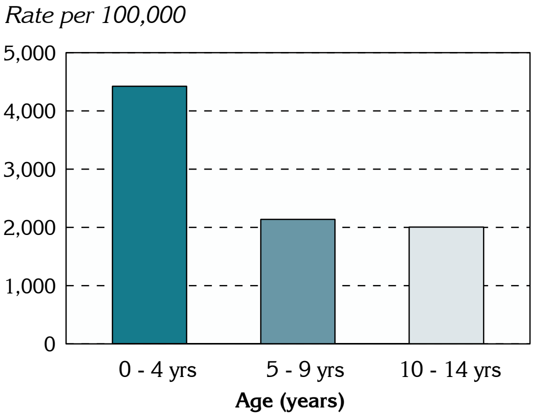
Source: Calculated on ARIA+ classification

Admissions to private hospitals, children aged 0 to 14 years, 1996/97-1998/99

Adelaide

Admission rates to private hospitals of children living in Adelaide vary substantially (**Figure 5.11**) within the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 4,426 admissions per 100,000 population aged 0 to 4 years), with the lowest admission rate in the 10 to 14 year age group (2,008 admissions per 100,000).

Figure 5.11: Admissions to private hospitals, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 17,622 admissions to private hospitals of children aged 0 to 14 years living in Adelaide, twenty per cent more admissions than were expected from the State rates (a standardised admission ratio (SAR) of 120[**]). Males accounted for over half (56.4%) of the admissions.

Admissions to private hospitals comprise 17.2% of admissions of children in Adelaide, with the remaining 82.8% being admissions to public acute hospitals. Just as the use of public hospitals had a distribution strongly associated with the location of residents in lower socioeconomic status postcodes, so admission rates to private hospitals are generally higher in areas of high socioeconomic status; these are also areas in which families are more likely to have private health insurance, and therefore to use private hospitals.

Ratios with more than twice the number of admissions to private hospitals expected from the State rates were recorded in *Ashton* (with an SAR of 261[**]), *Uraidla* (255[**]), *Summertown* (220[**]) and *Upper Sturt* (215[**]), situated in the Adelaide Hills; *Glen Osmond* (254[**]), *Unley* (249[**]), *Burnside* (246[**]), *Walkerville* (240[**]) and *Kingswood* (234[**]), located in the inner areas of Adelaide; and *Seacliff* (221[**]) and *Somerton Park* (218[**]), on the coast.

The lowest SARs were mainly found in two locations: to the north-west of the city in *Ferryden Park* (an SAR of 19[**] and 14 admissions), *Woodville North* (28[**] and 35), *Osborne* (57[**] and 46), *Rosewater* (58[**] and 78); in the outer southern suburbs of *Maslin Beach* (26[**] and 5), *O'Sullivan Beach* and *Sellicks Beach* (both 32[**] and 9), *Old Noarlunga* (45[**] and 29), *Aldinga* (49[**] and 65) and *Christies Beach* (52[**] and 30); to the north in *Blair Athol* (51[**] and 66), *Holden Hill* (52[**] and 40); and further north in *Elizabeth North* (31[**] and 107), *Burton* (49[**] and 54), *Ingle Farm* (56[**] and 68) and *Munno Para* (57[**] and 38).

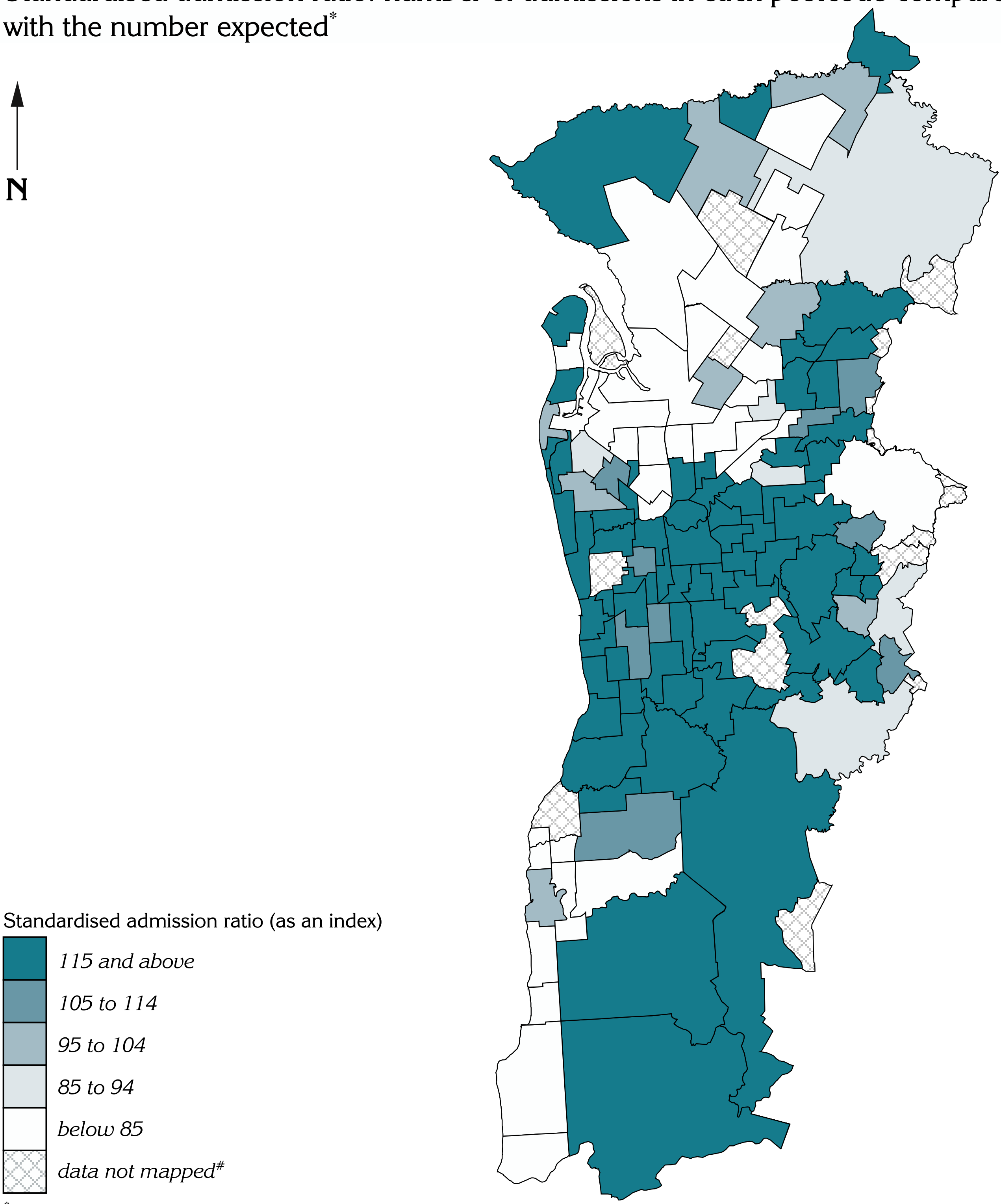
The largest numbers of private hospital admissions of 0 to 14 year olds were, however, recorded in outer suburban *Happy Valley* (with 895 admissions), *Morphett Vale* (640 admissions), *O'Halloran Hill* (627 admissions) and *Salisbury* (490 admissions).

As would be expected, the correlation analysis revealed an inverse association with socioeconomic disadvantage, with inverse correlations of substantial significance between admissions to private hospitals and the variables for children aged 0 to 14 years living in low income families (-0.73) and people who left school at age 15 years or earlier (-0.71). Correlations of meaningful significance were recorded with the variables for full-time students (0.63), high publicly assessed achievement scores (0.68) and managers and administrators, and professionals (0.69); and of substantial significance with high school assessed achievement scores (0.77), high publicly examined achievement scores (0.72), high income families (0.76) and female labour force participation (0.72).

These results, together with the correlation of substantial significance with the IRSD (0.74), indicate an association at the postcode level between high rates of admissions to private hospitals at ages 0 to 14 years and high socioeconomic status.

Map 5.5
Admissions to private hospitals, children aged 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

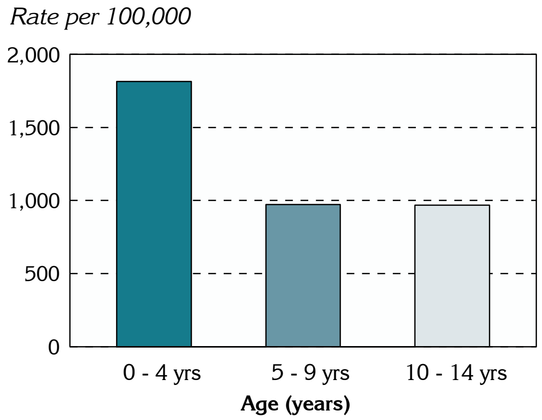
Source: Compiled in HealthWIZ from data supplied by DHS *Details of map boundaries are in Appendix 1.2*

Admissions to private hospitals, children aged 0 to 14 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates to private hospitals of non-metropolitan South Australians vary substantially (**Figure 5.12**) between the five year age groups in the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 1,815 admissions per 100,000 population aged 0 to 4 years), with the lowest admission rate in the 10 to 14 year age group (a trend which declines with age (969 admissions per 100,000).

Figure 5.12: Admissions to private hospitals, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

The lack of private hospitals and the relative availability of public hospitals throughout the non-metropolitan area of South Australia are evident from the low rate of use of private compared with public hospitals. Children in these areas had 47% fewer admissions (a standardised admission ratio (SAR) of 53**) to private hospitals than would be expected if the State-wide rates had applied across these areas. As noted above there were 12% more public hospital admissions and four per cent more total (public acute and private) admissions in these non-metropolitan areas. Of the 3,352 admissions of children aged 0 to 14 years to private hospitals, over half (58.5%) were admissions of males.

Note, however, that the figures shown here include admissions of children to private hospitals in Adelaide.

Only twelve SLAs in the non-metropolitan area of South Australia had elevated SARs for admissions of children at these ages to a private hospital.

By far the most highly elevated of these ratios was recorded for children in Coonalpyn Downs, with more than twice the number of admissions expected from the State rates (an SAR of 232** and 55 admissions over the three years). The remaining elevated ratios (with at least 20 admissions) were recorded in Lameroo (229**) and Tatiara (224**), in the south-east; Central Yorke Peninsula (191**), Port Broughton (172**), Bute (143) and Northern Yorke Peninsula (110), on Yorke Peninsula; and Onkaparinga (137**), Mallala (126**), located on the outskirts of Adelaide; and Riverton (118).

More than half of the non-metropolitan SLAs had much lower than the expected numbers of admissions; however the number of admissions in each of these SLAs were quite small. Of areas with more than 20 admissions, those with the lowest SARs were Port Lincoln (an SAR of 10** and 21 admissions), Mount Gambier (C) (15** and 56), Millicent (17** and 21), Whyalla (18** and 74), Renmark (21** and 27), Murray Bridge (24** and 65), Port Pirie (25** and 56), Loxton (32** and 37), Port Augusta (33** and 80) and Waikerie (39** and 29).

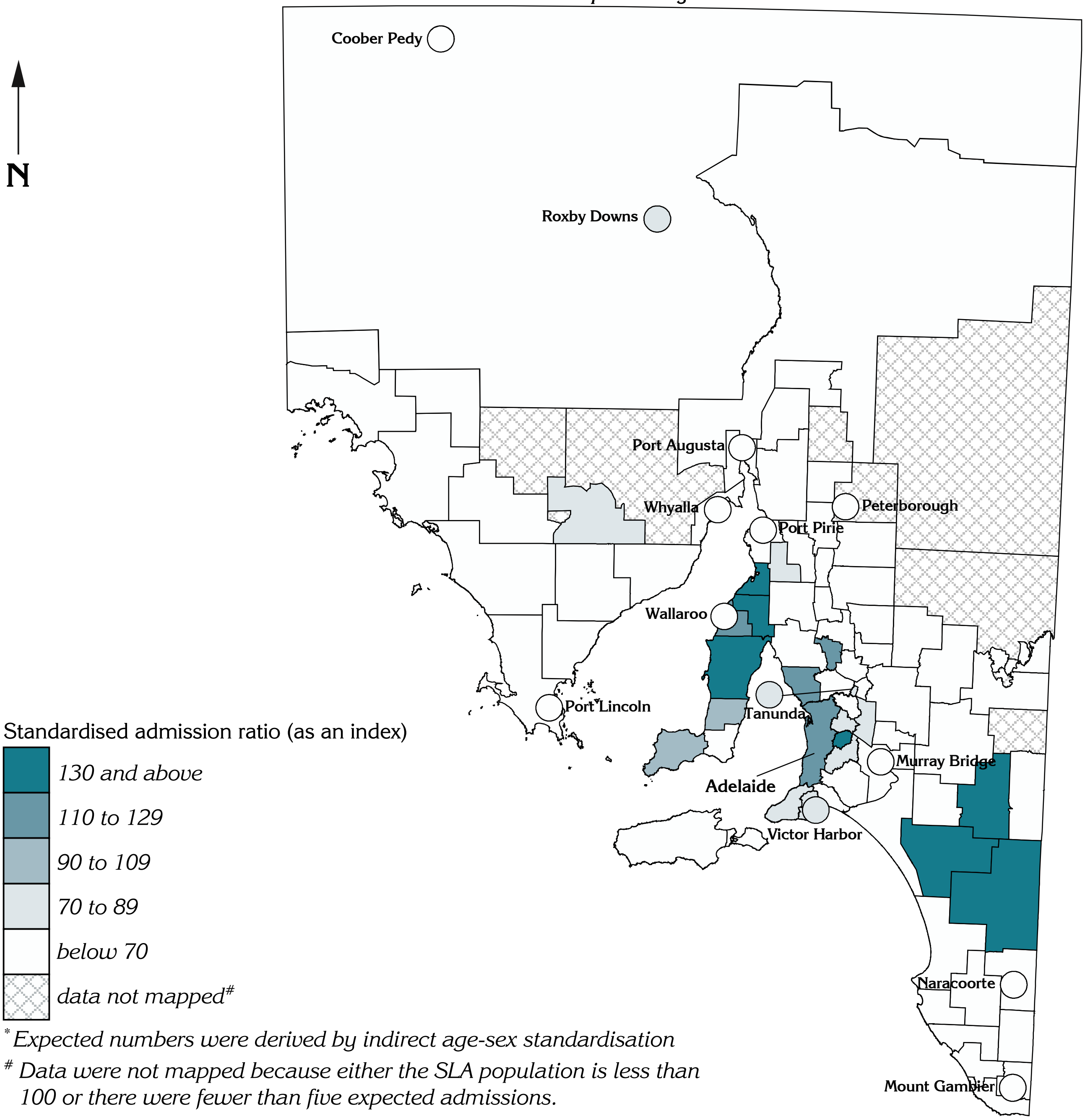
The largest number of admissions to a private hospital was of children living in Mount Barker, with 286 admissions. More than 100 admissions were recorded for children in Tatiara (274 admissions), Onkaparinga (178 admissions), Mallala (162 admissions), Central Yorke Peninsula (144 admissions), Northern Yorke Peninsula (124 admissions) and Victor Harbor (101 admissions).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia of an association between admissions to private hospitals at ages 0 to 14 years and socioeconomic status.

Map 5.6
Admissions to private hospitals, children aged 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

Map boundary truncated



Standardised admission ratio (as an index)

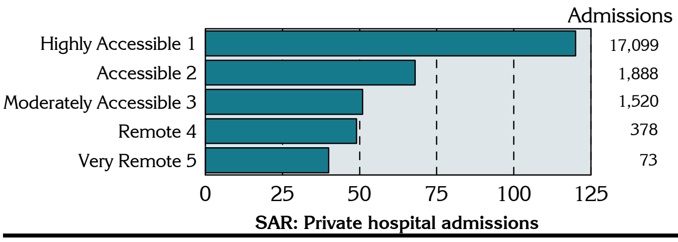
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Children in the Highly Accessible areas under the ARIA+ classification accounted for the majority of admissions to private hospitals and had the only elevated standardised admission ratio (an SAR of 120). Ratios in the other classes were all lower, dropping to a very low SAR of 40 in the Very Remote ARIA+ class.

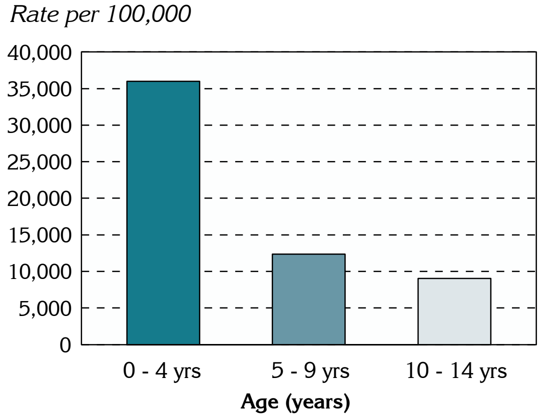
Source: Calculated on ARIA+ classification

Admissions of males, 0 to 14 years, 1996/97-1998/99

Adelaide

Admission rates of males living in Adelaide vary substantially (**Figure 5.13**) within the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 35,981 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (a trend which declines with age (9,017 admissions per 100,000).

Figure 5.13: Admissions of males, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 60,177 admissions of males aged 0 to 14 years living in Adelaide, one per cent fewer than expected from the State rates (a standardised admission ratio (SAR) of 99**). Males account for over half (58.8%) of all admissions in the metropolitan area.

The distribution of standardised admission ratios for males (**Map 5.7**) produces a pattern consistent with that of many measures of low socioeconomic status (Chapter 3).

The highest standardised admission ratios were recorded for male children living in *Prospect* (an SAR of 183**), *Blair Athol* (180**) and *Ferryden Park* (161**). Ratios elevated by fifteen per cent or more were recorded in the postcode areas of *Gepps Cross* (an SAR of 150**), *Upper Sturt* (149**), *Wynn Vale* (131**), *Woodville North* (128**), *Virginia* (127**), *Woodville* (123**), *Novar Gardens* (121), *Nailsworth* (121**), *North Adelaide* and *Kilkenny* (both 119**), *Osborne* and *Elizabeth* (both 118**), *Rosewater*, *Parafield Gardens* and *Elizabeth North* (each 117**) and *Ashton* (115).

Generally, the lowest ratios were recorded in eastern and south-eastern postcode areas. The lowest ratios (in areas with more than 20 admissions) were in the Hills postcodes of *Uraidla* (with an SAR of 51** and 21 admissions), *Stirling Forward* (58** and 234), *Norton Summit* (62* and 22), *Stirling* (64** and 272), *Bridgewater* (65** and 178), *Piccadilly* (65* and 23) and *Belair* (66** and 199); on the coast at *O'Sullivan Beach* (53** and 65), *Sellicks Beach* (57** and 65) and *Aldinga* (60** and 352); and elsewhere at *MacDonald Park* (47** and 32).

The largest numbers of admissions were recorded for males from the outer postcode areas of *Salisbury* (3,402 admissions), *Morphett Vale* (2,208 admissions), *Smithfield* (1,905 admissions), *Happy Valley* (1,872 admissions), *Elizabeth North* (1,655 admissions) and *Elizabeth* (1,637 admissions).

There were correlations of meaningful significance at the postcode level with the variables for children aged 0 to 14 years living in dwellings rented from the SA Housing Trust (0.54) and dwellings with no motor vehicles (0.52).

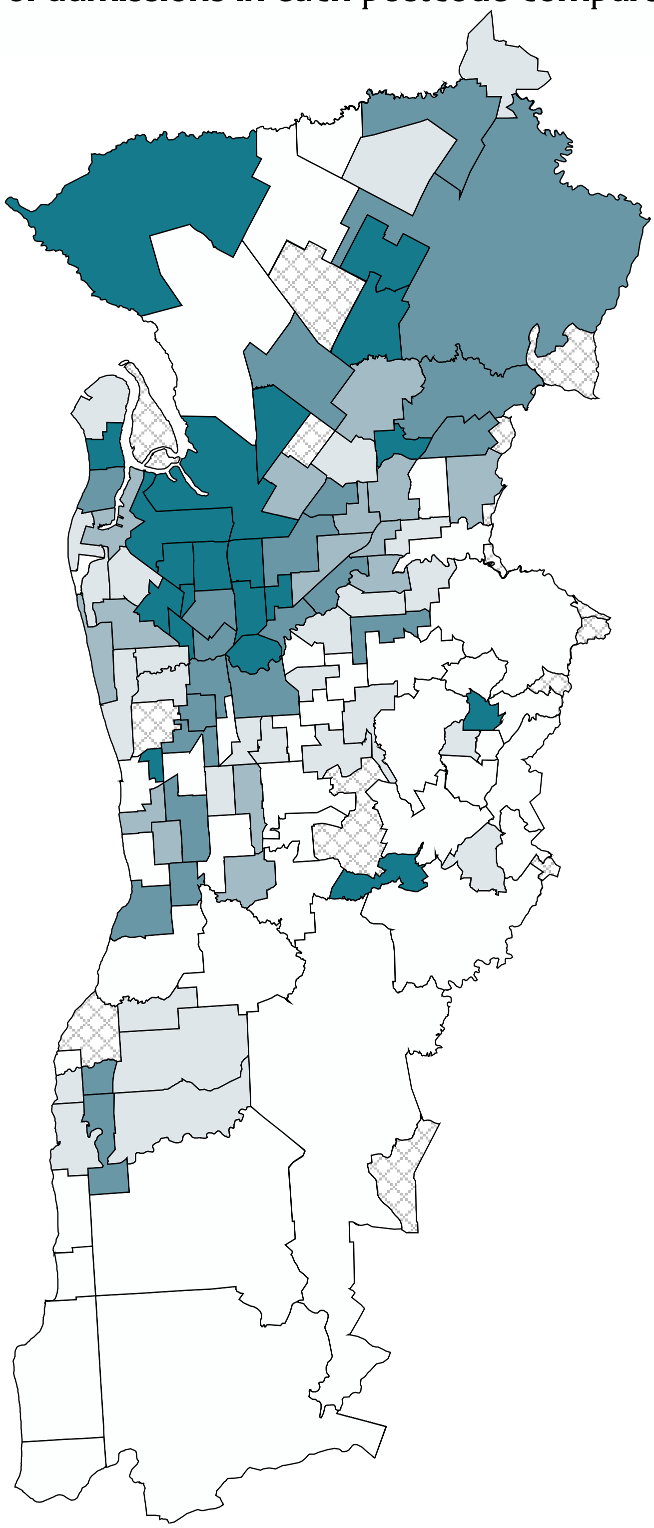
When the data were aggregated to the SLA level, correlations of meaningful significance were found with the variables for Indigenous people aged 0 to 14 years (0.64) and 15 to 24 years (0.61); and children aged 0 to 14 years living in dwellings with no motor vehicles (0.58) and dwellings rented from the SA Housing Trust (0.57).

These results, together with the inverse correlation with the IRSD (-0.54), indicate an association at the SLA level between high rates of admissions of males aged 0 to 14 years and socioeconomic disadvantage.

Map 5.7
Admissions of males, 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*

N



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

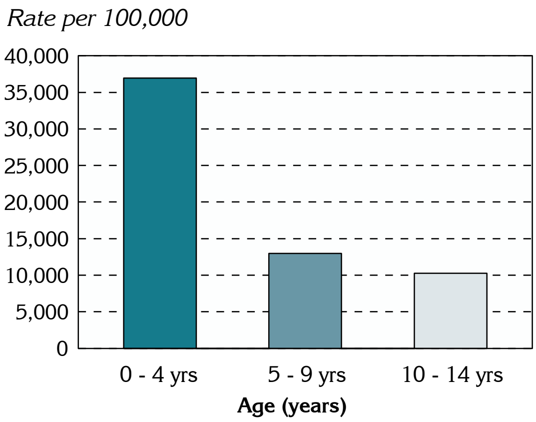
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions of males, 0 to 14 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates for males in non-metropolitan South Australia vary substantially (**Figure 5.14**) between the five year age groups in the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 36,943 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (10,265 admissions per 100,000).

Figure 5.14: Admissions of males, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the three years 1996/97 to 1998/99, there were 27,327 admissions of males aged 0 to 14 years living in the non-metropolitan area of South Australia, three per cent more admissions than were expected from the State rates (a standardised admission ratio (SAR) of 103**). The elevated ratio is in contrast to the lower than expected ratio for city residents.

Several SLAs had standardised admission ratios in the highest range mapped, ranging from an SAR of 728** (and 329 admissions) in Unincorporated West Coast to an SAR of 130* (and 89 admissions) in Warooka and 130** (and 151 admissions) in Le Hunte. The highly elevated ratio in Unincorporated West Coast indicates that there were more than seven times the number of admissions of males expected from the State rates. Ratios elevated by 50% or more were recorded for children in Unincorporated Whyalla (with an SAR of 246**), Dudley (195**), Port Broughton (194**), Burra Burra (169**), Unincorporated Flinders Ranges (166**), Meningie (165**), Ceduna, Wallaroo and Tatiara (each 163**), Elliston (157**), Coober Pedy (156**), Lameroo (152**) and Crystal Brook/Red Hill (150**).

Excluding SLAs with fewer than 20 admissions, the lowest ratios were in Naracoorte (DC) (with an SAR of 30**), Beachport (45**), Mount Gambier (50**) and Lucindale (52**), situated in the south-east; Unincorporated Far North (50**), in the far north; and elsewhere in the SLAs of Karoonda-East Murray (49**) and Light (55**).

The largest numbers of admissions of male children resident in the non-metropolitan area of South Australia were in the towns of Whyalla (2,119 admissions), Mount Gambier (1,412 admissions), Port Augusta (1,340 admissions), Murray Bridge (1,289 admissions), Port Pirie (1,102 admissions) and Port Lincoln (1,083 admissions).

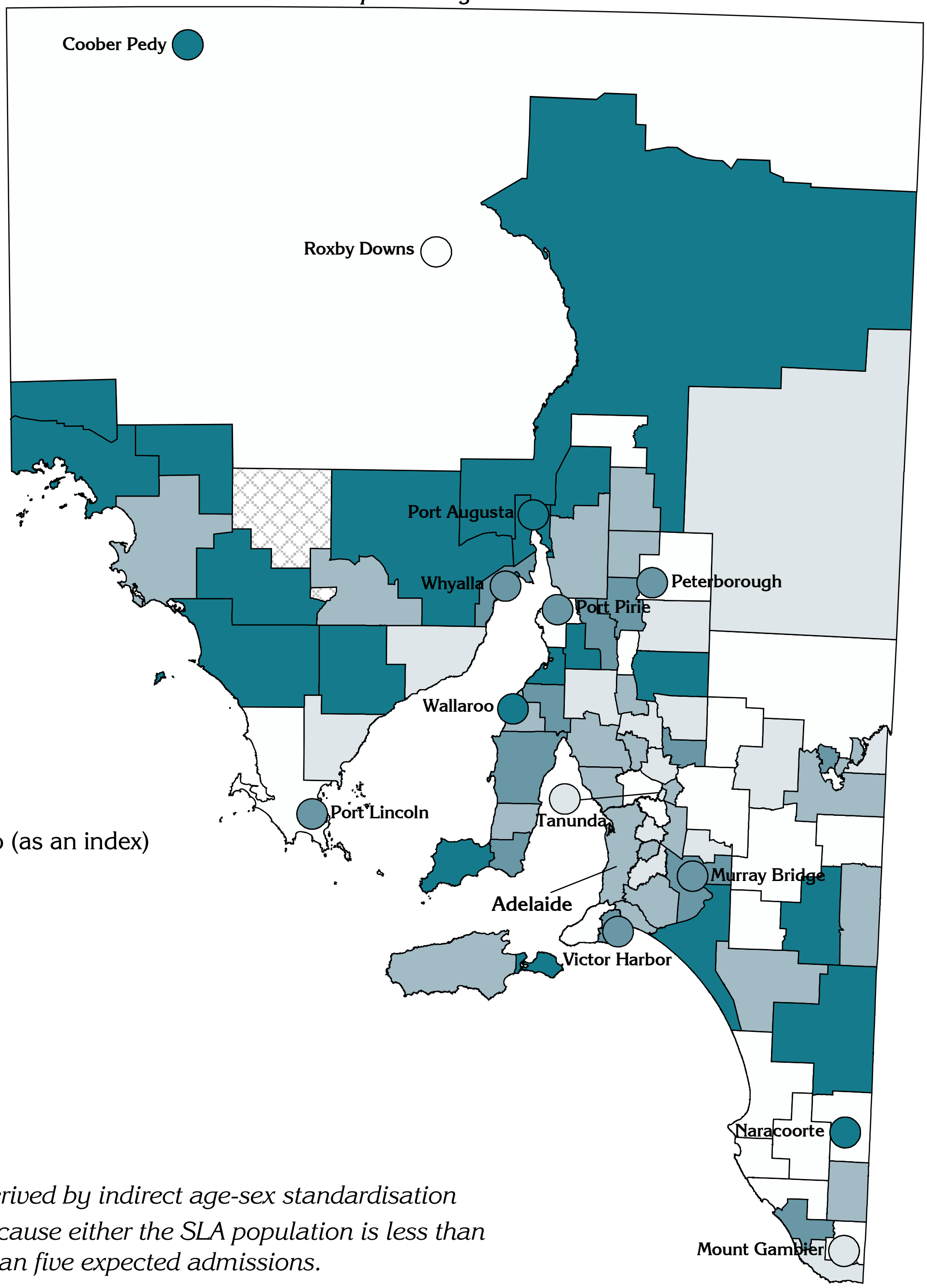
There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia of an association between admissions of males aged 0 to 14 years and socioeconomic status.

Map 5.8
Admissions of males, 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

Map boundary truncated

N



Standardised admission ratio (as an index)

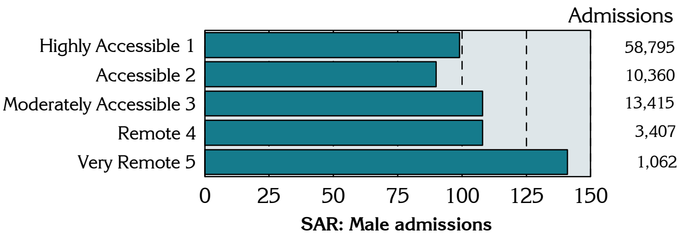
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for males closely follow the pattern evident for total admissions, with a ratio of 99 in the Highly Accessible ARIA+ class; ratios of 90, 108 and 108 in the three middle classes; and the highest SAR, of 141, in the Very Remote areas.

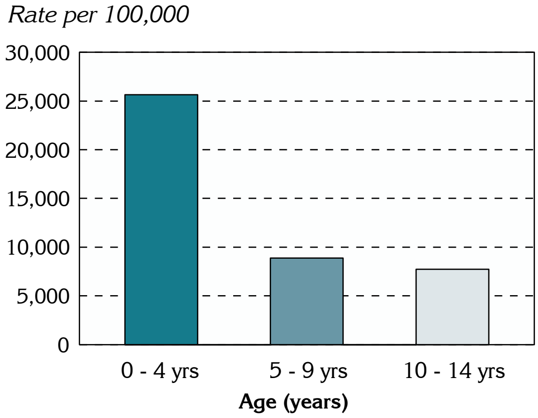
Source: Calculated on ARIA+ classification

Admissions of females, 0 to 14 years, 1996/97-1998/99

Adelaide

Admission rates of females living in Adelaide vary substantially (**Figure 5.15**) within the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 25,640 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (7,738 admissions per 100,000).

Figure 5.15: Admissions of females, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 42,217 admissions of female residents of Adelaide aged 0 to 14 years, two per cent fewer than expected from the State rates (a standardised admission ratio (SAR) of 98**). Females accounted for 41.2% of all admissions in Adelaide.

The highest SARs were generally found in the inner northern and north-western suburbs of Adelaide, as well as in the outer north (**Map 5.9**). The highest ratio was recorded in the postcode areas of *Gepps Cross* and *North Adelaide*, both with 56% more admissions than were expected from the State rates (an SAR of 156**). Other areas with relatively high ratios included *Klemzig* (140**), *Semaphore* (137**), *Adelaide* and *Thebarton* (both 134**), *Rosewater* (133**), *Ferryden Park* (132**), *Piccadilly* (132), *Blair Athol* (131**) and *Greenacres* (126**).

Standardised admission ratios were more than 35% lower than expected in *Maslin Beach* (with an SAR of 51**), *Stirling Forward* (52**), *Christies Beach* (54**), *Holden Hill* (65**), *Aldgate* and *Aldinga* (both 69**), *Norwood* and *Stirling* (both 72**), *Willunga* and *Kensington Park* (both 73**), *Sellicks Beach* (75*) and *Eden Hills* (75**).

The largest number of admissions was recorded for female children in *Salisbury*, with 2,237 admissions. More than 1,000 admissions were also recorded in *Morphett Vale* (1,507 admissions), *Smithfield* (1,380 admissions), *Elizabeth North* (1,317 admissions), *Happy Valley* (1,250 admissions), *Elizabeth* (1,086 admissions), *Salisbury East* (1,038 admissions) and *O'Halloran Hill* (1,004 admissions).

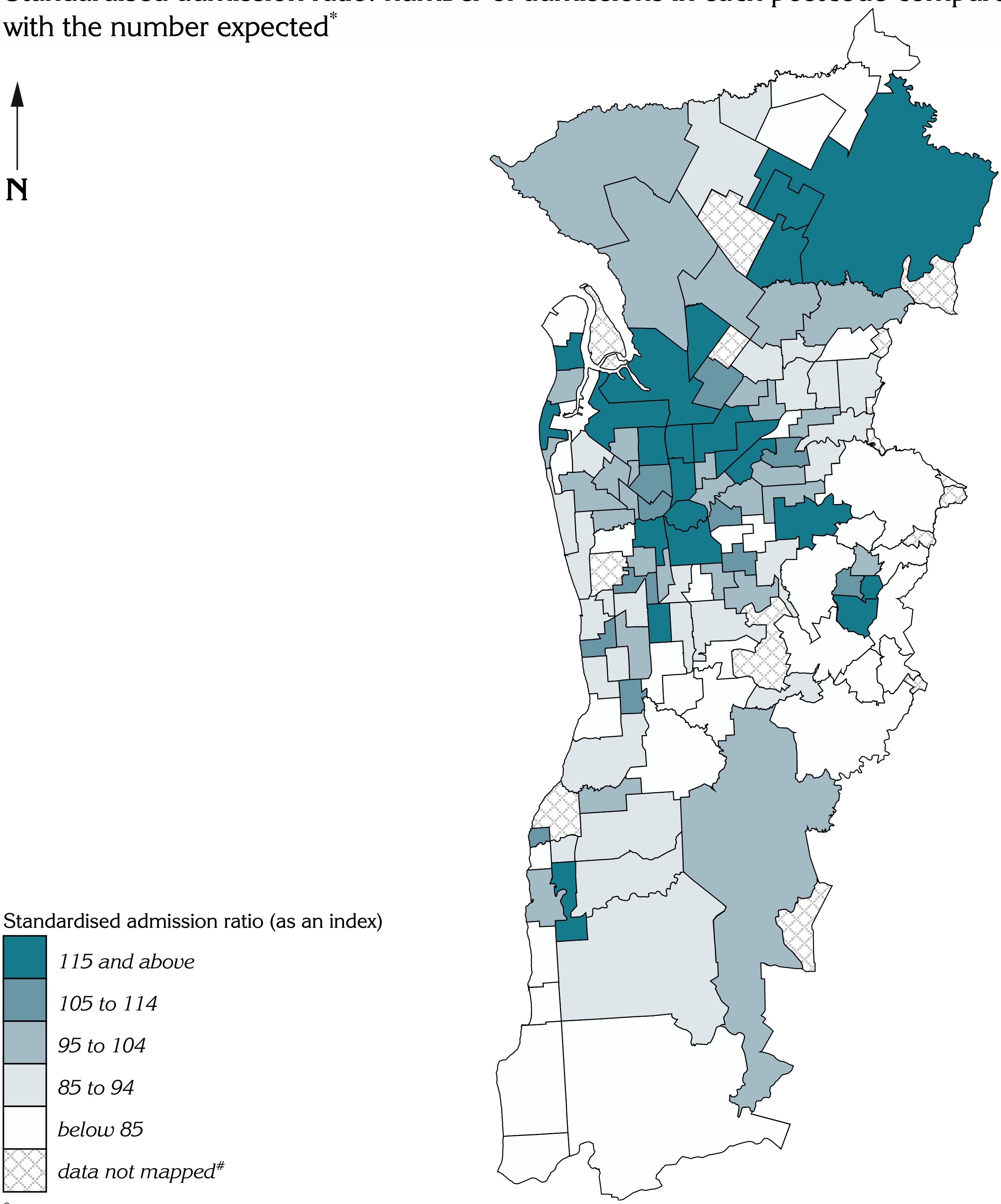
There were correlations of weak significance at the postcode level with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.43) and dwellings rented from the SA Housing Trust (0.42); and Indigenous children aged 0 to 14 years (0.44).

When the data were aggregated to the SLA level, correlations of meaningful significance were also recorded with the variables for Indigenous people aged 0 to 14 years (0.61) and 15 to 24 years (0.52); children aged 0 to 14 years living in dwellings with no vehicles (0.58); and unemployed females (0.56) and males (0.52) aged 15 to 24 years.

These results, together with the weak inverse correlation with the IRSD (-0.46), indicate an association at the SLA level between high rates of admissions of females aged 0 to 14 years and socioeconomic disadvantage.

Map 5.9
Admissions of females, 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

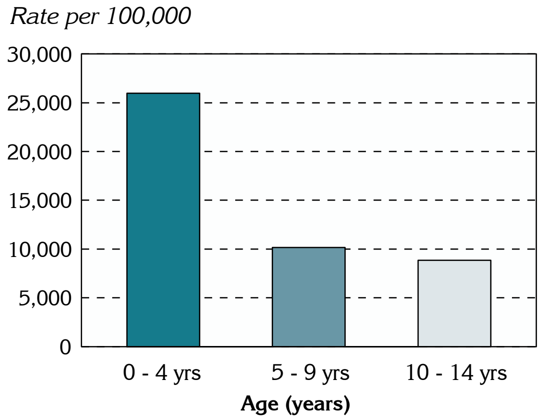
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions of females, 0 to 14 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates for females in non-metropolitan South Australia vary substantially (**Figure 5.16**) between the five year age groups in the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 25,984 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (8,835 admissions per 100,000).

Figure 5.16: Admissions of females, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 19,317 admissions of female children resident in the non-metropolitan area of South Australia, five per cent more than expected from the State rates (a standardised admission ratio (SAR) of 105**).

As was the case for males, the highest standardised admission ratio for females was recorded in Unincorporated West Coast, with 364 admissions and an SAR of 1153**, more than ten times the number of admissions expected from the State rates. The next highest ratios were recorded in the SLAs of Carrieton (with an SAR of 325**), Warooka (224**) and Port Broughton (205**). Coober Pedy (197**), Unincorporated Flinders Ranges (191**) and Port Augusta (156**) in the far north, Ceduna (181**) in the far west, and Meningie (171**), Tatiara (166**) and Lameroo (150**) in the south-east, also had similarly highly elevated ratios.

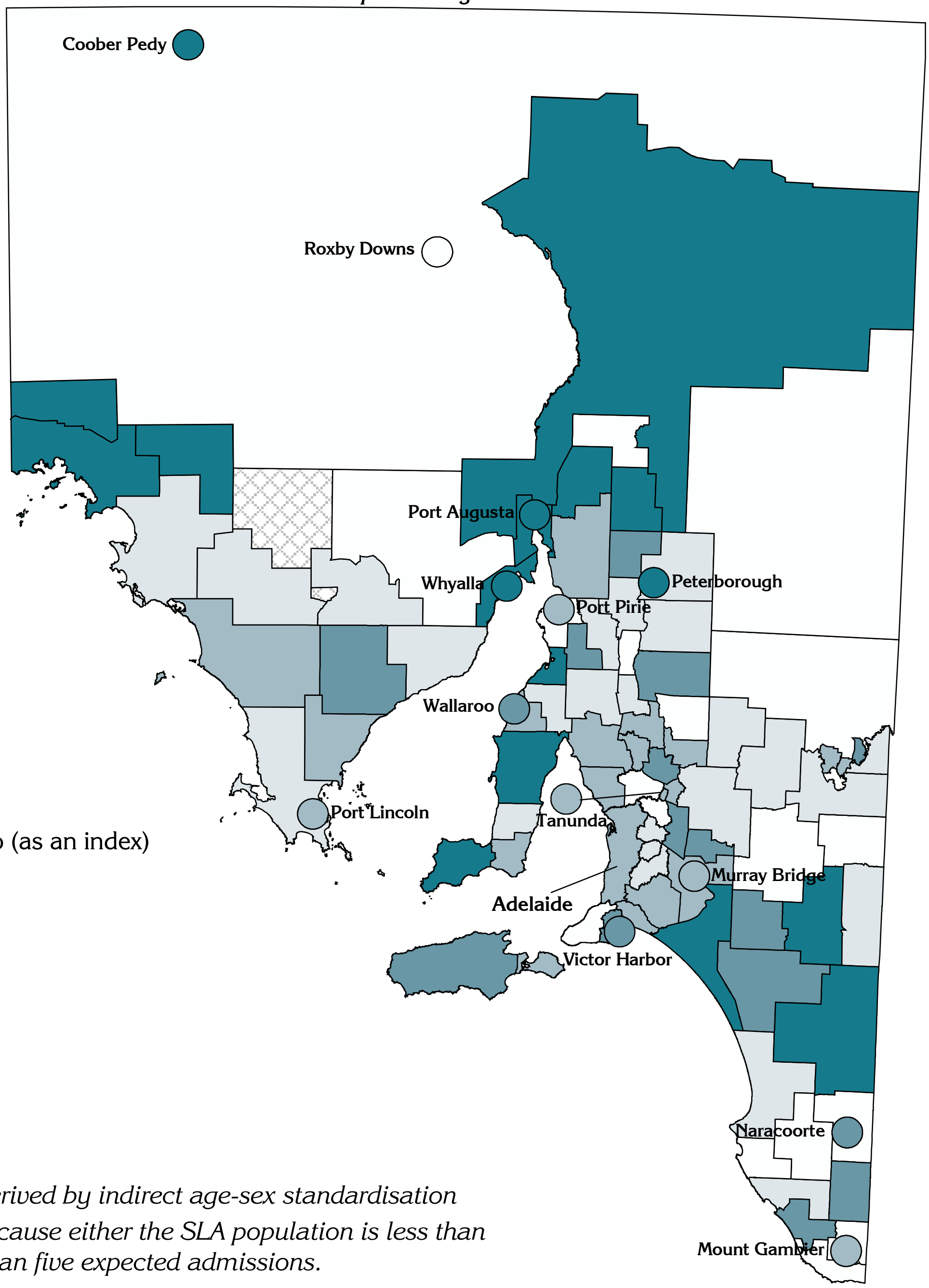
Naracoorte (DC) and Lucindale, in the south-east of the State, had the lowest SARs (in SLAs with more than 20 admissions), of 28** and 39** respectively. Low ratios were also recorded in Robe (41**), Mount Gambier (DC) (49**), Unincorporated Far North (51**), Karoonda-East Murray (56**), Yankalilla (58**), Light (63**), Barossa (64**), Roxby Downs (67**) and Port MacDonnell (68**).

The towns of Whyalla and Port Augusta had the largest number of admissions of females at these ages, with 1,528 and 1,102 admissions respectively. More than 500 admissions were also recorded for females resident in Mount Gambier (1,079 admissions), Mount Barker (976 admissions), Murray Bridge (800 admissions), Port Lincoln (713 admissions), Port Pirie (664 admissions) and Tatiara (593 admissions).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia of an association between admissions of females aged 0 to 14 years and socioeconomic status.

Map 5.10
Admissions of females, 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*



Standardised admission ratio (as an index)

- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

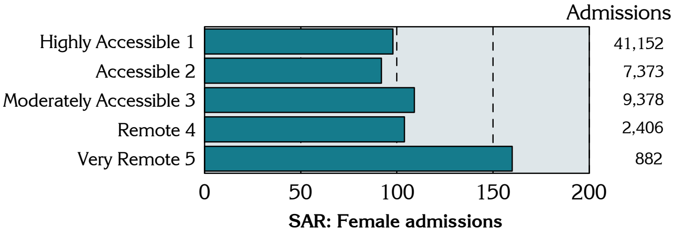
*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The pattern of admissions for females by the ARIA+ remoteness classification also closely follows the pattern evident for total admissions, with an SAR of 98 in the Highly Accessible ARIA+ class; ratios of 92, 109 and 104 in the middle classes; and the highest SAR (160) in the Very Remote areas.

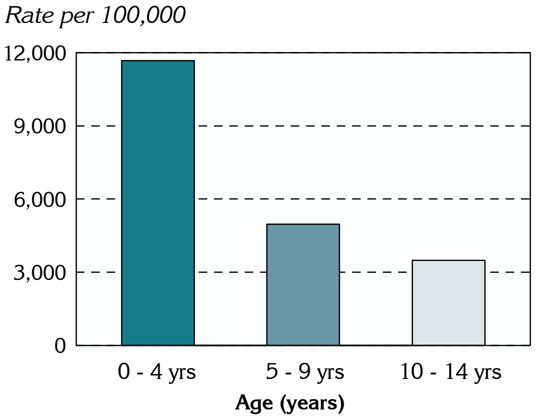
Source: Calculated on ARIA+ classification

Same day admissions, children aged 0 to 14 years, 1996/97-1998/99

Adelaide

Same day admission rates for children living in Adelaide vary substantially within the 0 to 14 year age category (**Figure 5.17**). Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 11,869 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (3,486 admissions per 100,000).

Figure 5.17: Same day admissions, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the three years 1996/97 to 1998/99, there were 41,244 same day admissions of children aged 0 to 14 years living in Adelaide. This was five per cent higher than expected from the State rates, a standardised admission ratio (SAR) of 105**. The total of same day admissions was comprised of 25,009 males (60.6%) and 16,235 females (39.4%).

Children in *Prospect* (with an SAR of 237**) and *Upper Sturt* (214**) had the highest standardised admission ratio for this variable, with more than twice the number of admissions than were expected from the State rates. Ratios elevated by fifty per cent or more were also recorded in the postcode areas of *Gepps Cross* (166**), *Nailsworth* (163**), *Ferryden Park* and *North Adelaide* (both 161**), *Wynn Vale* (158**), *Blair Athol* (156**) and *Osborne* (153**).

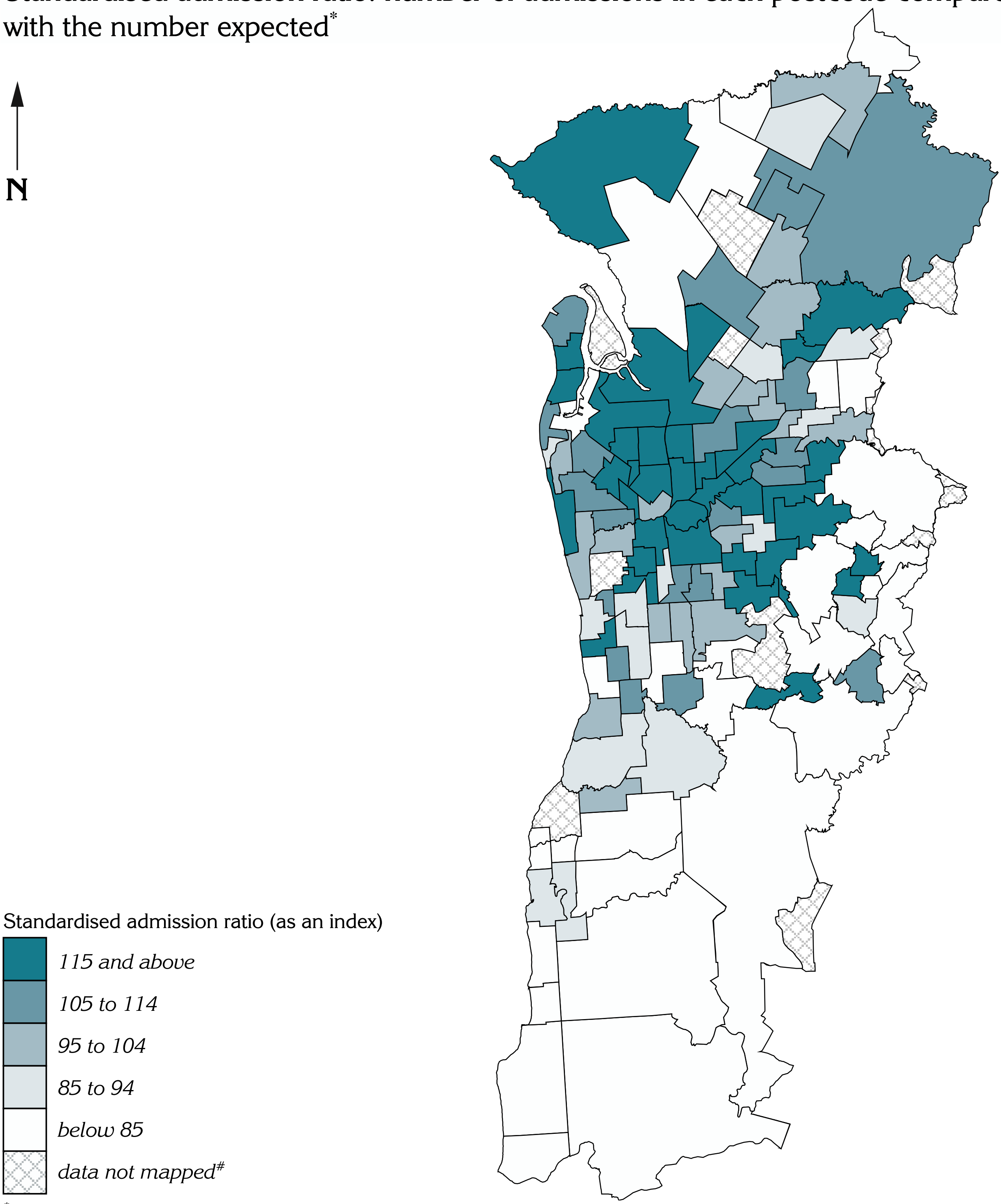
In areas with more than 20 admissions, the lowest ratios were recorded in the southern postcode areas of *Sellicks Beach* (with 63% fewer same day admissions than were expected from the State rates, an SAR of 37**), *Maslin Beach* (47**), *O'Sullivan Beach* (48**), *Christies Beach* and *Aldinga* (both 51**), *McLaren Vale* and *Willunga* (both 62**). Relatively low ratios were also recorded for children in *MacDonald Park* (60**) and *Stirling Forward* (63**).

The largest number of same day admissions of children aged 0 to 14 years was recorded for residents of *Salisbury* (2,100 admissions), *Morphett Vale* (1,297 admissions), *Happy Valley* (1,260 admissions), *Smithfield* (1,175 admissions), *Elizabeth North* (985 admissions), *Prospect* (977 admissions), *Salisbury East* (961 admissions) and *O'Halloran Hill* (936 admissions).

There was no consistent evidence in the correlation analysis at the postcode or SLA level between same day admissions at ages 0 to 14 years and socioeconomic status.

Map 5.11
Same day admissions, children aged 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

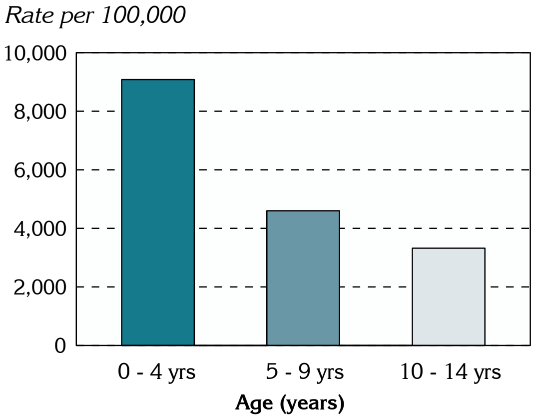
Source: Compiled in HealthWIZ from data supplied by DHS *Details of map boundaries are in Appendix 1.2*

Same day admissions, children aged 0 to 14 years, 1996/97-1998/99

Non-metropolitan South Australia

Same day admission rates in non-metropolitan South Australia vary substantially (**Figure 5.18**) between the five year age groups in the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 9,085 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (3,322 admissions per 100,000).

Figure 5.18: Same day admissions, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were eleven per cent fewer same day admissions at ages 0 to 14 years in the non-metropolitan area of South Australia than were expected from the State rates, a standardised admission ratio (SAR) of 89**. Males accounted for 61.7% of the total 15,116 admissions, and females accounted for 38.3%.

There is no clear pattern in the distribution of standardised admission ratios for same day admissions (**Map 5.12**).

Warooka, located on the Yorke Peninsula, had the highest SAR, of 286**, indicating that there were more then two and a half times the number of admissions than expected from the State rates (a total of 127 admissions over this three year period). Highly elevated ratios were also recorded for children living in the SLAs of Dudley (with an SAR of 273**), Barmera (164**), Burra Burra (158**), Lameroo (154**), Port Broughton (149**), Elliston (130*), Ceduna (129**), Kingscote and Loxton (both 123**).

Excluding SLAs with fewer than 20 admissions, the SLAs of Naracoorte (DC) (with a ratio of 28**), Lucindale (38**), Robe (45**), Unincorporated Far North (47**), Yankalilla, Mount Gambier (DC) and Karoonda-East Murray (each 48**), Lacepede (49**) and Beachport (50**) had the lowest standardised admission ratios for this variable. Ratios of below 60 were also recorded in Port Pirie (52**), Mount Remarkable and Light (both 55**), Orroroo and Franklin Harbor (both 57**), Ridley-Truro and Lower Eyre Peninsula (both 59**).

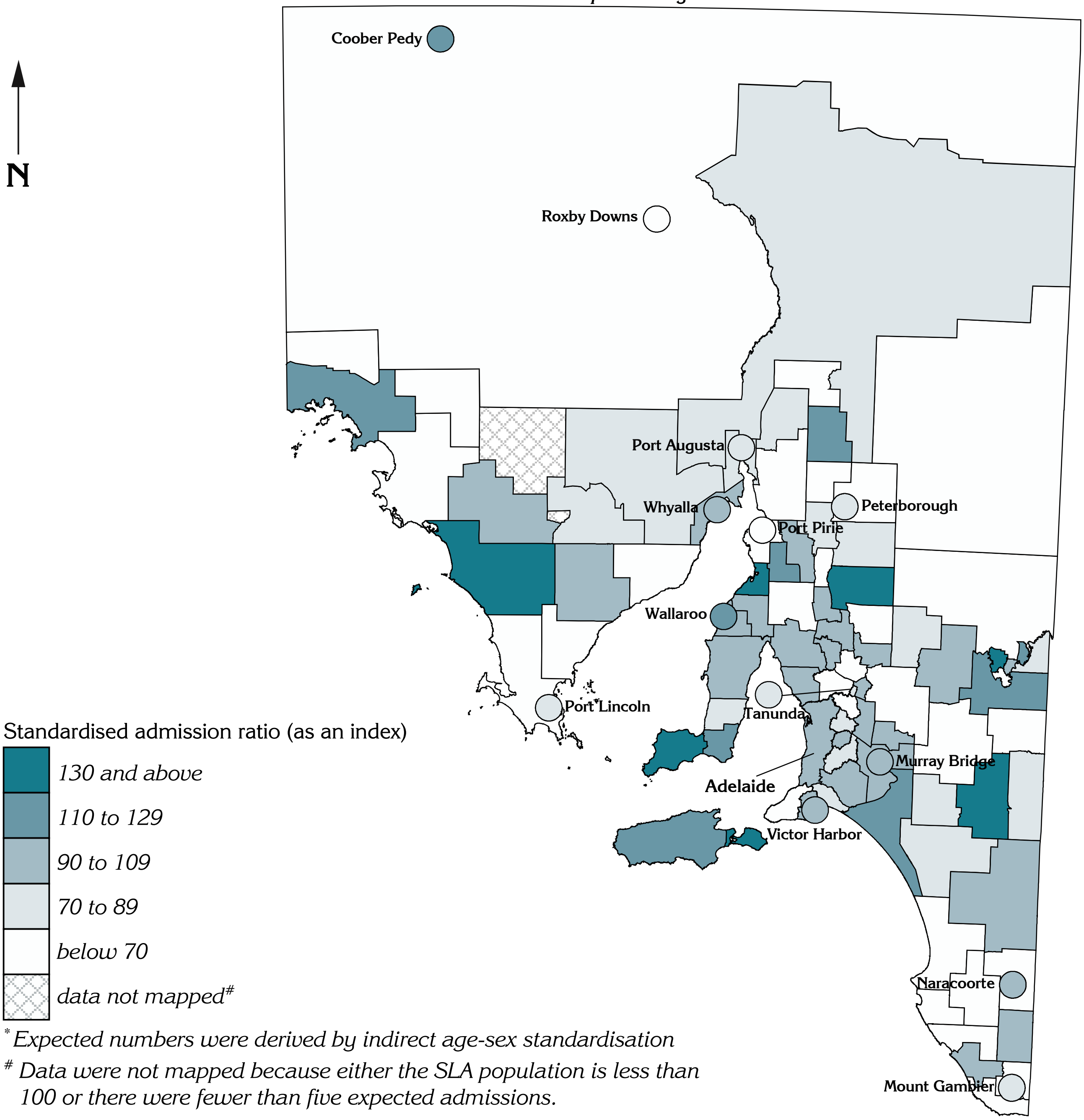
The largest number of same day admissions of children aged 0 to 14 years was recorded for residents of Whyalla, with 1,172 admissions. More than 400 admissions were also recorded in the SLAs of Mount Gambier (C) (872 admissions), Mount Barker (848), Murray Bridge (651), Port Lincoln (502), Port Augusta (495) and Renmark (409).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia between high rates of same day admissions at ages 0 to 14 years and socioeconomic status.

Map 5.12
Same day admissions, children aged 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

Map boundary truncated



Standardised admission ratio (as an index)

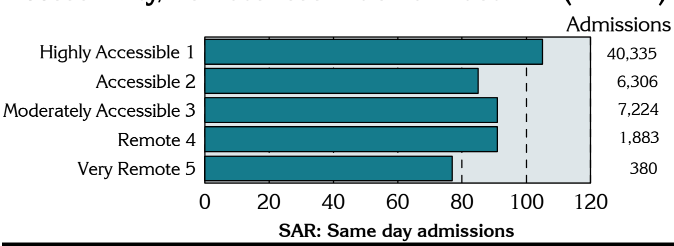
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios for same day admissions at ages 0 to 14 years were highest in the Highly Accessible areas, with five per cent more admissions than were expected from the State rates. Areas in the Very Remote class had the lowest ratio (77), with SARs of around 90 in the middle three ARIA+ classes.

Source: Calculated on ARIA+ classification

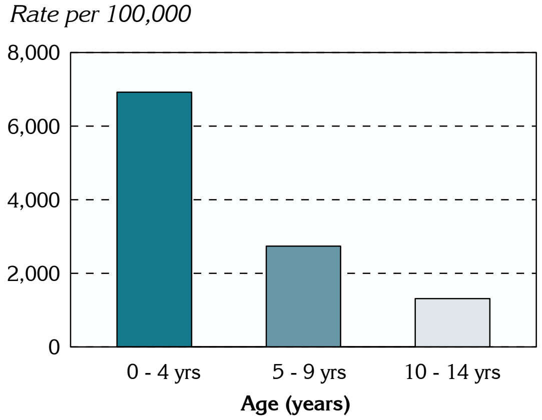
Admissions for respiratory system diseases, children aged 0 to 14 years, 1996/97-1998/99

Adelaide

Respiratory system diseases include the diseases of pneumonia, influenza, bronchitis, emphysema and asthma. This category includes people with chronic obstructive pulmonary disease – defined as a persistent obstruction of bronchial airflow, manifesting as asthma, chronic bronchitis, and chronic emphysema – as well as acute respiratory infections.

Admission rates for respiratory system diseases of children living in Adelaide vary substantially (**Figure 5.19**) within the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 6,924 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (1,308 admissions per 100,000).

Figure 5.19: Admissions for respiratory system diseases, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 22,427 admissions to hospital of children aged 0 to 14 years living in Adelaide with respiratory system diseases, five per cent fewer than were expected from the State rates (a standardised admission ratio (SAR) of 95**). Males comprised 59.8% of these admissions.

There was a strong concentration of postcode areas with high standardised admission ratios in the outer northern suburbs and in the middle northern and north-western areas (**Map 5.13**). These areas included *Gepps Cross* (with an SAR of 203**), *Woodville North* (146**), *Pooraka* (141**), *Rosewater* (141**), *Ferryden Park* (140**), *Blair Athol* (139**), *Klemzig* (124**), *Ingle Farm* (124**) and *Croydon* (121**), in the mid northern and north-western suburbs; and *Parafield Gardens* (133**), *Elizabeth North* (130**) and *Elizabeth* (126**), in the outer north.

Areas with relatively low ratios were located primarily to the east, south and south-east of the city. Although the lowest ratios were in the postcode areas of *Montacute* (with an SAR of 14**) and *Carey Gully* (27**), these areas had just two and five admissions, respectively. In postcode areas where there were more than 20 admissions, the lowest ratios were recorded in *Stirling Forward* (an SAR of 38** and 60 admissions), *Belair* (43** and 50), *Aldinga* (53** and 115), *Stirling* (53** and 84), *Eden Hills* (53** and 47), *Moana* (60** and 144), *Norwood* (60** and 77) and *Blackwood Forward* (60** and 39).

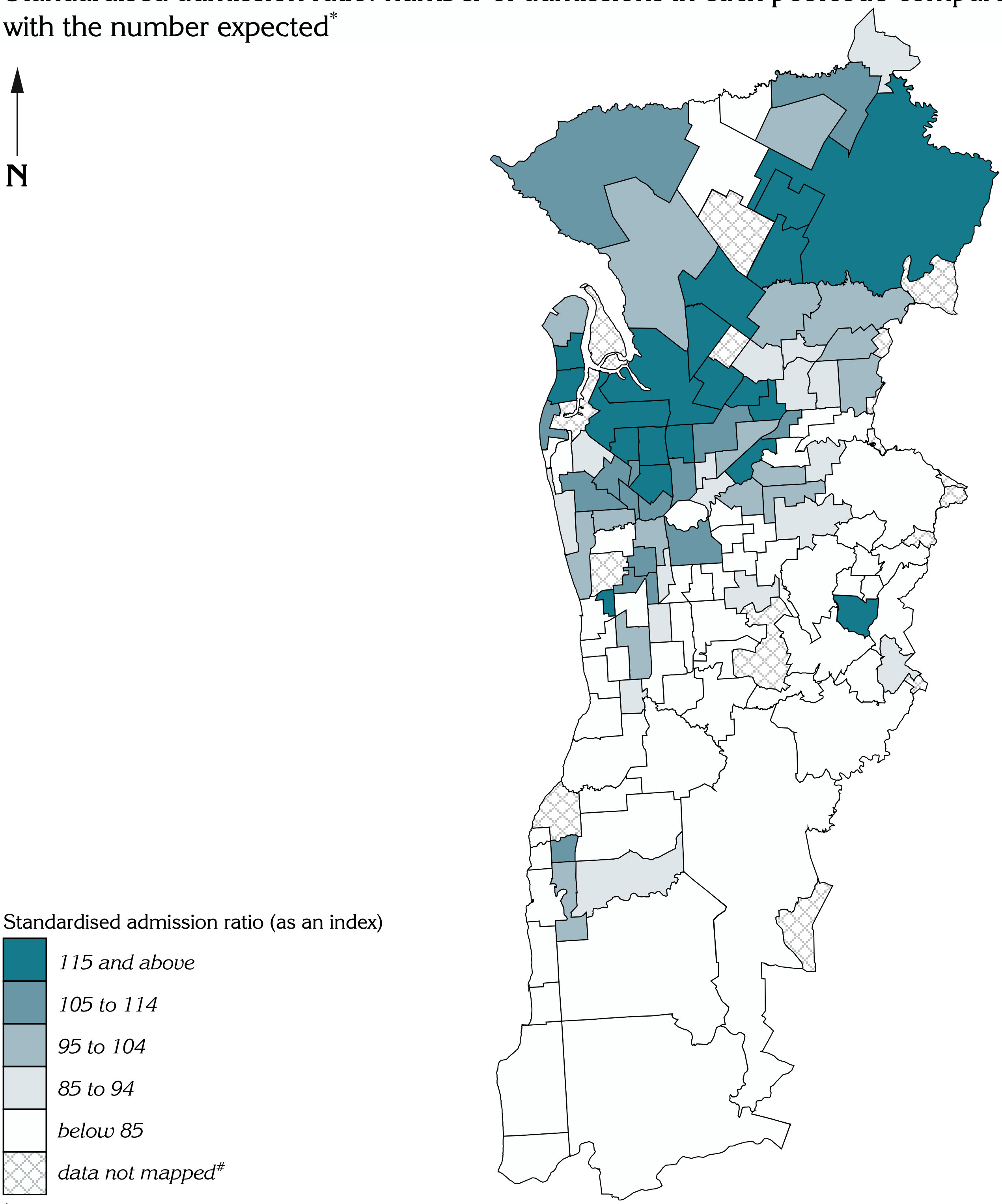
Salisbury had the largest number of admissions at these ages for respiratory system diseases, with 1,423 admissions. Other postcode areas with large numbers of admissions included *Smithfield* (766 admissions), *Morphett Vale* (760 admissions), *Elizabeth North* (737 admissions) and *Elizabeth* (671 admissions).

There were correlations of meaningful significance with the variables for Indigenous people aged 0 to 14 years (0.65) and 15 to 24 years (0.60); children aged 0 to 14 years living in dwellings with no motor vehicles (0.59), dwellings rented from the SA Housing Trust (0.59), single parent families (0.58) and low income families (0.56); and the high socioeconomic status indicators of managers and administrators, and professionals (-0.56), female labour force participation (-0.51) and high income families (-0.51). Inverse correlations were also recorded with the variables for full-time students (-0.50) and publicly assessed achievement scores (-0.53).

These results, together with the inverse correlation with the IRSD (-0.65), indicate an association at the postcode level between high rates of admissions for respiratory system diseases at ages 0 to 14 years and socioeconomic disadvantage.

Map 5.13
Admissions for respiratory system diseases, children aged 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

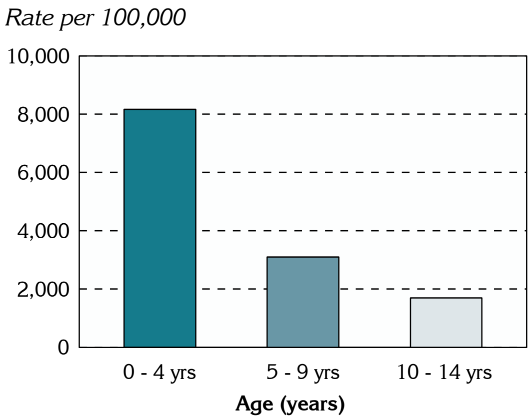
Admissions for respiratory diseases, children aged 0 to 14 years, 1996/97-1998/99

Non-metropolitan South Australia

Respiratory system diseases include the diseases of pneumonia, influenza, bronchitis, emphysema and asthma. This category includes chronic obstructive pulmonary disease – a persistent obstruction of bronchial air flow, manifesting as asthma, chronic bronchitis, and chronic emphysema – as well as acute respiratory infections.

Admission rates for non-metropolitan South Australians with respiratory system diseases vary substantially (**Figure 5.20**) between the five year age groups in the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 8,165 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (1,695 admissions per 100,000).

Figure 5.20: Admissions for respiratory system diseases, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 11,418 admissions of children aged 0 to 14 years resident in the non-metropolitan area of South Australia. This is 12% more admissions than were expected from the State rates, a standardised admission ratio (SAR) of 112**. Males accounted for 58.0% of these admissions.

Less than half (46.2%) of the SLAs for which data were mapped had elevated standardised admission ratios. The most highly elevated of these was recorded for children in Unincorporated West Coast, with more than eight times the number of admissions expected from the State rates (an SAR of 832** and 141 admissions over the three years).

The next highest ratios were recorded in the SLAs of Port Broughton (with an SAR of 261**), Unincorporated Flinders Ranges (251**), Wallaroo (227**), Tatiara (225**), Coober Pedy (181**), Meningie (175**), Peterborough (173**), Kanyaka and Quorn (172**), Port Augusta (170**), Ceduna (166**), Port Pirie (165**), Naracoorte (M) (162**) and Millicent (160**).

Excluding SLAs with fewer than 20 admissions, the lowest standardised admission ratio was recorded in the SLA of Unincorporated Far North, with an SAR of 39**. Low ratios were also recorded in Mount Gambier (43**) and Lacepede (60**), in the south-east; Barossa (47**), Yankalilla (51**) and Light (55**) situated in the areas surrounding Adelaide; and Paringa (54**) and Mannum (57**).

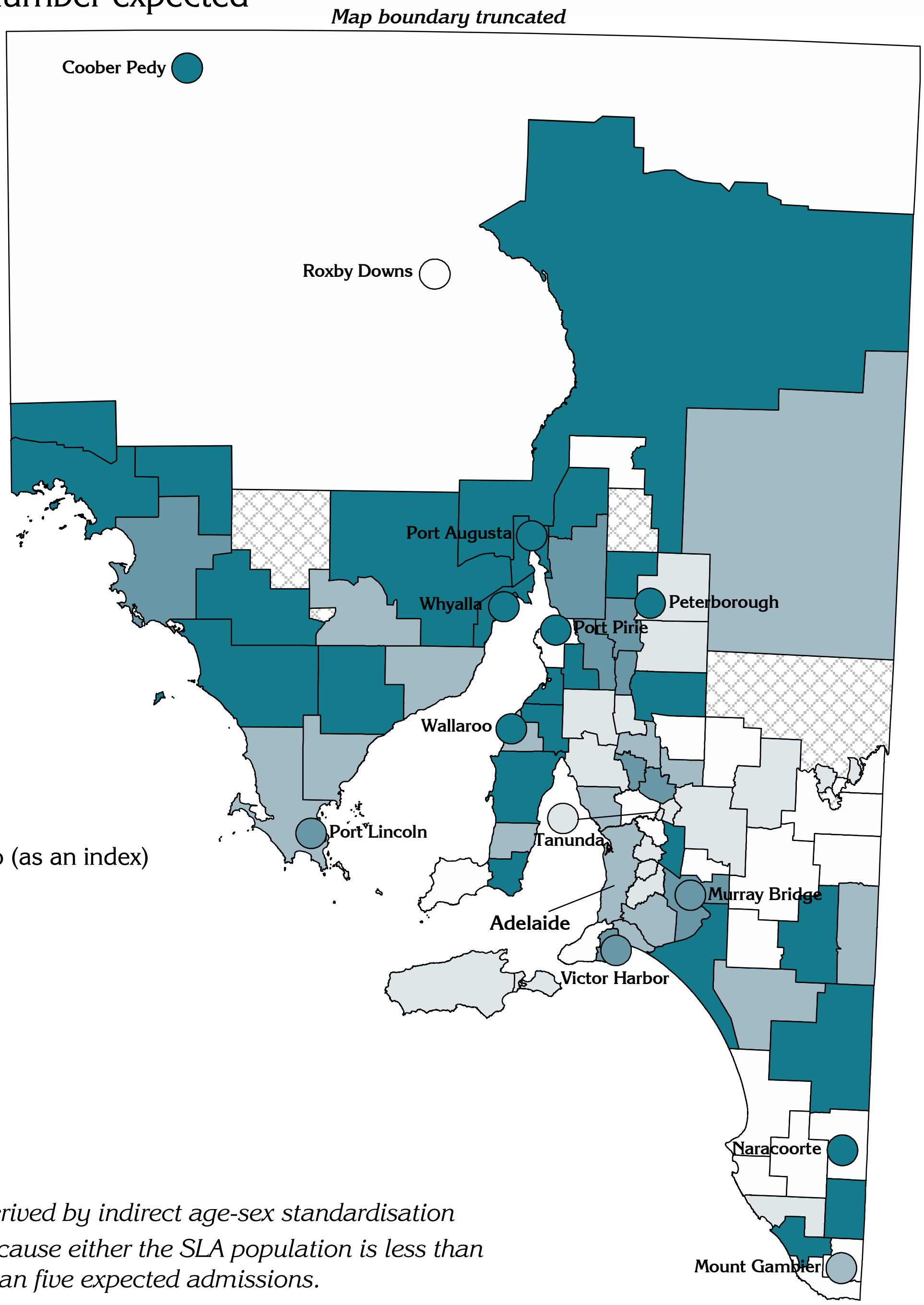
The largest numbers of admissions of children aged 0 to 14 years for respiratory system diseases were recorded in Whyalla (1,027 admissions), Port Augusta (668 admissions), Mount Gambier (622 admissions), Port Pirie (593 admissions), Mount Barker (508) and Murray Bridge (503 admissions).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia between high rates of admissions at ages 0 to 14 years for respiratory system diseases and socioeconomic status.

Map 5.14

Admissions for respiratory diseases, children aged 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*



N

Standardised admission ratio (as an index)

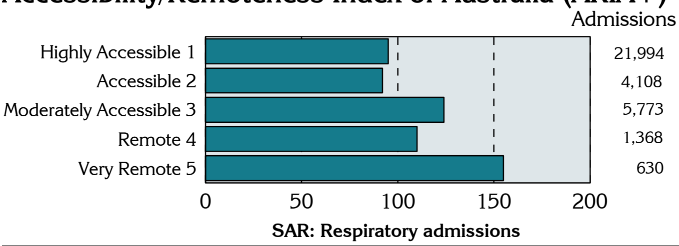
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for respiratory system diseases show a strong relationship with remoteness. Ratios increase by almost two thirds (63.0%), from SARs of 95 in the Highly Accessible areas to 155 in the Very Remote areas. The lowest ratio was recorded in the Accessible areas, an SAR of 92.

Source: Calculated on ARIA+ classification

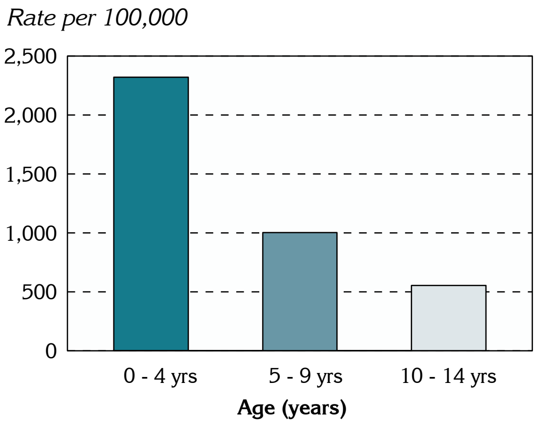
Admissions for bronchitis, emphysema and asthma, children aged 0 to 14 years, 1996/97-1998/99

Adelaide

Bronchitis, emphysema and asthma are grouped together as chronic obstructive pulmonary diseases in the International Classification of Diseases (ICD-9), which is used to code causes of admissions. However, although they are of a similar nature, they are distinct conditions, affecting different age groups in the population. Admissions for asthma and bronchitis occur at all ages, more frequently among children and older people, whereas those from emphysema (contributing the smallest numbers to this group) are almost exclusively of older people.

Admission rates for bronchitis, emphysema and asthma of children living in Adelaide vary substantially (**Figure 5.21**) within the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 2,320 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (553 admissions per 100,000).

Figure 5.21: Admissions for bronchitis, emphysema or asthma, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 7,932 admissions of children aged 0 to 14 years living in Adelaide for bronchitis, emphysema and asthma, three per cent more admissions than expected from the State rates (a standardised admission ratio (SAR) of 103**). Males accounted for almost two thirds of these admissions (64.4%).

As can be seen from **Map 5.15**, high rates of admission for bronchitis, emphysema and asthma were recorded over a continuous area to the west, north-west and north of the city centre.

Several postcode areas in the Adelaide Hills were not mapped for this variable as there were too few cases to produce reliable results.

The highest standardised admission ratio was in *Woodville North*, with more than twice the number of admissions expected from the State rates (with an SAR of 212** and 140 admissions). Relatively high ratios were also recorded for children in *Ferryden Park* (with an SAR of 195**), *Blair Athol* (177**), *Klemzig* (176**), *Parafield Gardens* (173**), *Rosewater East* (169**), *Croydon* (166**) and *Pooraka* (161**). In *Port Adelaide*, *Largs Bay*, *Woodville*, *Ingle Farm*, *Para Vista*, *Semaphore* and *Elizabeth*, ratios were elevated by between 40% and 60%.

The lowest ratios for admissions from bronchitis, emphysema and asthma were spread over a wide area to the south and east of Adelaide. Excluding areas with fewer than 20 admissions, *Aldinga* recorded the lowest ratio for this variable, with 55% fewer admissions than expected (an SAR of 45** and 32 admissions). Other low ratios were recorded in the postcode areas of *O'Halloran Hill* (with an SAR of 53** and 112 admissions), *Stirling* (56** and 29), *Goodwood* (58** and 31), *Walkerville* (59** and 26), *Highbury* (61* and 25), *Moana* (62** and 48), *Oaklands Park* (63* and 29) and *St Marys* (64** and 35).

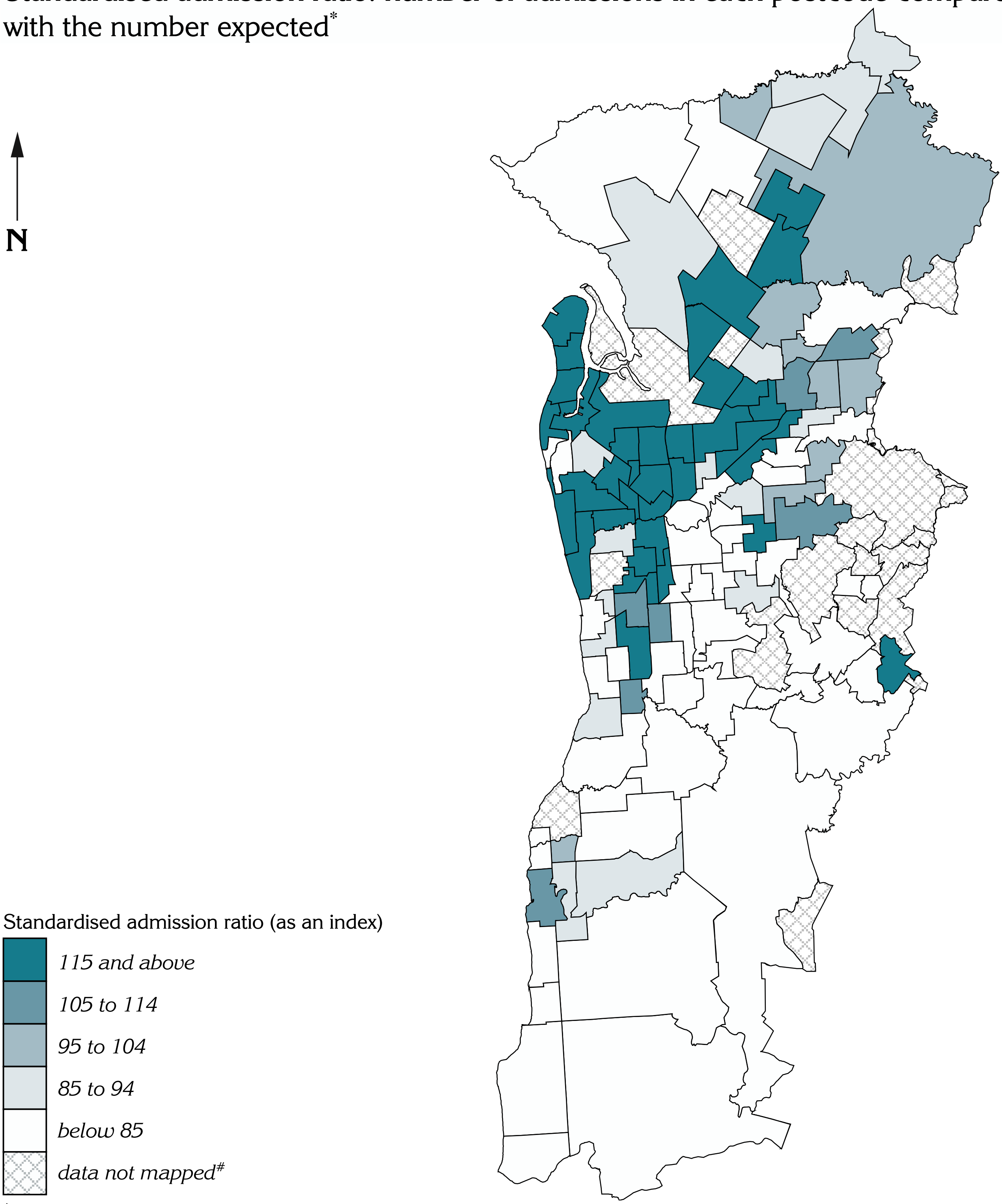
The largest number of admissions was recorded for residents of *Salisbury* (with 520 admissions), followed by *Elizabeth* (240 admissions), *Elizabeth North* (230 admissions), *Parafield Gardens* (229 admissions), *Morphett Vale* (225 admissions) and *Smithfield* (221 admissions).

There were correlations of meaningful significance with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.60), single parent families (0.59), dwellings rented from the SA Housing Trust (0.58) and low income families (0.58); Indigenous people aged 15 to 24 years (0.51); and people aged 15 to 24 years from non-English speaking countries (0.50).

These results, together with the inverse correlation with the IRSD (-0.63), indicate an association at the postcode level between high rates of admission for bronchitis, emphysema and asthma at ages 0 to 14 years and socioeconomic disadvantage.

Map 5.15
Admissions for bronchitis, emphysema and asthma, children aged 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

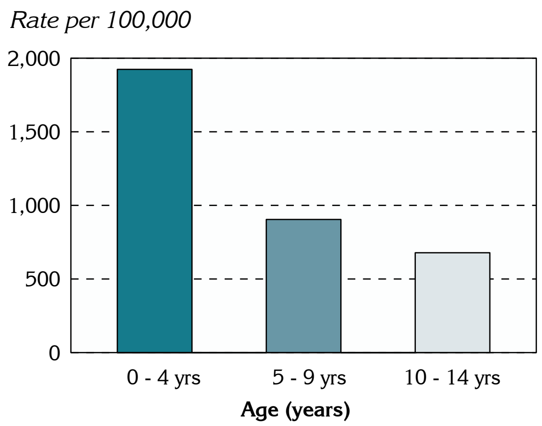
Admissions for bronchitis, emphysema and asthma, children aged 0 to 14 years, 1996/97-1998/99

Non-metropolitan South Australia

As noted on the previous text page, bronchitis, emphysema and asthma are grouped together when coding causes of admissions. However, although they are of a similar nature, they are distinct conditions, affecting different age groups in the population. Admissions for asthma and bronchitis occur at all ages, more frequently among children and older people, whereas those from emphysema (contributing the smallest numbers to this group) are almost exclusively of older people.

Admission rates for non-metropolitan South Australians with bronchitis, emphysema and asthma vary substantially (**Figure 5.22**) between the five year age groups in the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 1,924 admissions per 100,000 population aged 0 to 4 years), with the lowest rate in the 10 to 14 year age group (678 admissions per 100,000).

Figure 5.22: Admissions for bronchitis, emphysema or asthma, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 3,111 admissions for bronchitis, emphysema and asthma of children aged 0 to 14 years living in Adelaide, seven per cent fewer than expected from the State rates (a standardised admission ratio (SAR) of 93**). Males accounted for almost two thirds of these admissions (62.1%).

Areas with relatively high standardised admission ratios were scattered throughout the State in no notable pattern (**Map 5.16**).

SLAs with more than twice the number of admissions expected from the State rates were Port Broughton (with an SAR of 258** and 23 admissions over the three years), Burra Burra (249** and 37 admissions), Streaky Bay (211** and 39 admissions), Wallaroo (209** and 32 admissions) and Le Hunte (201** and 29 admissions). Other SLAs mapped in the highest range included Elliston (with an SAR of 190**), Port Lincoln (142**), Whyalla (137**) and Cleve (131), on the Eyre Peninsula; Bute (179*) and Crystal Brook/Red Hill (179**), on or near the Yorke Peninsula; Meningie (174**), Millicent and, Penola (both 172**), Tatiara (139**) and Lameroo (131), in the south-east; Mount Pleasant (148*) and Kapunda (133), in the areas surrounding Adelaide; and in Kanyaka and Quorn (158*) in the far north.

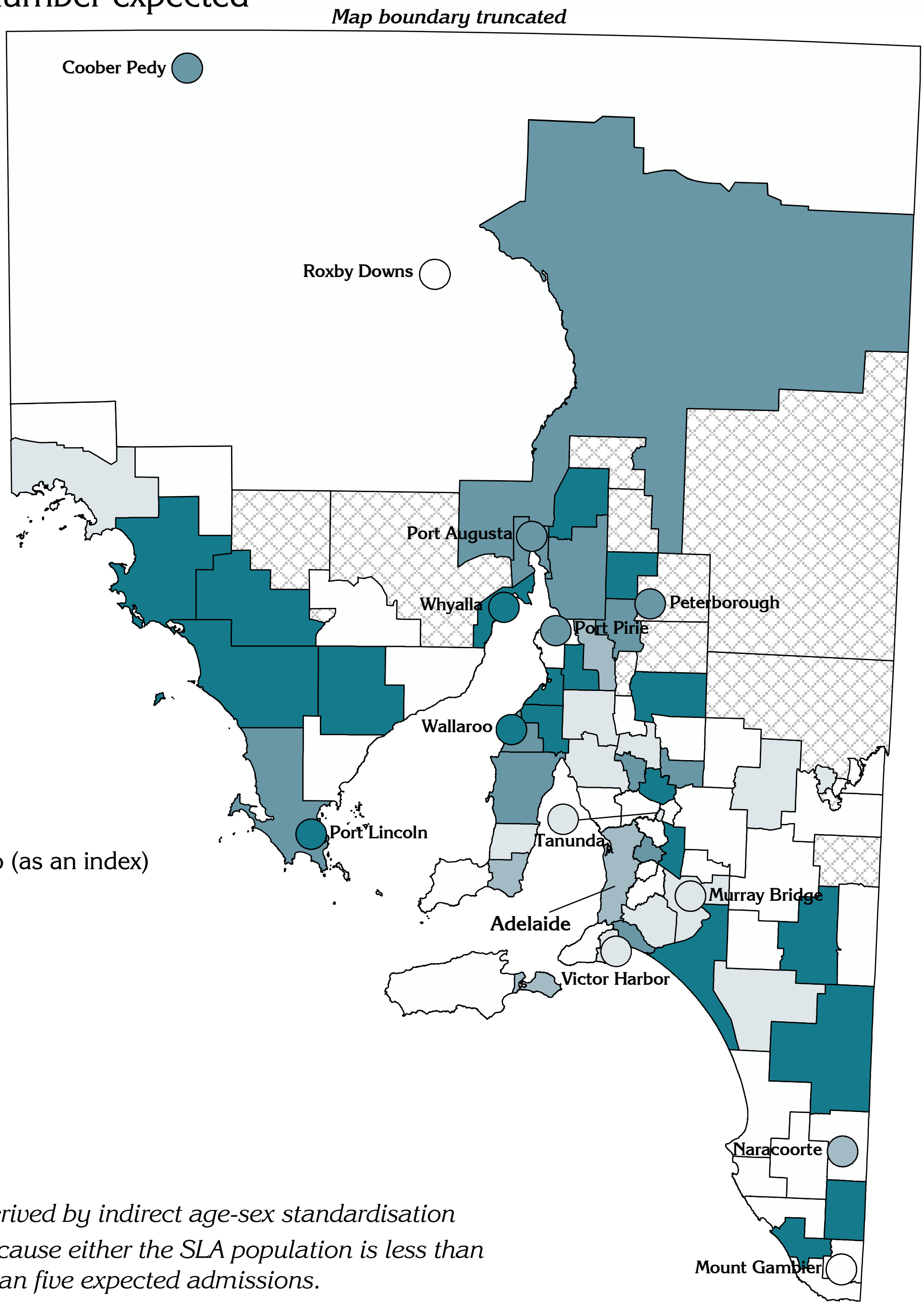
Light, on the outskirts of Adelaide, had the lowest ratio in SLAs with more than 20 admissions, with 51% fewer admissions than were expected from the State rates (an SAR of 49**). Onkaparinga (with 39 admissions), Mallala (40 admissions) and Barossa (28 admissions) also recorded relatively low ratios, with SARs of 57**, 60** and 60** respectively.

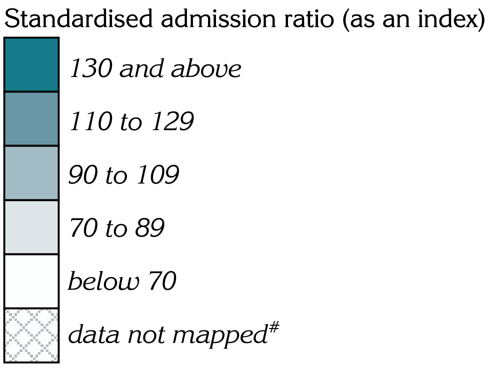
Residents of Whyalla had the largest number of admissions for these causes (298 admissions), followed by Port Lincoln (160 admissions), Port Augusta (152 admissions), Port Pirie (144 admissions), Mount Gambier (136 admissions), Mount Barker (132 admissions), Millicent (110 admissions) and Murray Bridge (104 admissions).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia between high rates of admissions at ages 0 to 14 years for bronchitis, emphysema and asthma and socioeconomic status.

Map 5.16
Admissions for bronchitis, emphysema and asthma, children aged 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*



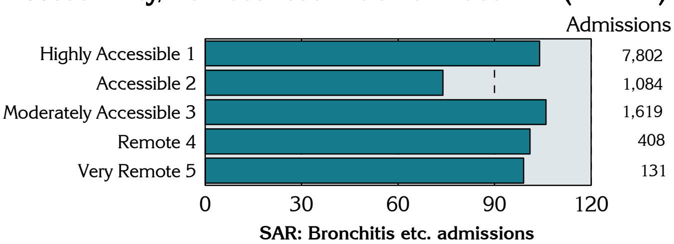


* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for bronchitis, emphysema and asthma vary across the ARIA+ classes, from the lowest ratio in the Accessible areas (an SAR of 74), to elevated ratios of 106 and 104 in the Moderately Accessible and Highly Accessible areas.

Source: Calculated on ARIA+ classification

Admissions from injury and poisoning, children aged 0 to 14 years, 1996/97-1998/99

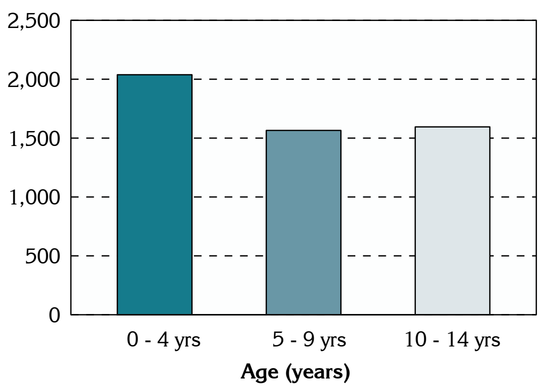
Injury continues to be the leading cause of death among children, and one of the main causes of illness. For every child who dies from injury, many more are admitted to hospital and others are treated in accident and emergency departments, and GP surgeries. Injuries can have long term effects, such as disability or disfigurement, which can impair a child's development and future wellbeing (AIHW 2002). In addition, disability or death from injury significantly impacts on a child's family.

Adelaide

The risk of injury and types of injury suffered are strongly associated with sex and age of the child, the area of residence, and the socioeconomic status of the family. For most types of childhood injury, and for every age after infancy, males are at higher risk of injury than females. The most common reason for injury admissions is falls, followed by pedal cyclist injuries and accidental poisoning. However, deaths of children from injuries, including motor vehicle accidents and accidental drowning, have declined over the last decade (AIHW 2002).

Admission rates from the external causes of injury and poisoning of children living in Adelaide vary substantially (**Figure 5.23**) within the 0 to 14 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 2,039 admissions per 100,000 population aged 0 to 4 years), with the lowest rate recorded in the 5 to 9 year age group (1,565 admissions per 100,000).

Figure 5.23: Admissions from injury and poisoning, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the three years from 1996/97 to 1998/99, there were 10,726 admissions from the combined causes of injury and poisoning of children aged 0 to 14 years living in Adelaide. This was six per cent fewer admissions than expected from the State rates, a standardised admission ratio (SAR) of 94**. Males accounted for 61.8% of these admissions.

Postcode areas with high admission rates from injury and poisoning in this age group were highly concentrated in the city's inner northern and north-western postcodes as well as in the outer northern and eastern postcode areas (**Map 5.17**).

Excluding areas with fewer than 20 admissions, the highest ratio was recorded for children in *Adelaide*, with an SAR of 157*. *North Adelaide* (152**), *Blair Athol* (147**), *Enfield* and *Prospect* (both 142**), *Hindmarsh* (135*), *Ferryden Park* (128*), *Thebarton* (122), *Klemzig* (122*), *Osborne* (120) and *Nailsworth* (120), situated in the inner northern and north-western areas; *Angle Vale* (130), *Elizabeth North* (122**) and *Smithfield* (121**), located in the outer northern suburbs; and *Old Noarlunga* (126) in the south, all recorded at least 20% more admissions than expected from the State rates.

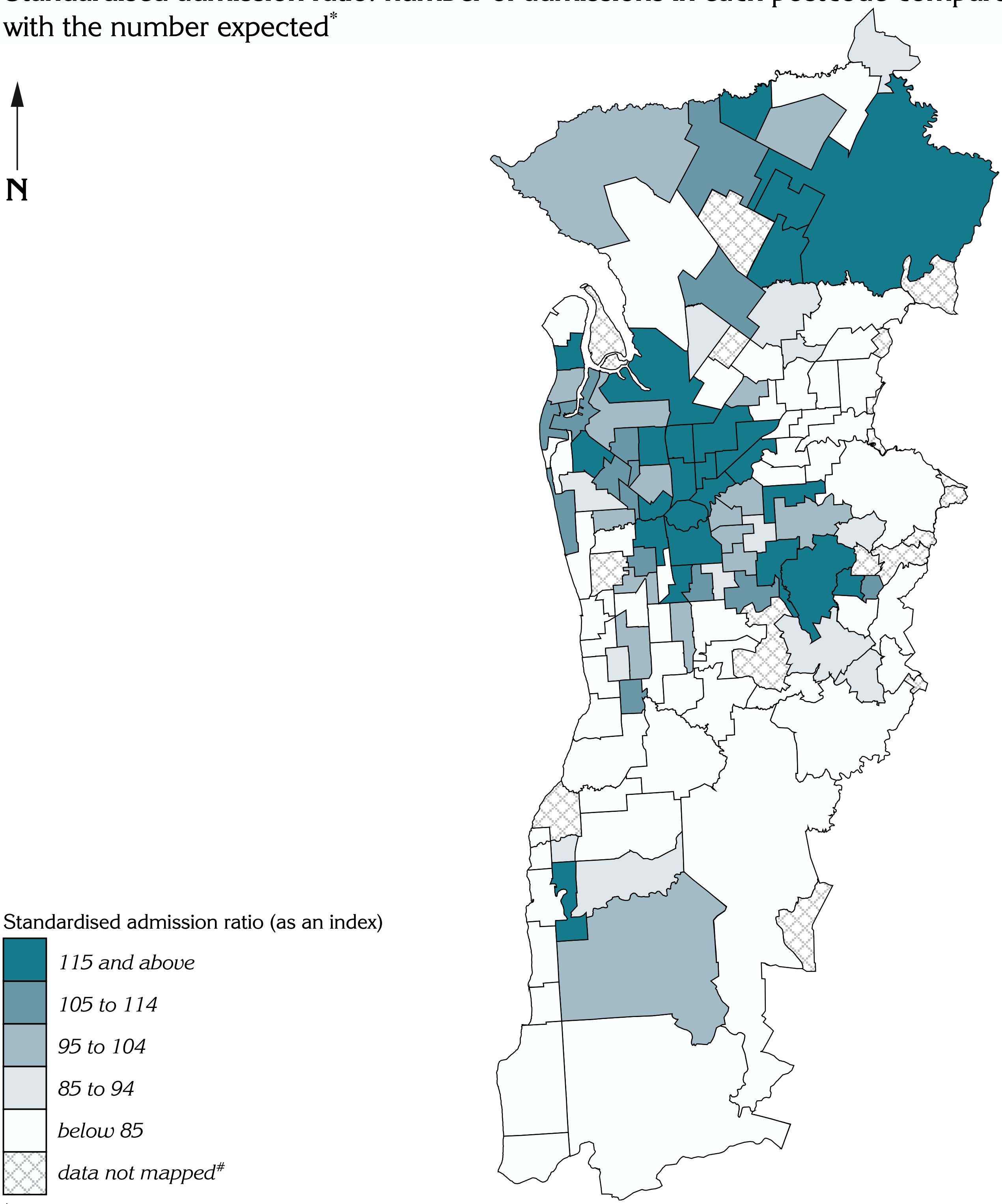
In contrast, relatively low ratios were recorded in the north-eastern, southern and coastal suburbs. Of areas with more than 20 admissions, *Holden Hill* had the lowest ratio for this variable, with an SAR of 56**. Low ratios were also recorded in the postcode areas of *Eden Hills* (with an SAR of 58**), *Aldinga* and *Fairview Park* (both 61**), *Blackwood, Brighton* and *Glenelg* (each 63**), *Christies Beach* (63*) and *Willunga* (65*).

Children in *Salisbury* had the largest number of admissions from the combined causes of injury and poisoning, with 591 admissions. More than 250 admissions were also recorded for residents of *Smithfield* (with 382 admissions), *Morphett Vale* (359 admissions), *Happy Valley* (344 admissions), *Elizabeth North* (322 admissions), *Elizabeth* (282 admissions) and *Salisbury East* (251 admissions).

There was a correlation of meaningful significance at the postcode level with the variable for Indigenous children aged 0 to 14 years (0.54). There was no other evidence in the correlation analysis of an association between admissions at ages 0 to 14 years from injury and poisoning and socioeconomic status.

Map 5.17
Admissions from injury and poisoning, children aged 0 to 14 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

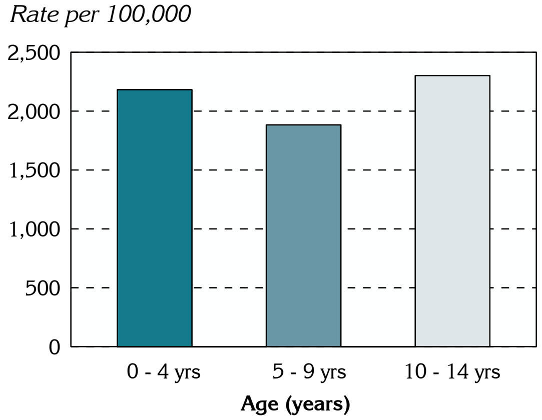
Admissions from injury and poisoning, children aged 0 to 14 years, 1996/97-1998/99

Some general comments on injury are on page 224.

Non-metropolitan South Australia

Admission rates of non-metropolitan South Australians from the external causes of injury and poisoning vary (**Figure 5.24**) between the five year age groups in the 0 to 14 year age category. Children in the 10 to 14 year age group have the highest hospitalisation rates (an average rate of 2,302 admissions per 100,000 population aged 10 to 4 years), with the lowest rate recorded in the 5 to 9 year age group (1,883 admissions per 100,000).

Figure 5.24: Admissions from injury and poisoning, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 5,751 admissions of residents aged 0 to 14 years of the non-metropolitan area of South Australia from the combined causes of injury and poisoning over the period from 1996/97 to 1998/99. This was 15% more admissions than were expected from the State rates (a standardised admission ratio (SAR) of 115**). Males comprised almost two thirds (63.3%) of these admissions.

High standardised admission ratios were recorded in SLAs scattered throughout much of the State (**Map 5.18**). The highest ratios were recorded for children in Unincorporated West Coast (with an SAR of 276** and 26 admissions), Port Broughton (253** and 34 admissions), Meningie (229** and 116 admissions), Coonalpyn Downs (219** and 41 admissions) and Unincorporated Flinders Ranges (206** and 53 admissions), all of which had more than twice the number of admissions than were expected from the State rates. Ratios elevated by more than 70% were also recorded in the SLAs of Tatiara (193**), Kingscote (186**), Crystal Brook-Redhill (185**), Central Yorke Peninsula (185**), Elliston (179**), Burra Burra (178**), Peake (173*) and Mount Pleasant (173**).

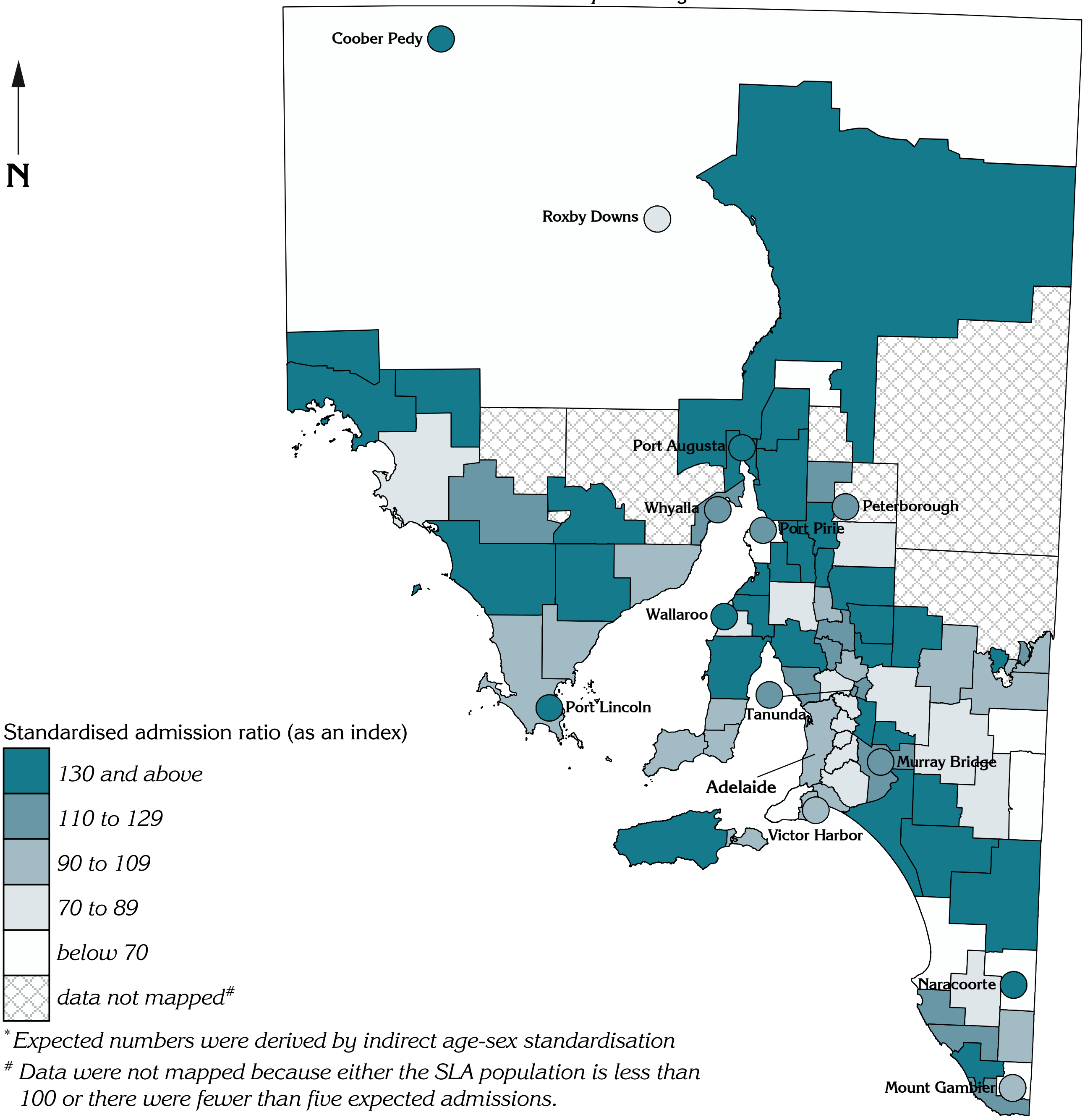
In contrast, the lowest standardised admission ratios (in SLAs with more than 20 admissions) for children at these ages were recorded in the SLAs of Unincorporated Far North (with an SAR of 61** and 50 admissions), Mount Gambier (DC) (61** and 41 admissions), Yankalilla (67* and 27 admissions), Blyth-Snowtown (72 and 21 admissions) and Northern Yorke Peninsula (75* and 68 admissions).

The largest numbers of admissions for this variable were recorded in the towns of Whyalla (with 363 admissions), Mount Gambier (299 admissions), Port Augusta (264 admissions), Port Lincoln (243 admissions) and Murray Bridge (230 admissions).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia between high rates of admissions at ages 0 to 14 years from the external causes of injury and poisoning and socioeconomic status.

Map 5.18
Admissions from injury and poisoning, children aged 0 to 14 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

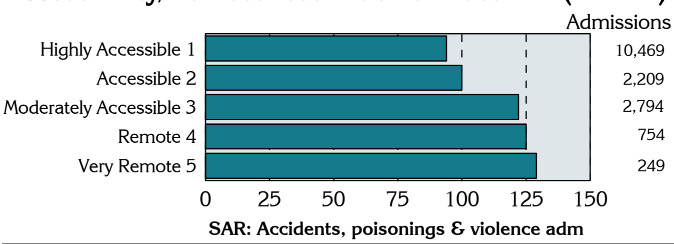


* Expected numbers were derived by indirect age-sex standardisation

\# Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for admissions from the external causes of injury and poisoning increase steadily across the ARIA+ classes. Ratios increase from an SAR of 94 in the Highly Accessible areas to 125 and 129 in the Remote and Very Remote areas, respectively.

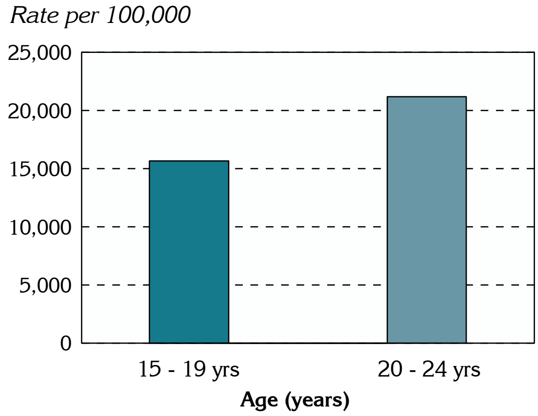
Source: Calculated on ARIA+ classification

Admissions to public acute and private hospitals, people aged 15 to 24 years, 1996/97-1998/99

Adelaide

Admission rates of young people living in Adelaide vary substantially (**Figure 5.25**) within the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rate (an average rate of 15,665 admissions per 100,000 population aged 15 to 19 years), with a rate of 21,181 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.25: Admissions to public acute and private hospitals, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were eight per cent fewer admissions to public acute and private hospitals of young people aged 15 to 24 years than were expected from the State rates, a standardised admission ratio (SAR) of 92**. Females comprised almost two thirds of the 86,503 admissions (64.6%).

Postcode areas in Adelaide with high standardised admission ratios for admissions to public acute and private hospitals were generally located in the north-western and outer northern and southern suburbs (**Map 5.19**).

The highest SARs within this group were in *Elizabeth North* (with an SAR of 148**), *Virginia* (138**), *Elizabeth* (130**), *Evanston* (121**), *Parafield Gardens* and *Smithfield* (both 117**) and *Salisbury* (116**), situated in the outer north; and *Osborne* (139**), *Ferryden Park* (137**), *Port Adelaide* (117**) and *Woodville North* (117**), located in the north-west. High ratios were also recorded for young people in *Old Noarlunga* (with an SAR of 149**), *Uraidla* (126), *Brighton* (125**), *Adelaide* (124**), *Christie Downs* (120**), *Largs Bay* (116**) and *Brooklyn Park* (115**).

Typically, low ratios were recorded in higher socioeconomic areas. The lowest ratios in areas with more than 20 admissions were in the postcode areas of *North Adelaide* (with an SAR of 53**), *Stirling Forward* (58**), *Norwood* and *Eden Hills* (both 61**), *Novar Gardens* and *MacDonald Park* (both 62**), *Aldgate* (63**), *Eastwood* (64**) and *Basket Range* (65).

There were more than 2,000 admissions of residents aged 15 to 24 years in the postcode areas of *Salisbury* (4,089 admissions), *Morphett Vale* (3,137 admissions), *Elizabeth North* (2,506 admissions), *Happy Valley* (2,359 admissions) and *Elizabeth* (2,081).

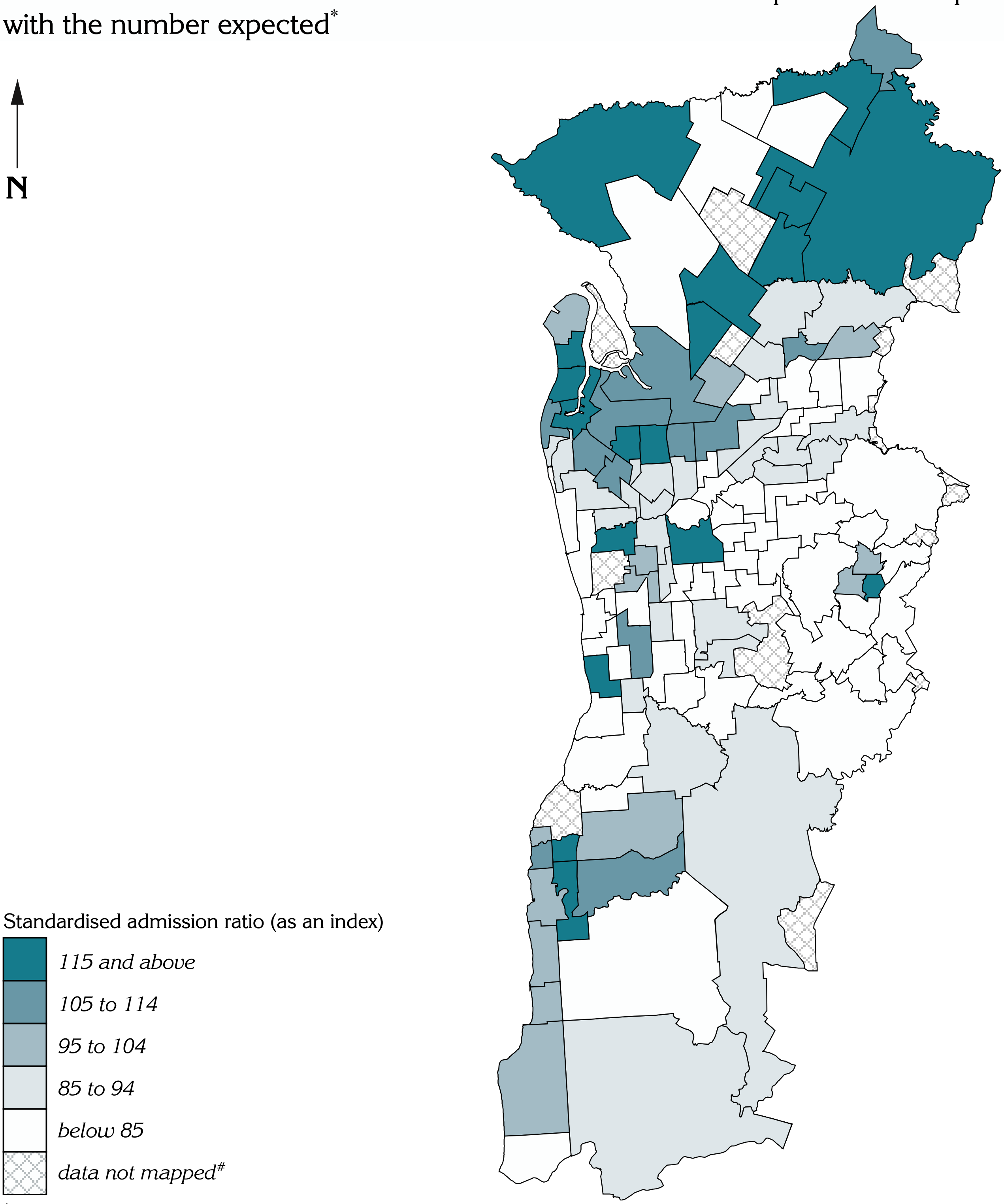
Correlations of meaningful significance were recorded with the variables for people who left school at age 15 years or earlier (0.63); and children aged 0 to 14 years living in dwellings rented from the SA Housing Trust (0.61), dwellings with no motor vehicles (0.60), low income families (0.60) and single parent families (0.57).

Inverse correlations of meaningful significance were recorded with the variables for publicly assessed achievement scores (-0.62), female labour force participation (-0.62), high income families (-0.59), publicly examined achievement scores (-0.59), managers and administrators, and professionals (-0.56) and school assessed achievement scores (-0.52).

These results, together with the inverse correlation with the IRSD (-0.65), indicate an association at the postcode level between high rates of hospital admissions at ages 15 to 24 years, and socioeconomic disadvantage.

Map 5.19
Admissions to public acute and private hospitals, people aged 15 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.*

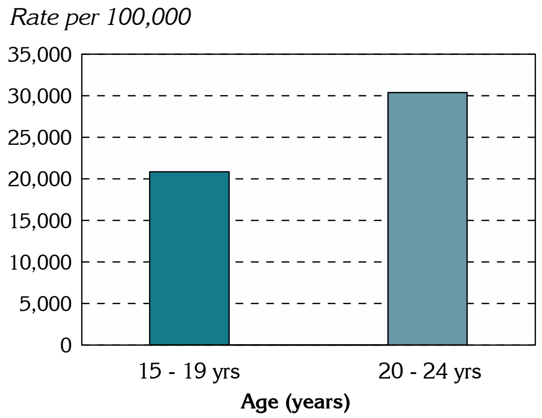
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions to public acute and private hospitals, people aged 15 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates in non-metropolitan South Australia vary substantially (**Figure 5.26**) between the five year age groups in the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rate (an average rate of 20,856 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 30,409 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.26: Admissions to public acute and private hospitals, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 34,489 admissions of non-metropolitan residents aged 15 to 24 years over the period from 1996/97 to 1998/99, 28% more admissions than were expected from the State rates (a standardised admission ratio (SAR) of 128**). Females accounted for almost two thirds of these admissions (62.5%).

Elevated ratios were recorded in almost three quarters (74.7%) of the SLAs in the non-metropolitan area of South Australia (**Map 5.20**).

The most highly elevated ratios were in Unincorporated West Coast (with an SAR of 394** and 263 admissions over the three years), Coober Pedy (230** and 367 admissions) and Port Augusta (219** and 2,415 admissions), with over twice the number of admissions than expected from the State rates. Similarly highly elevated ratios were also recorded for young people in Ceduna (an SAR of 196**), Robertstown (191**), Peterborough (188**), Unincorporated Whyalla (187**) and Eudunda (186**). Ratios were elevated by at least 30% in a further 33 SLAs.

The lowest ratios (in SLAs with more than 20 admissions) were recorded in Pirie (with an SAR of 22**, 78% fewer admissions than expected from the State rates), Mount Gambier (DC) (52**), Bute (57**), Naracoorte (DC) and Light (58**) and Unincorporated Far North (62**).

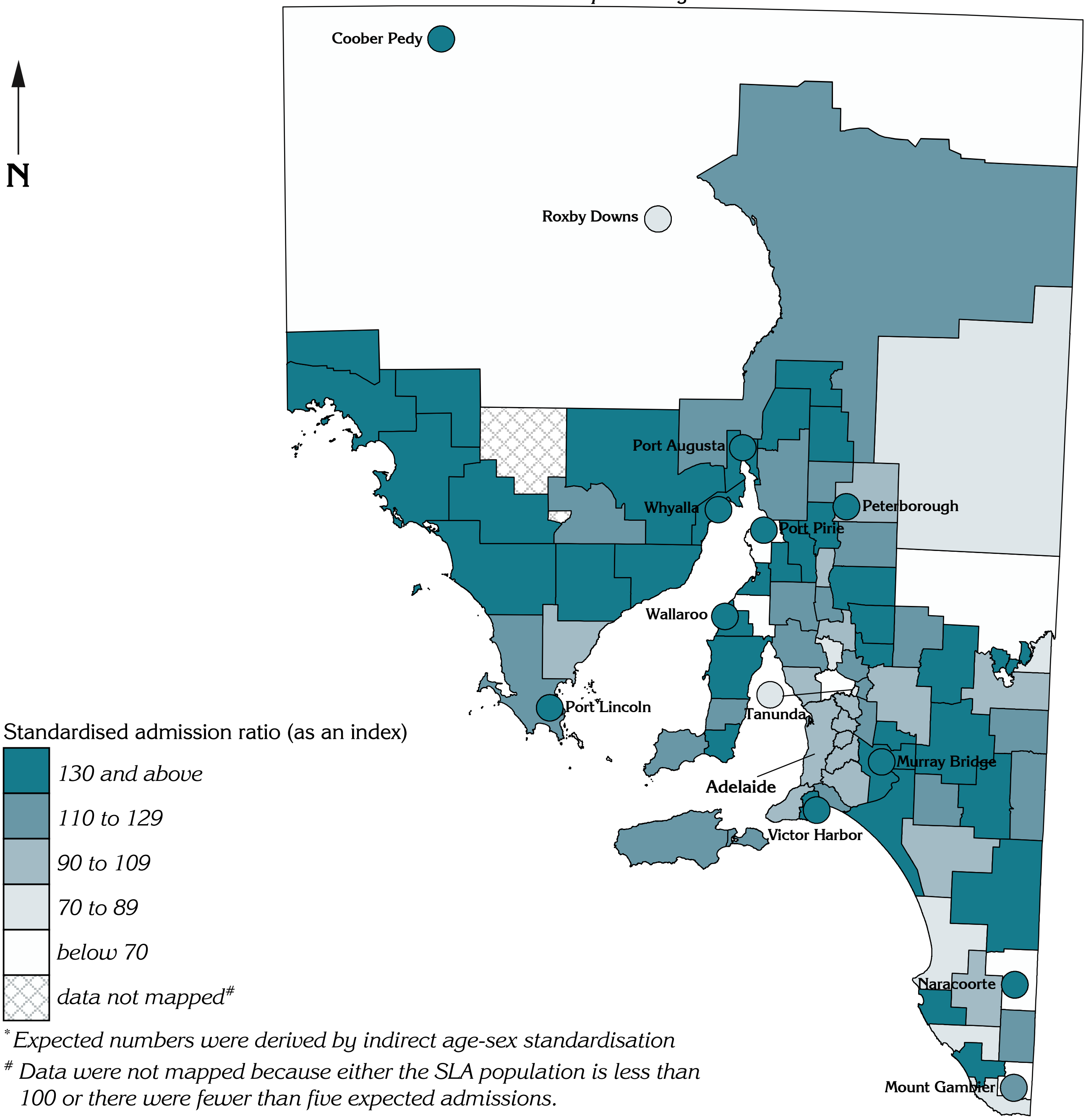
The largest numbers of admissions in the non-metropolitan area of South Australia were recorded in the towns of Whyalla with 2,854 admissions, and Port Augusta with 2,415 admissions. Relatively large numbers of admissions were also recorded in Mount Gambier (2,241 admissions), Port Pirie (1,683), Murray Bridge (1,637), Mount Barker (1,476) and Port Lincoln (1,453).

There were correlations of meaningful significance with the variables for children aged 0 to 14 years living in single parent families (0.64), low income families (0.61), SA Housing Trust dwellings (0.67), dwellings with no motor vehicle (0.62), dependent children (0.58) and clients of Family and Youth Services (0.57) and Child and Adolescent Mental Health Services (0.55).

These results, together with the inverse correlation with the IRSD (-0.59), indicate an association at the SLA level between high rates of hospital admissions at ages 15 to 24 years and socioeconomic disadvantage.

Map 5.20
Admissions to public acute and private hospitals, people aged 15 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

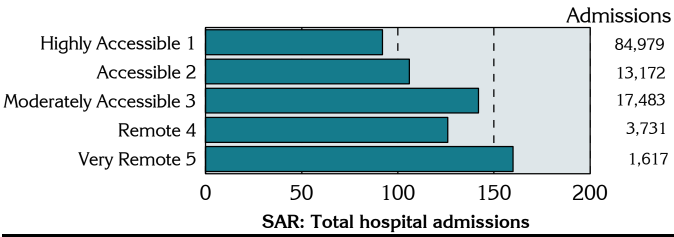


*Expected numbers were derived by indirect age-sex standardisation

\# Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for admissions to public acute and private hospitals at ages 15 to 24 years show a strong relationship with remoteness. Ratios increase from an SAR of 92 in the Highly Accessible areas to SARs of 126 in the Remote and 160 in the Very Remote areas.

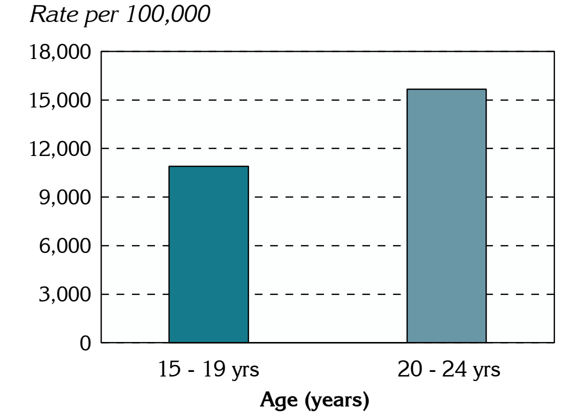
Source: Calculated on ARIA+ classification

Admissions to public acute hospitals, people aged 15 to 24 years, 1996/97-1998/99

Adelaide

Admission rates to public acute hospitals of young people living in Adelaide vary substantially (**Figure 5.27**) within the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rate (an average rate of 10,902 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 15,672 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.27: Admissions to public acute hospitals, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 62,509 admissions of young people in Adelaide to public acute hospitals over the period from 1996/97 to 1998/99, 14% fewer admissions than were expected from the State rates (a standardised admission ratio (SAR) of 86**). Females accounted for more than two thirds of these admissions (68.5%).

The spatial distribution of standardised admission ratios at the postcode level (**Map 5.21**) shows the highest ratios to be located in a contiguous area extending from the north-west to the outer northern suburbs. High ratios were also recorded in a number of outer southern postcode areas.

The most highly elevated ratio was recorded for young people in *Elizabeth North* (an SAR of 181**), with 81% more admissions than expected from the State rates. Standardised admission ratios elevated by 30% or more were also recorded in *Old Noarlunga* (with an SAR of 173**), *Ferryden Park* (165**), *Osborne* (154**), *Elizabeth* (150**), *Christie Downs* (140**), *Woodville North* (139**), *Evanston* (136**), *Adelaide* (132**) and *Blair Athol* (130**).

Excluding areas with fewer than 20 admissions, *Novar Gardens* (with an SAR of 30**) and *Glen Osmond* (31**) had the lowest ratios for this variable. *Aldgate* (with an SAR of 34**), *Stirling Forward* (47**) and *Stirling* (48**), located in the Adelaide Hills; and *Burnside* (35**), *North Adelaide* (37**), *Walkerville* (40**), *Unley* (43**), *Glenside* (44**), *Norwood* (49**) and *Eastwood* (50**), in areas surrounding Adelaide, also recorded relatively low ratios.

The largest number of admissions for people aged 15 to 24 years were recorded for residents of *Salisbury* (3,500 admissions), *Morphett Vale* (2,467 admissions), *Elizabeth North* (2,360 admissions), *Elizabeth* (1,851 admissions) and *Smithfield* (1,534 admissions). There were also more than 1,000 admissions from *Happy Valley*, *Hackham*, *Salisbury East*, *Park Holme* and *Parafield Gardens*.

There were correlations of substantial significance with the variables for children aged 0 to 14 years living in low income families (0.80), single parent families (0.77), dwellings with no motor vehicles (0.76) and dwellings rented from the SA Housing Trust (0.72); and people who left school at age 15 years or earlier (0.78).

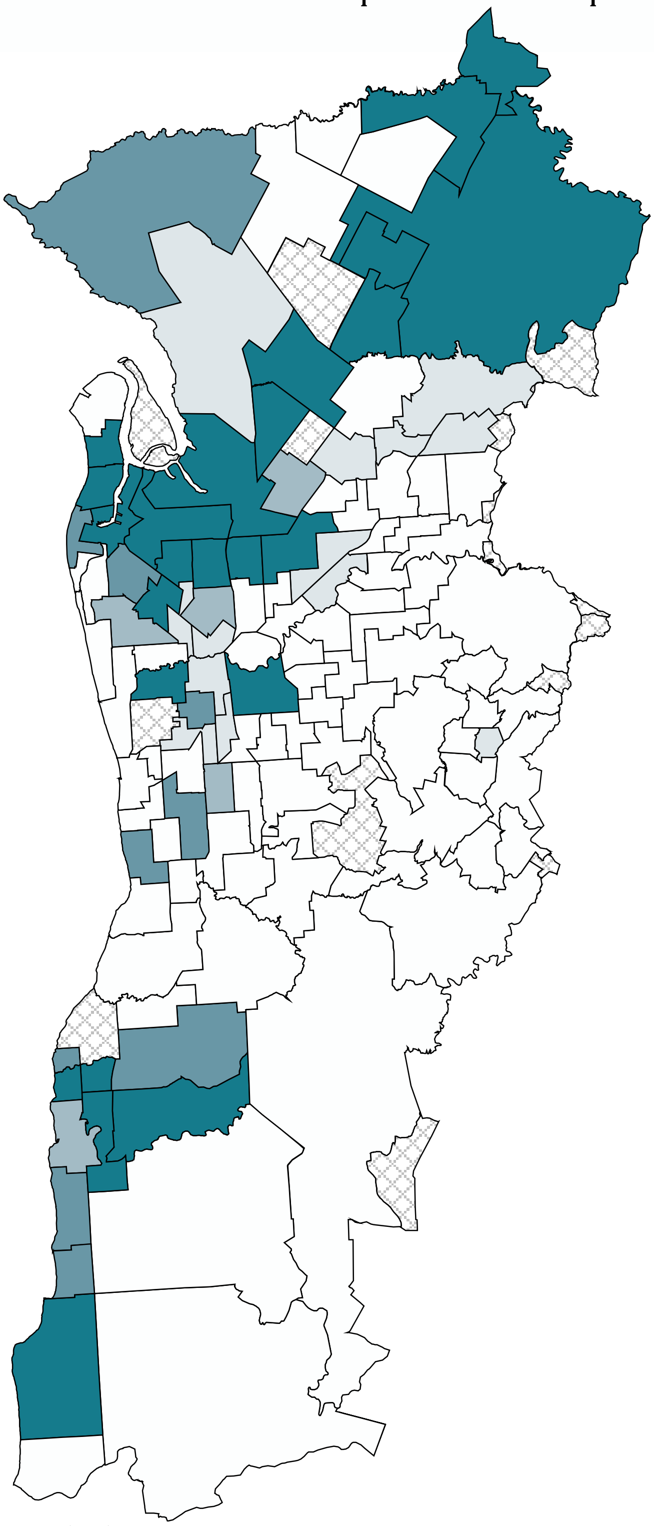
Inverse correlations of substantial significance were recorded with the variables for female labour force participation (-0.79), high income families (-0.79), publicly assessed achievement scores (-0.74), and managers and administrators, and professionals (-0.73); and of meaningful significance with publicly examined achievement scores (-0.70) and school assessed achievement scores (-0.68).

These results, together with the inverse correlation with the IRSD (-0.85), indicate an association at the postcode level between high rates of admissions to public acute hospitals of people aged 15 to 24 years, and socioeconomic disadvantage.

Map 5.21
Admissions to public acute hospitals, people aged 15 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*

N



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

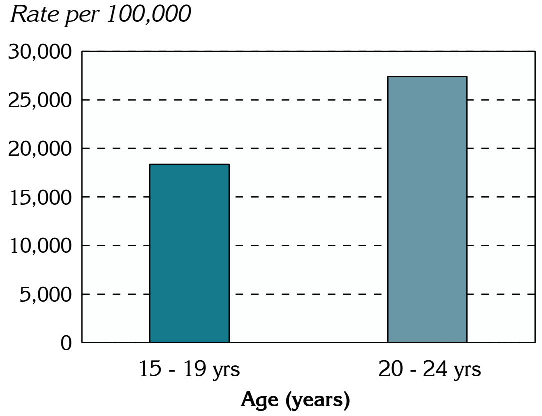
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions to public acute hospitals, people aged 15 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates of non-metropolitan South Australians to public acute hospitals vary substantially (**Figure 5.28**) between the five year age groups in the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rate (an average rate of 18,362 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 27,400 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.28: Admissions to public acute hospitals, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 30,702 admissions to public acute hospitals of people aged from 15 to 24 years living in the non-metropolitan area of South Australia. This was 48% more admissions than were expected from the State rates, a standardised admission ratio (SAR) of 148**. Females accounted for almost two thirds (64.5%) of these admissions.

The high rate of public compared with private hospital (see page 238) usage in the non-metropolitan areas of South Australia is largely due to the relative availability of public acute hospitals and the lack of private hospitals in these areas. Note, however, that the figures shown here include admissions of young people regardless of whether the admission was to a hospital in the non-metropolitan area or in Adelaide.

Elevated ratios were recorded in a majority of the State's SLAs, with low ratios scattered throughout the State (**Map 5.22**).

The most highly elevated ratio was recorded for young people in Unincorporated West Coast, with more than five times the number of admissions to a public hospital than were expected from the State rates (an SAR of 507**). More than twice the number of admissions expected from the State rates were recorded in Coober Pedy (with an SAR of 285**), Port Augusta (274**), Carrieton (270**), Ceduna (252**), Peterborough (236**), Eudunda (218**), Robertstown (213**), Kanyaka and Quorn (209**), Unincorporated Whyalla (208**), Renmark (205**), Port Broughton (204**) and Burra Burra (201**). There were a further 47 SLAs with ratios elevated by over 30%.

The lowest ratio (in areas with more than 20 admissions) was recorded for people aged from 15 to 24 years from Light (an SAR of 60** and 236 admissions). Low ratios were also recorded in Mount Gambier (DC) (with an SAR of 65**), Naracoorte (DC) (66**), Unincorporated Pirie (66) and Unincorporated Far North (73**).

The largest numbers of admissions were recorded in the towns of Whyalla (2,771 admissions) and Port Augusta (2,334 admissions). Relatively large numbers of admissions were also recorded in Mount Gambier (2,132 admissions), Port Pirie (1,561 admissions), Murray Bridge (1,471 admissions), Port Lincoln (1,407 admissions) and Mount Barker (1,167 admissions).

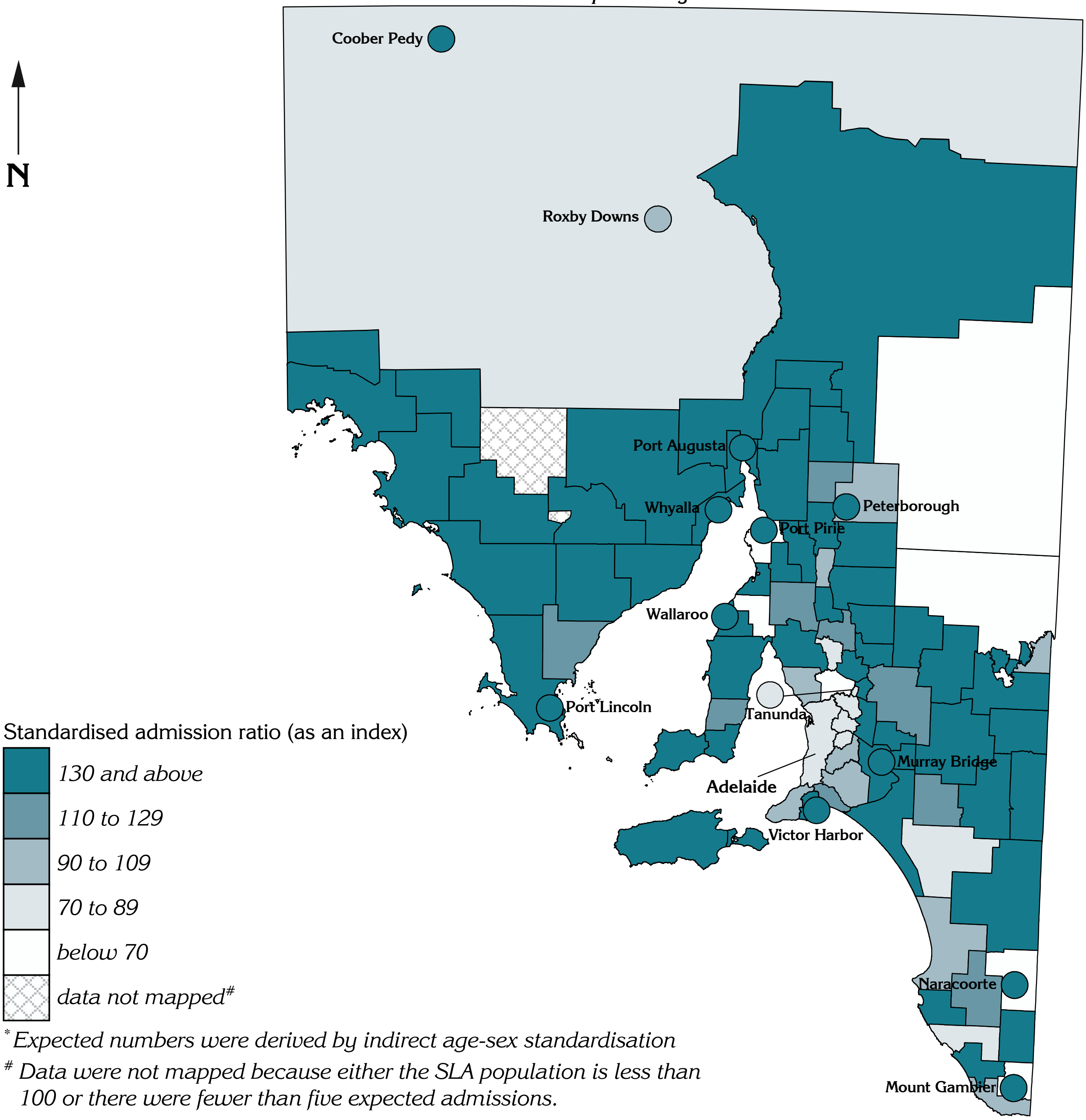
There were weak correlations with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status.

These results, together with the weak inverse correlation with the IRSD (-0.43), suggest an association at the SLA level between high rates of public acute hospital admissions at ages 15 to 24 years and socioeconomic disadvantage.

Map 5.22
Admissions to public acute hospitals, people aged 15 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

Map boundary truncated



Standardised admission ratio (as an index)

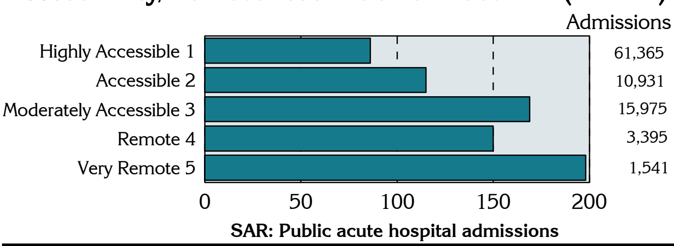
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for admissions to public acute hospitals at ages 15 to 24 years increase markedly across the ARIA+ classes. The highest ratio in the Very Remote areas (an SAR of 198) is more than double the ratio in the Highly Accessible areas (an SAR of 86).

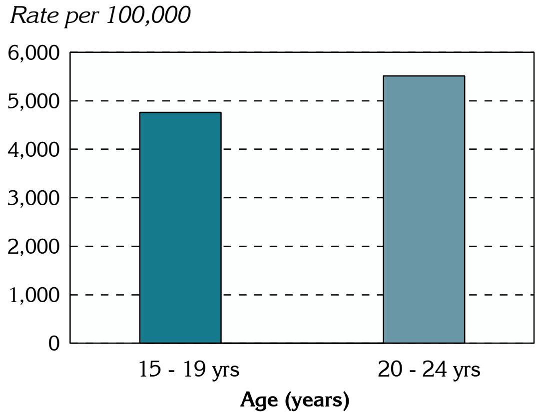
Source: Calculated on ARIA+ classification

Admissions to private hospitals, people aged 15 to 24 years, 1996/97-1998/99

Adelaide

Admission rates to private hospitals of young people living in Adelaide vary (**Figure 5.29**) within the 15 to 24 year age category. Those in the 15 to 19 year age group have the lowest hospitalisation rate (an average rate of 4,764 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 5,511 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.29: Admissions to private hospitals, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 23,994 admissions of people aged 15 to 24 years to private hospitals in Adelaide over the period 1996/97 to 1998/99. This was 12% more admissions than expected from the State rates (an a standardised admission ratio (SAR) of 112**). Females accounted for just over half of these admissions (54.7%).

Postcode areas with elevated ratios cover a broad area of Adelaide, including the eastern, north-eastern and south-eastern suburbs, as well as much of the coastline (**Map 5.23**).

There were at least twice the number of admissions expected in the postcode areas of *Uraidla* (with an SAR of 257**), *Glen Osmond* (235**), *Burnside* (221**), *Virginia* (218**), *West Lakes* (216**), *Outer Harbor* (202**), *West Lakes Shores* (201**) and *Kingswood* (200**). Relatively high ratios (in areas with more than 20 admissions) were also recorded in *Belair* (with an SAR of 189**), *Brighton* (187**), *Highbury* (179**) and *Athelstone* (173**).

Excluding areas with fewer than 20 admissions, young people in *Elizabeth North* had the lowest standardised admission ratio for this variable (with an SAR of 38**, 62% fewer admissions than expected from the State rates). Less than half the number of admissions expected were also recorded in *Ferryden Park* (with an SAR of 39**), *Woodville North* and *Blair Athol* (both 40**), *Aldinga* and *Munno Para* (both 43**) and *Rosewater* (47**).

The largest numbers of admissions to private hospitals of people aged 15 to 24 years were recorded in the postcode areas of *Happy Valley* (872 admissions) and *Morphett Vale* (670 admissions). There were more than 400 admissions from *Salisbury* (589 admissions), *Salisbury East* (563 admissions), *Kingswood* (536 admissions), *Modbury North* (491), *Burnside* (445 admissions), *O'Halloran Hill* (431 admissions) and *Fulham* (410 admissions).

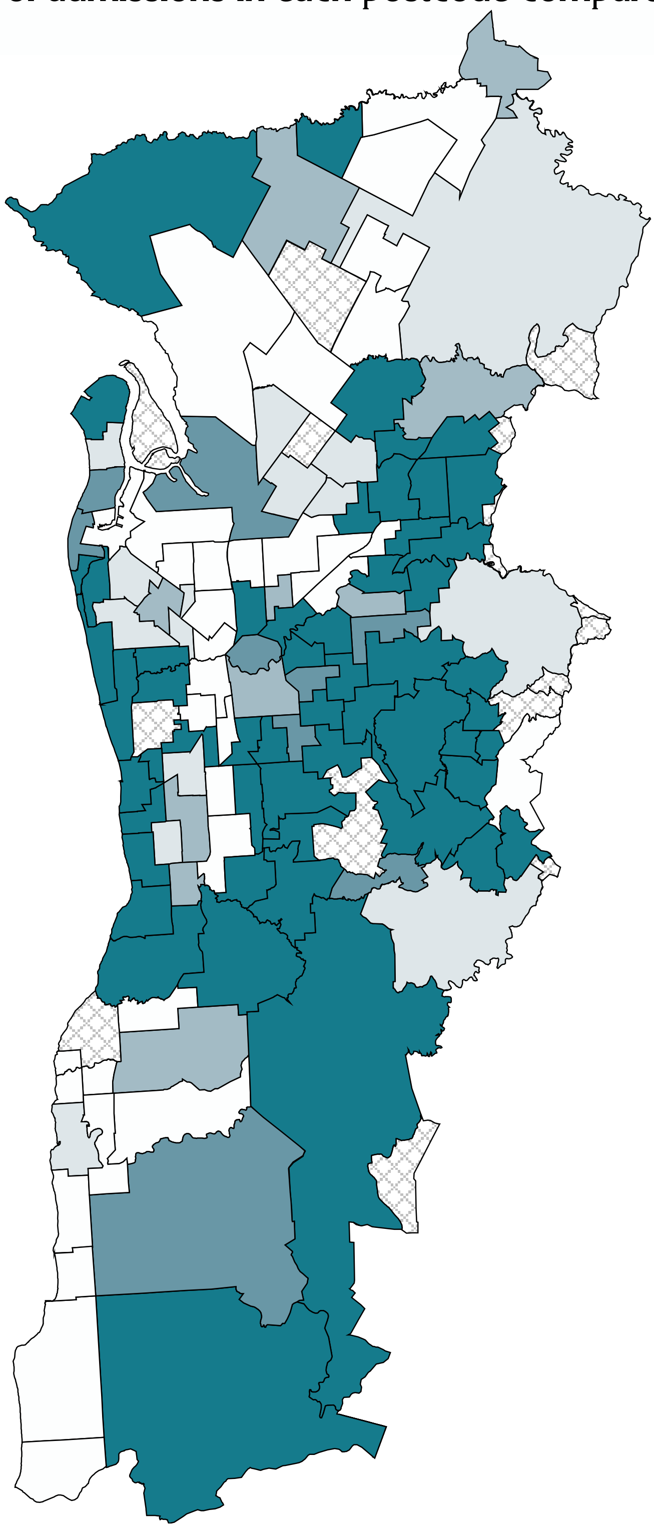
The correlation analysis revealed an inverse association with socioeconomic disadvantage, with inverse correlations of meaningful significance with the variables of unemployed females (-0.70) and unemployed males (-0.69) aged 15 to 24 years; children aged 0 to 14 years living in low income families (-0.69), single parent families (-0.67) and dwellings with no motor vehicles (-0.60); people who left school at age 15 years or earlier (-0.61); and Indigenous people aged 15 to 24 years (-0.50).

Correlations of meaningful significance were recorded with the variables for high income families (0.68), school assessed achievement scores (0.68), female labour force participation (0.63), publicly assessed achievement scores (0.62), publicly examined achievement scores (0.59) and managers and administrators, and professionals (0.58).

These results, together with the correlation of meaningful significance with the IRSD (0.69), indicate a strong association at the postcode level between high rates of admissions to private hospitals of people aged 15 to 24 years and high socioeconomic status.

Map 5.23
Admissions to private hospitals, people aged 15 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.*

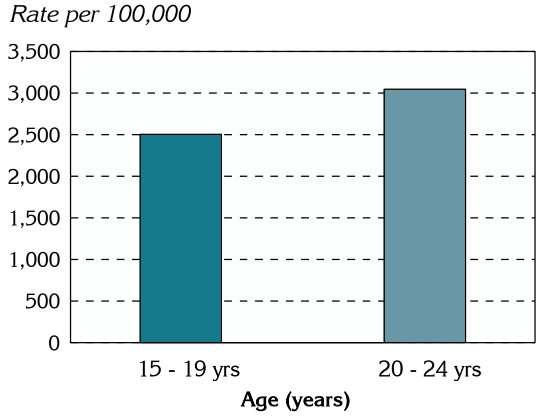
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions to private hospitals, people aged 15 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates of non-metropolitan South Australians to private hospitals vary (**Figure 5.30**) between the five year age groups in the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rates (an average rate of 2,506 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 3,046 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.30: Admissions to private hospitals, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

The lack of private hospitals and the relative availability of public hospitals throughout the non-metropolitan area of South Australia are evident from the low rate of use of private compared with public hospitals. Note that the figures shown here include admissions of young people to private hospitals in Adelaide.

Young people in the non-metropolitan area had 3,787 admissions to private hospitals, 40% fewer admissions (a standardised admission ratio (SAR) of 60**) to private hospitals than expected from the State rates (and 12% more admissions to public acute hospitals). Overall, there were 3,787 admissions to private hospitals of people aged 15 to 24 years. Males accounted for just over half of these admissions (53.5%).

Only 16 SLAs had elevated standardised admission ratios (**Map 5.24**). Of these, five had at least 30% more admissions than expected from the State rates, with the highest ratios recorded for young people in Onkaparinga (with an SAR of 187**), Tatiara (165**), Crystal Brook/Red Hill (152**), Peake (135) and Bute (132).

In more one third of SLAs, rates of admission to private hospitals were at least 50% lower than expected from the State rates. Excluding SLAs with fewer than 20 admissions, the lowest ratios were recorded in the towns of Whyalla (with an SAR of 19**), Port Lincoln (20**), Mount Gambier (24**) and Port Augusta (32**). The SLAs of Unincorporated Far North (with an SAR of 26**), Millicent and Loxton (both 30**) and Renmark (38**) also had very low ratios.

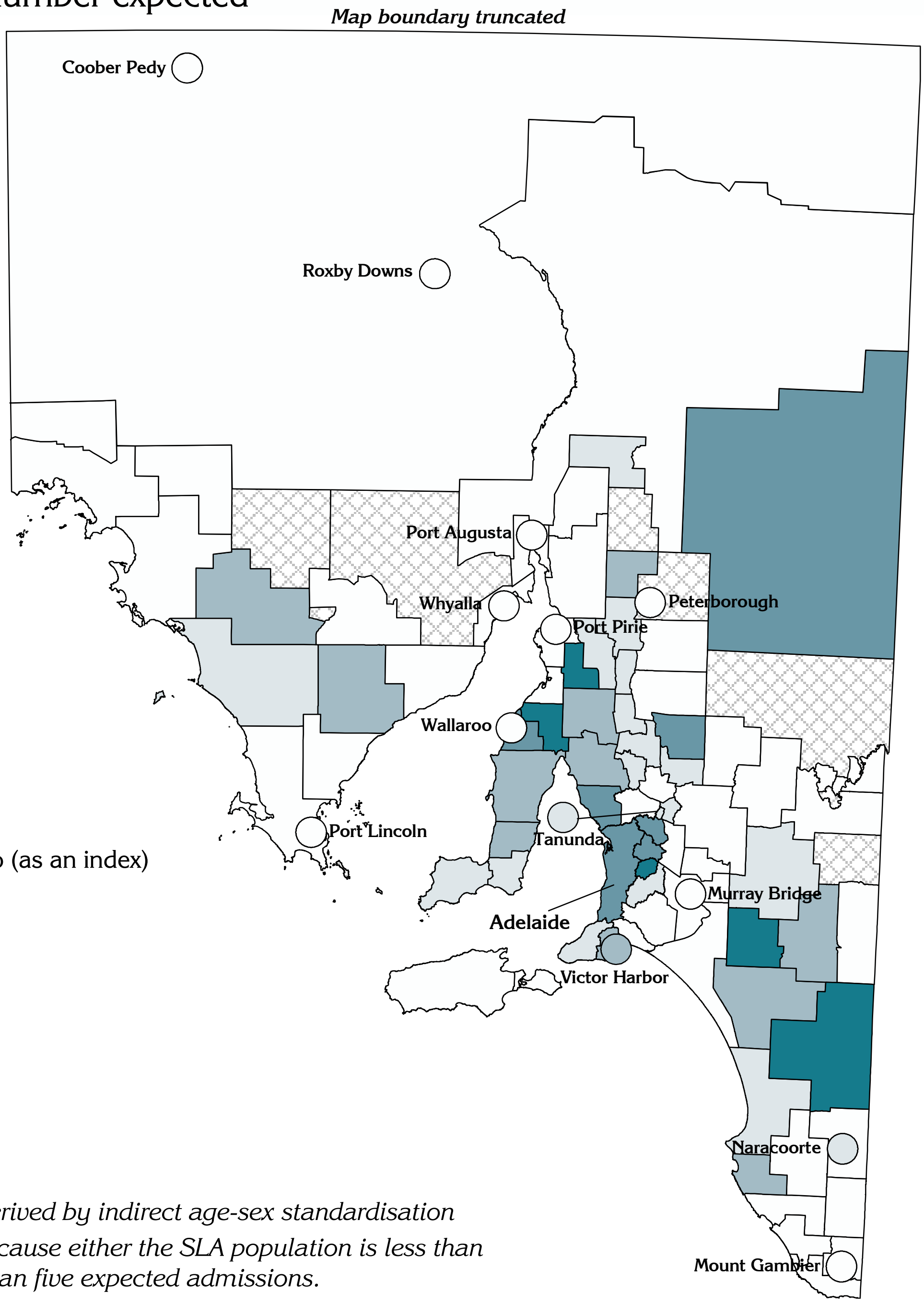
Only Mount Barker (309 admissions), Onkaparinga (279 admissions), Tatiara (190 admissions) and Murray Bridge (166 admissions) had more than 150 admissions over the period from 1996/97 to 1998/99.

There were inverse correlations of meaningful significance between private hospital admissions of people aged 15 to 24 years and the variables for children aged 0 to 14 years living in SA Housing Trust dwellings (-0.53), dwellings with no motor vehicle (-0.49) and clients of Family and Youth Services (-0.50).

These results, together with the inverse correlation with the IRSD (0.51), indicate an association at the SLA level between high rates of private hospital admissions at ages 15 to 24 years and socioeconomic advantage.

Map 5.24
Admissions to private hospitals, people aged 15 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*



N

Standardised admission ratio (as an index)

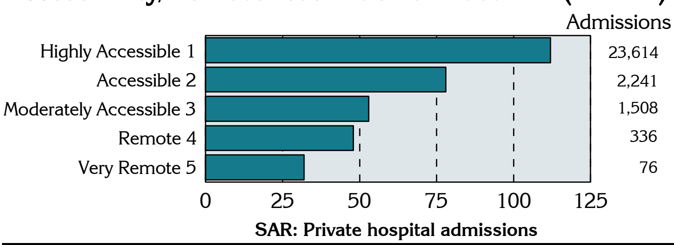
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Young people in the Highly Accessible areas accounted for 85.0% of admissions to private hospitals and the only elevated standardised admission ratio (112). Ratios in the other categories fell to an SAR of 32 in the Very Remote ARIA+ class.

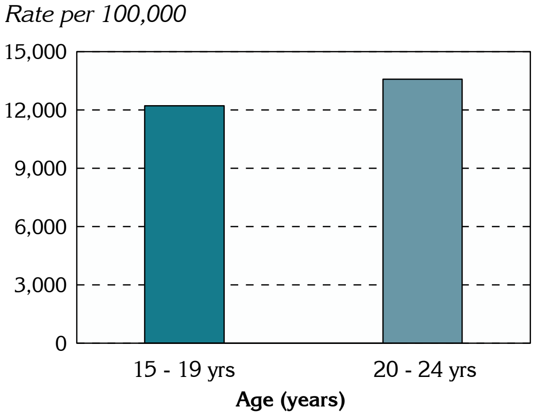
Source: Calculated on ARIA+ classification

Admissions of males, 15 to 24 years, 1996/97-1998/99

Adelaide

Admission rates of young males living in Adelaide vary (**Figure 5.31**) within the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rates (an average rate of 12,221 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 13,591 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.31: Admissions of males, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 30,566 admissions of males aged 15 to 24 years in Adelaide. This was eight per cent fewer than expected from the State rates, a standardised admission ratio (SAR) of 92**.

Postcode areas with elevated ratios were scattered throughout Adelaide in no notable pattern (**Map 5.25**).

Excluding postcode areas with fewer than 20 admissions, the most highly elevated ratios were recorded in *Brighton* (with an SAR of 165**), *Adelaide* (147**), *Wynn Vale* (134**), *Fairview Park* (131**), *Largs Bay* (130**), *Keswick* (128**) and *Old Noarlunga* (123*).

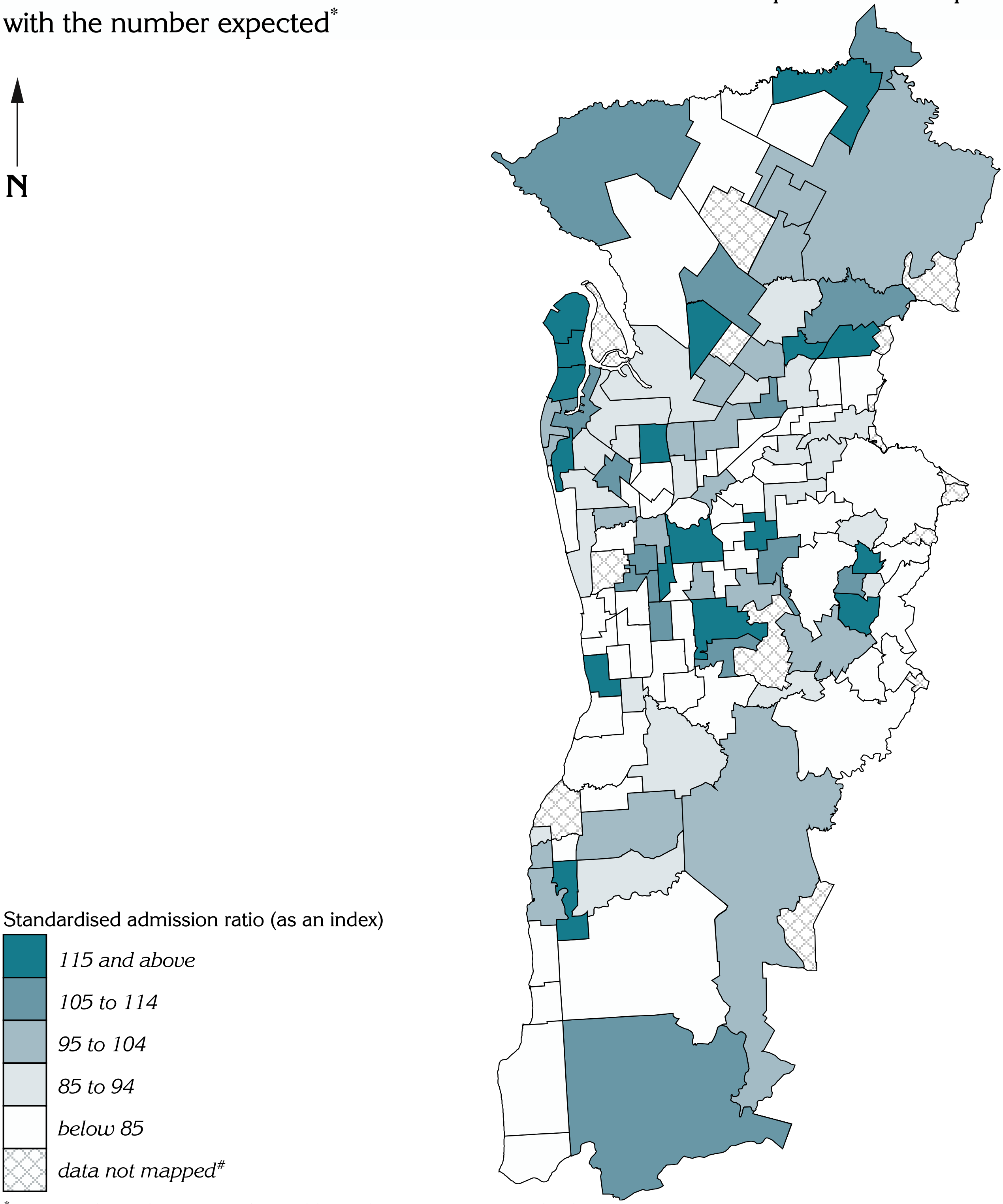
Male residents of *Burton* (with an SAR of 47**), had 53% fewer admissions than expected from the State rates, while relatively low ratios were also recorded in *Munno Para* (an SAR of 51**), *North Adelaide* (56**), *Eden Hills* (58**), *Novar Gardens* (58**), *Sellicks Beach* (63*) and *MacDonald Park* (65).

The largest numbers of admissions of males aged 15 to 24 years were in *Salisbury* (1,276 admissions), *Morphett Vale* (1,024 admissions), *Happy Valley* (919 admissions), *Salisbury East* (655 admissions), *Elizabeth North* (572 admissions) and *Brighton* (563 admissions).

There was no consistent evidence in the correlation analysis at the postcode or SLA level of an association between admissions of males aged 15 to 24 years and socioeconomic status.

Map 5.25
Admissions of males, 15 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

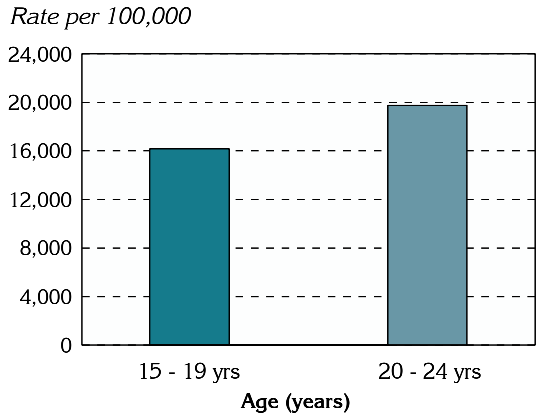
Source: Compiled in HealthWIZ from data supplied by DHS *Details of map boundaries are in Appendix 1.2*

Admissions of males, 15 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates for males in the non-metropolitan area vary (**Figure 5.32**) between the five year age groups in the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rates (an average rate of 16,172 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 19,765 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.32: Admissions of males, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 12,920 male admissions in the non-metropolitan area of South Australia, 27% more admissions than expected from the State rates (a standardised admission ratio of 127**). That is, males in non-metropolitan areas have a much higher rate of admissions (19,163 admissions per 100,000 population at these ages) than males in Adelaide (13,293 admissions per 100,000 population).

Elevated standardised admission ratios (SARs) were recorded in almost two thirds (69.8%) of the SLAs in the non-metropolitan area of South Australia (**Map 5.26**).

Ratios elevated by more than twice the level expected from the State rates were recorded in Port Augusta (an SAR of 261**), Jamestown (218**), Port Broughton and Eudunda (both 209**). Ratios elevated by at least 30% were recorded in a further 37 SLAs. Among these SLAs, the highest ratios were in Coober Pedy (an SAR of 199**; 114 admissions), Peterborough (M) (188**; 74 admissions), Burra Burra (183**; 85 admissions), Lucindale (182**; 55 admissions), Robertstown (180**; 42 admissions), Naracoorte (M) (178**; 238 admissions), Unincorporated West Coast (177**; 36 admissions), Orroroo (174**; 34 admissions), Victor Harbor (172**; 322 admissions) and Meningie (171**; 158 admissions).

Only seven SLAs had ratios in the lowest range mapped, with more than 30% fewer admissions than were expected from the State rates. Excluding areas with fewer than 20 admissions, the lowest ratios were recorded in Unincorporated Far North (with an SAR of 39**) and Roxby Downs (64**), located in the far north; Mount Gambier (DC) (61**) in the south-east; and Riverton (62*) and Light (66**).

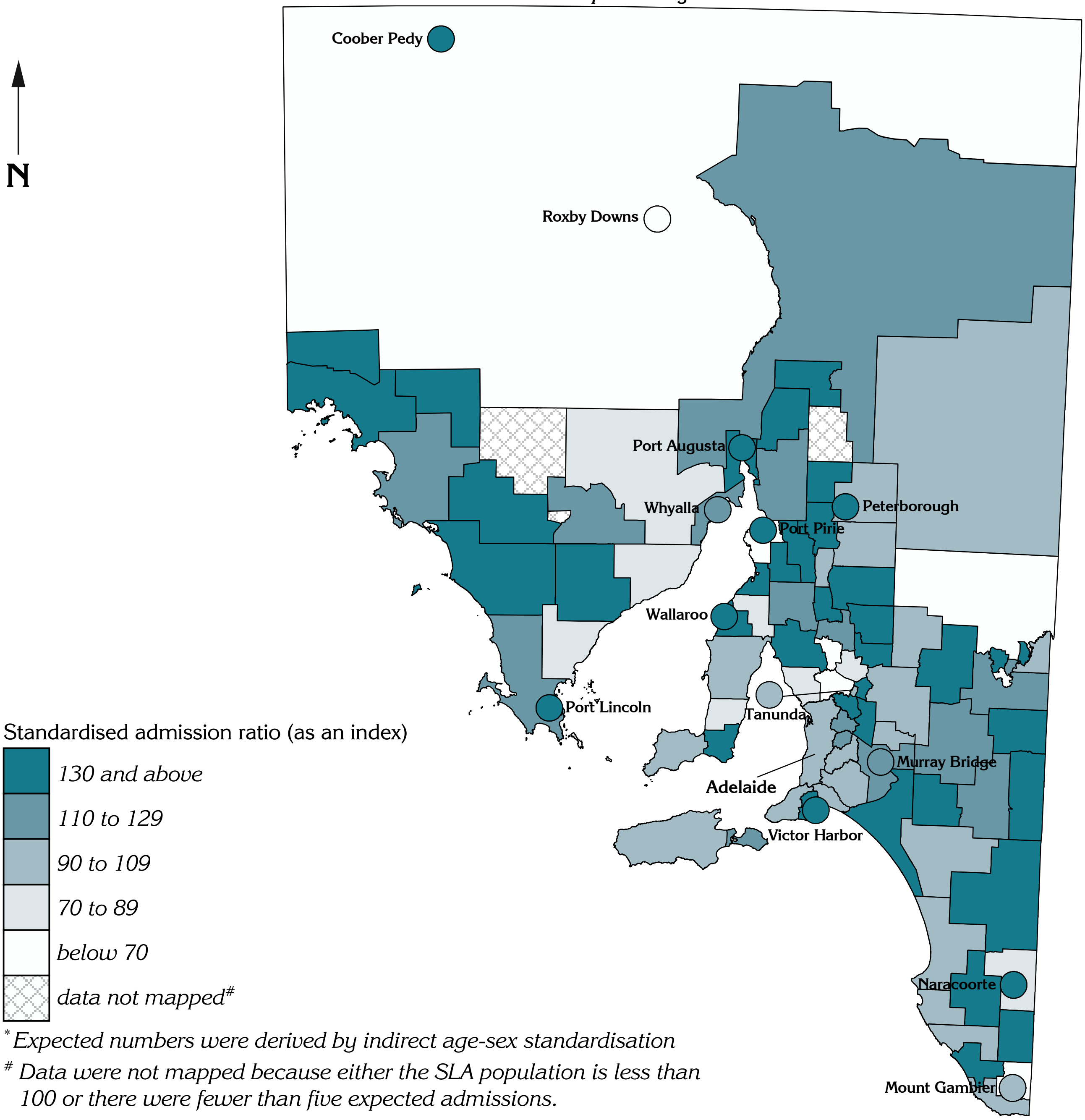
The largest numbers of admissions of males aged 15 to 24 years were recorded in the towns of Port Augusta (with 1,013 admissions), Whyalla (828 admissions), Mount Gambier (740 admissions), Port Pirie (606 admissions), Port Lincoln (542 admissions) and Murray Bridge (515 admissions).

There was a correlation of meaningful significance with the variable for children aged 0 to 14 years living in SA Housing Trust dwellings (0.53). There were also correlations of substantial significance between hospital admissions of males aged 15 to 24 years and the variable for injuries and poisoning (0.76), and of meaningful significance with children aged 0 to 14 years admitted for injuries and poisoning (0.50). These latter correlations indicate an association between high rates of admissions of males and hospitalisation from injuries.

Map 5.26
Admissions of males, 15 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

Map boundary truncated



Standardised admission ratio (as an index)

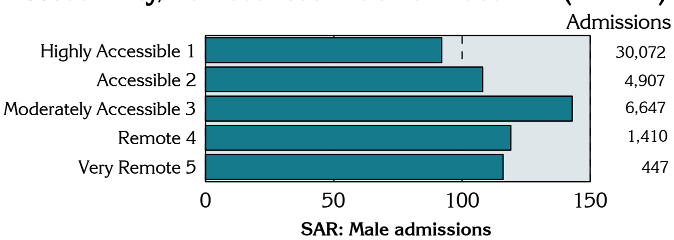
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for males vary considerably across the ARIA+ classes. They are lowest in the Highly Accessible class (92), then increase to the highest ratio (an SAR of 143) in the Moderately Accessible areas, before decreasing to a lower, but still elevated, SAR of 116 in the Very Remote areas.

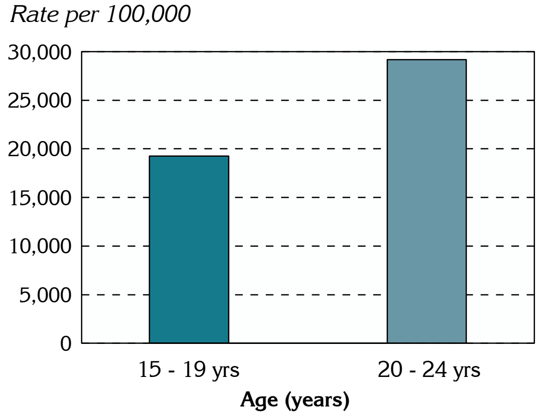
Source: Calculated on ARIA+ classification

Admissions of females, 15 to 24 years, 1996/97-1998/99

Adelaide

Admission rates of young females living in Adelaide vary substantially (**Figure 5.33**) within the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rates (an average rate of 19,264 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 29,171 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.33: Admissions of females, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 55,937 admissions of females aged from 15 to 24 years in Adelaide. This was eight per cent fewer admissions than were expected from the State rates, a standardised admission ratio (SAR) of 92**.

Approximately half of the postcode areas had ratios in the lowest range, with only 21 (17.0%) mapped in the highest class interval. Generally, above average ratios for this variable were found in postcodes in the inner north and north-western suburbs, and the outer northern suburbs, while lower ratios were predominantly located in a broad area across Adelaide from the north-east to the south-west.

Young women in *Elizabeth North* had 75% more admissions than expected from the State rates (an SAR of 175**). Other highly elevated ratios were recorded in *Old Noarlunga* (with an SAR of 164**), *Virginia* (154**), *Uraidla* (152*), *Osborne* and *Christies Downs* (both 152**), *Ferryden Park* (147**), *Elizabeth* (146**), *Gepps Cross* (143**), *Woodville North* (135**) and *Brooklyn Park* (133**).

There were 63 postcode areas in which ratios were at least 15% lower than expected. Excluding areas with fewer than 20 admissions, the lowest ratios were recorded in *Stirling Forward* (with an SAR of 48** and 119 admissions), *Upper Sturt* (56**; 22 admissions), *Aldgate* (61**; 102 admissions) and *Stirling* (64**; 207 admissions), located in the Adelaide Hills; and *North Adelaide* (52**; 359 admissions), *Walkerville* (53**; 274 admissions), *Kensington Park* (54**; 465 admissions), *Norwood* (56**; 456 admissions), *Unley* (57**; 362 admissions), *Eastwood* (62**; 539 admissions), *Burnside* (63**; 353 admissions), and *Marden* (65**; 509 admissions), surrounding the city centre.

The largest numbers of admissions were recorded for young women in *Salisbury* (with 2,813 admissions), *Morphett Vale* (2,113), *Elizabeth North* (1,934), *Elizabeth* (1,570), *Happy Valley* (1,440), *Smithfield* (1,331), *Salisbury East* (1,199), *Hackham* (1,090) and *Park Holme* (1,071).

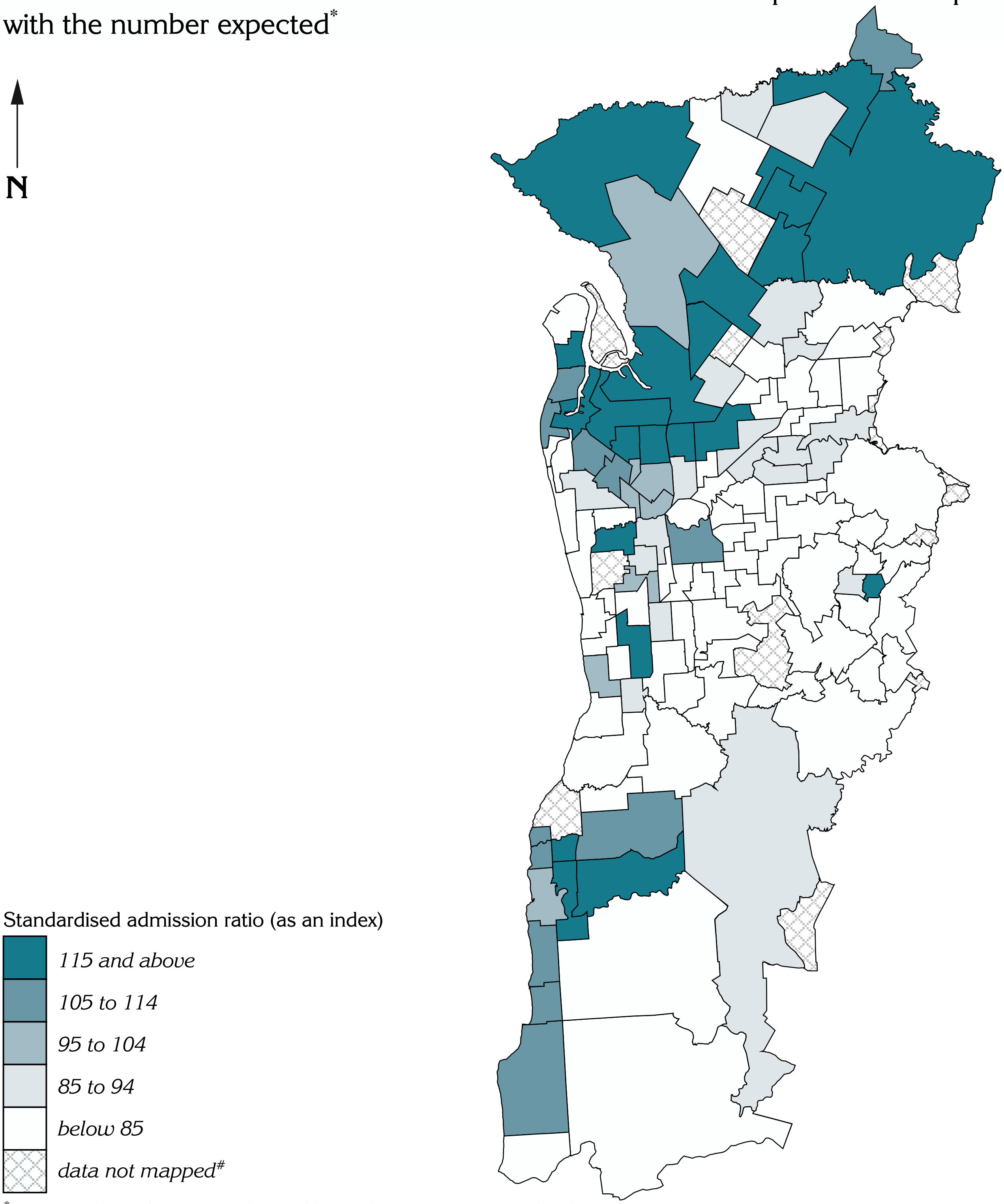
A correlation of substantial significance was recorded with the variable for people who left school at age 15 years or earlier (0.74). Correlations of meaningful significance were also recorded with the variables for children aged 0 to 14 years living in low income families (0.69), dwellings with no motor vehicles (0.66), single parent families (0.65) and dwellings rented from the SA Housing Trust (0.65); unemployed females aged 15 to 24 years (0.63); and Indigenous people aged 15 to 24 years (0.55).

The correlation analysis also revealed an inverse association with indicators of high socioeconomic status, with correlations of statistical significance recorded with the variables for female labour force participation (-0.71), high income families (-0.69) and managers and administrators, and professionals (-0.64).

These results, together with the inverse correlation with the IRSD (-0.75), indicate an association at the postcode level between high rates of admissions of females aged 15 to 24 years and socioeconomic disadvantage.

Map 5.27
Admissions of females, 15 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

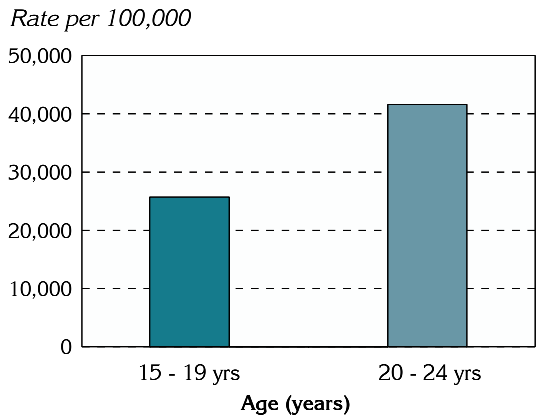
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions of females, 15 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates for non-metropolitan females vary substantially (**Figure 5.34**) between the five year age groups in the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rates (an average rate of 25,755 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 41,608 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.34: Admissions of females, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 21,569 admissions of female residents aged 15 to 24 years of the non-metropolitan area of South Australia over the period from 1996/97 to 1998/99, 28% more than expected from the State rates (a standardised admission ratio (SAR) of 128**).

As was the case for males, almost half the SLAs (43.7%) had highly elevated ratios (**Map 5.28**).

There were at least twice the expected number of admissions of females in Unincorporated West Coast (with an SAR of 490** and 227 admissions), Unincorporated Whyalla (258**; 29 admissions), Coober Pedy (247**; 253 admissions), Ceduna (233**; 392 admissions), Robertstown (203**; 42 admissions) and Franklin Harbor (200**; 76 admissions). Other highly elevated ratios were recorded in Port Augusta (with an SAR of 196**), Peterborough (M) and Crystal Brook/Red Hill (both 187**), Hawker (173**) and Kanyaka and Quorn (171**).

Excluding SLAs in which there were fewer than 20 admissions, the lowest ratios were recorded in Mount Gambier (DC) and Naracoorte (DC) (both with an SAR of 45**), Lucindale (52**), Light (54**) and Beachport (60**).

The largest numbers of female admissions in the non-metropolitan area of South Australia were recorded in the towns of Whyalla (2,026 admissions), Mount Gambier (1,501 admissions), Port Augusta (1,402 admissions), Murray Bridge (1,122 admissions) and Port Pirie (1,077 admissions).

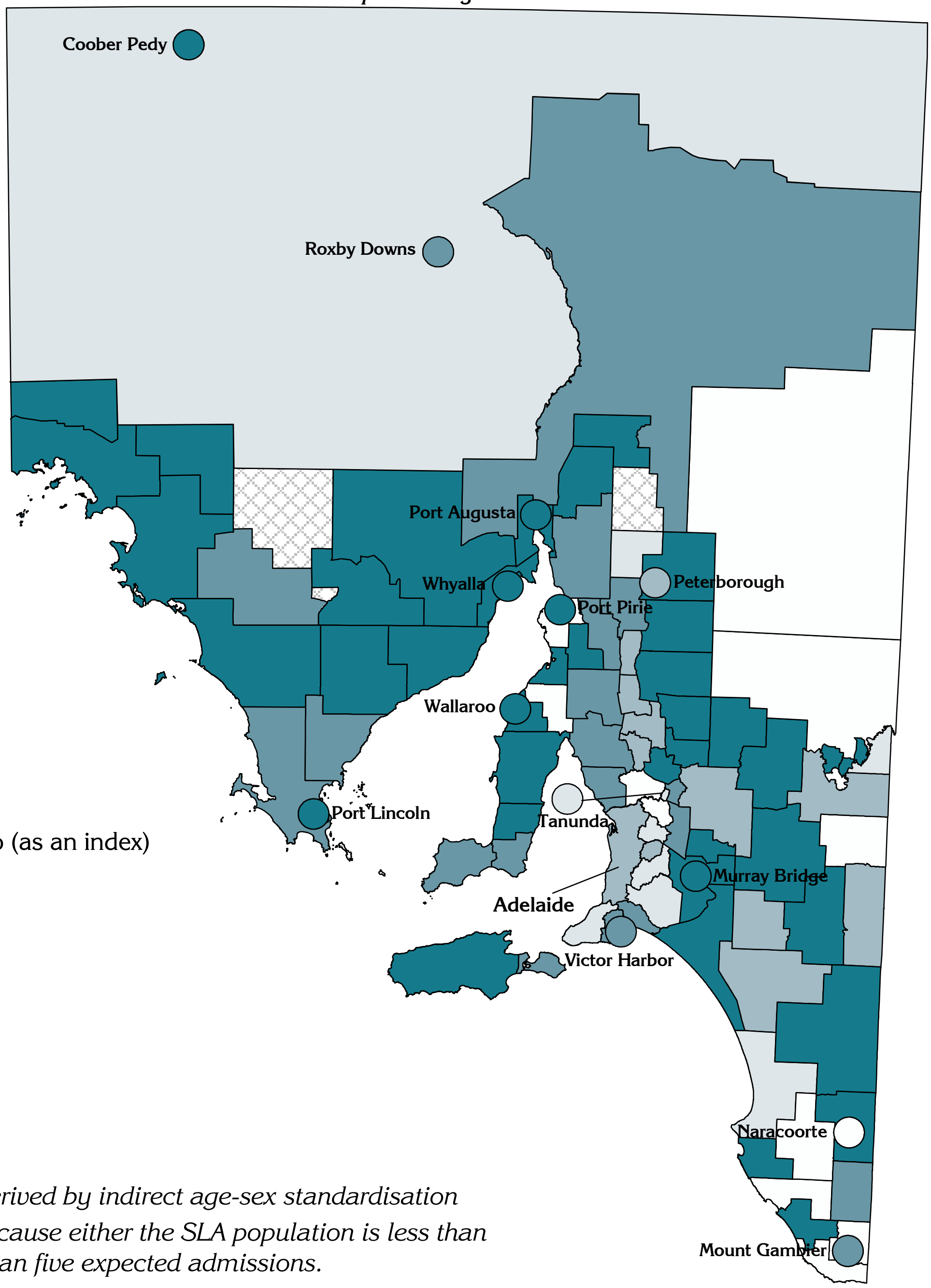
There were correlations of meaningful significance- with many of the indicators of socioeconomic disadvantage including children aged 0 to 14 years living in single parent families (0.59), low income families (0.68), SA Housing Trust dwellings (0.62) and dwellings with no motor vehicle (0.62); dependent children (0.59) and substantiated reports of child abuse (0.53).

These results, together with the inverse correlation of meaningful significance with the IRSD (-0.69), suggest an association at the SLA level between high rates of admissions of females aged 15 to 24 years and socioeconomic disadvantage.

Map 5.28
Admissions of females, 15 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

N



Standardised admission ratio (as an index)

- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

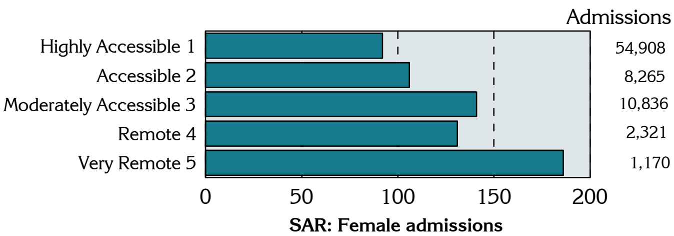
* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The distribution of admissions for females by ARIA+ also closely follows the pattern evident for admissions at ages 15 to 24 years, with a ratio of 92 in the Highly Accessible areas; ratios of 106, 141 and 131 in the three middle classes; and the highest SAR of 186 in the Very Remote ARIA+ class.

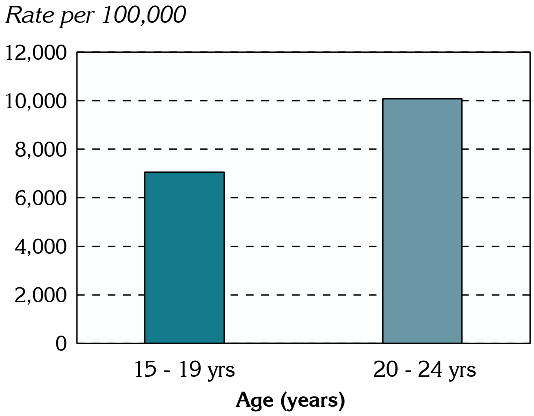
Source: Calculated on ARIA+ classification

Same day admissions, people aged 15 to 24 years, 1996/97-1998/99

Adelaide

Same day admission rates of young people living in Adelaide vary substantially (**Figure 5.35**) within the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rates (an average rate of 7,056 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 10,077 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.35: Same day admissions, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 40,284 same day admissions of residents of the non-metropolitan area of South Australia aged 15 to 24 years over the period 1997/97 to 1998/99. This was marginally fewer than expected from the State rates, a standardised admission ratio (SAR) of 98[**]. More than two thirds (67.5%) of these admissions were recorded for females, a total of 27,189 admissions.

The highest ratios were recorded for people in *Brighton* (with an SAR of 181[**]) and *Brooklyn Park* (168[**]), with 81% and 68%, respectively, more same day admissions than expected from the State rates. Ratios were also elevated by more than 25% in the postcode areas of *Osborne* (144[**]), *Ferryden Park* and *Wynn Vale* (both 138[**]), *Woodville* (137[**]), *Park Holme* (133[**]), *Elizabeth North* (131[**]), *Netley* (130[**]), *Port Adelaide* and *Parafield Gardens* (both 129[**]), *Old Noarlunga* (128[**]) and *Virginia* (127[*]).

Excluding postcode areas with fewer than 20 admissions, the lowest ratios were recorded for young people in *Stirling Forward* (an SAR of 52[**]), *Novar Gardens* (52[**]), *Munno Para* (59[**]), *Aldgate* (60[**]), *North Adelaide* (62[**]), *MacDonald Park* (63[*]), *Eden Hills* (64[**]), *Sellicks Beach* (67[*]), *Walkerville* (67[**]), *Angle Vale* (69[*]) and *Holden Hill* (69[**]).

Only *Salisbury* (1,837 admissions), *Morphett Vale* (1,325) and *Happy Valley* (1,161) had more than 1,000 same day admissions. Relatively high numbers were also recorded in the postcode areas of *Elizabeth North* (973 admissions), *Elizabeth* (792), *Park Holme* (783), *Salisbury East* (769), *Brooklyn Park* (739), *Brighton* (725) and *Smithfield* (716).

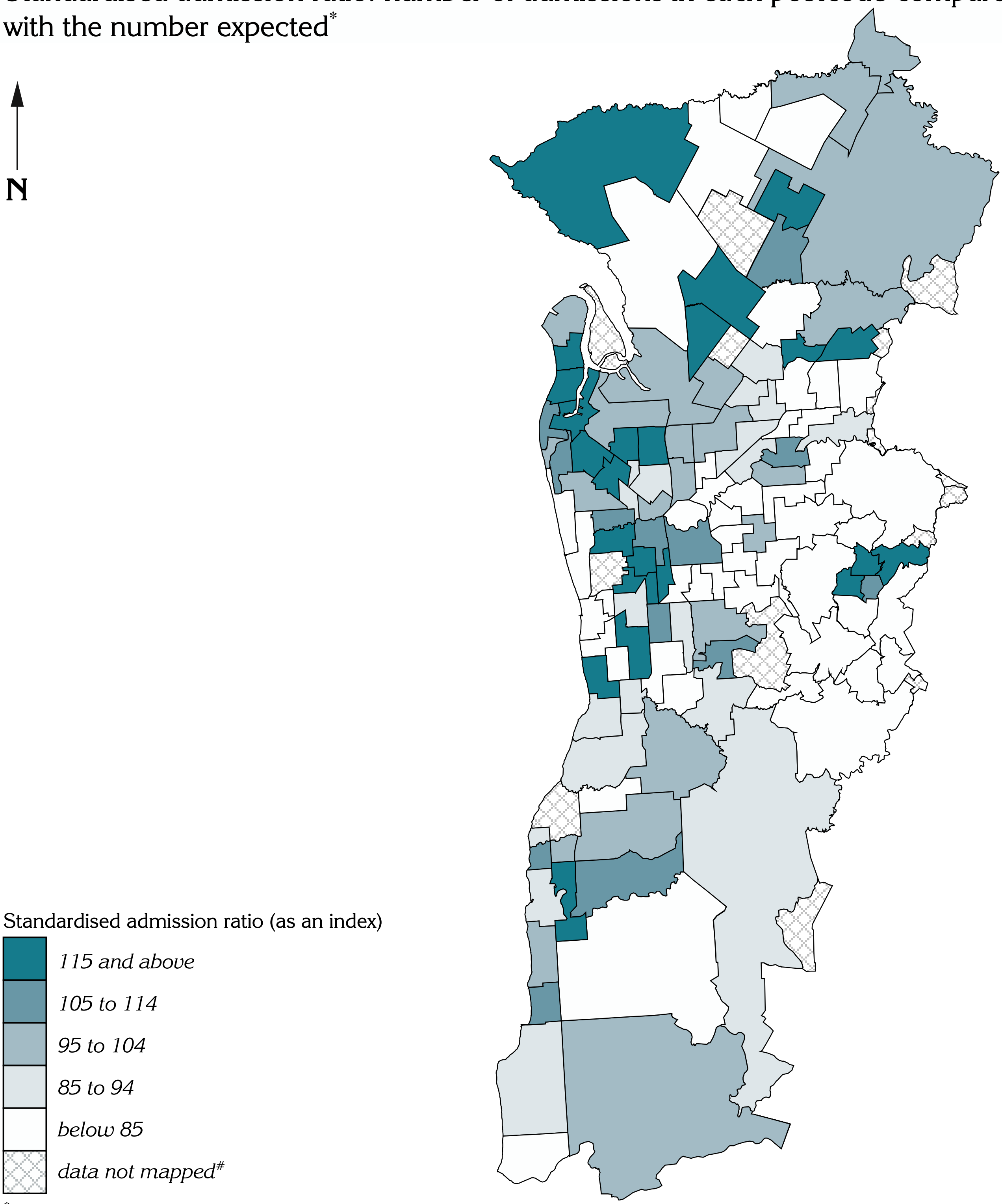
There were weak correlations at the postcode level with the indicators of socioeconomic disadvantage.

However, when the data were aggregated to the SLA level, correlations of meaningful significance were recorded with the variables for dependent children living in low income families (0.56); children aged 0 to 14 years living in single parent families (0.54) and low income families (0.53); and people aged 15 to 24 years who left school at 15 years of age or earlier (0.51).

These results, together with the inverse correlation of meaningful significance with the IRSD (-0.56), suggest an association at the SLA level in Adelaide between high rates of same day admissions and socioeconomic disadvantage.

Map 5.29
Same day admissions, people aged 15 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

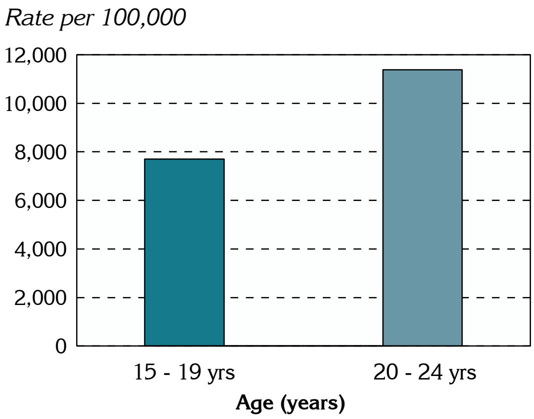
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Same day admissions, people aged 15 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Same day admission rates in non-metropolitan South Australia vary substantially (**Figure 5.36**) between the five year age groups in the 15 to 24 year age category. People in the 15 to 19 year age group have the lowest hospitalisation rates (an average rate of 7,706 admissions per 100,000 population aged 15 to 19 years), with a higher rate of 11,375 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.36: Same day admissions, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Residents of the non-metropolitan area of South Australia aged from 15 to 24 years had 12,820 same day admissions; 7,609 of these were admissions of females (59.4%) and 5,211 were males (40.6%). This was nine per cent more than was expected from the State rates, a standardised admission ratio of 109**.

Standardised admission ratios were generally low throughout the State, with patches of higher ratios in the mid north and in several of the larger towns, where such services are more easily accessed (**Map 5.30**).

Young people in Port Augusta had the highest admission rate for this variable, with more than twice the number of same day admissions expected from the State rates, a standardised admission ratio (SAR) of 207**. SARs mapped in the highest range were also recorded in Robertstown (with an SAR of 180**) and Eudunda (163**), located in the lower north; Crystal Brook-Redhill (165**), Hawker (157), Kanyaka and Quorn (155**), Peterborough (DC) (147) and Whyalla (134**), in the mid north; Renmark (162**) and Barmera (138**), in the Riverland; Naracoorte (M) (150**) and Robe (134), in the south-east; and elsewhere in the SLAs of Yorketown (139**), Ceduna (134**) and Port Lincoln (130**).

Excluding SLAs with fewer than 20 admissions, the lowest ratio was recorded in Unincorporated Far North, with just under half the number of admissions expected from the State rates (an SAR of 49**). Relatively low ratios were also recorded in Mount Gambier (DC) (an SAR of 52**), Light (61**), Coonalpyn Downs (64*), Unincorporated Flinders Ranges (65**), Naracoorte (DC) (67*), Morgan (68), Riverton and Blyth-Snowtown (both 68*), Roxby Downs (69**) and Beachport (69*).

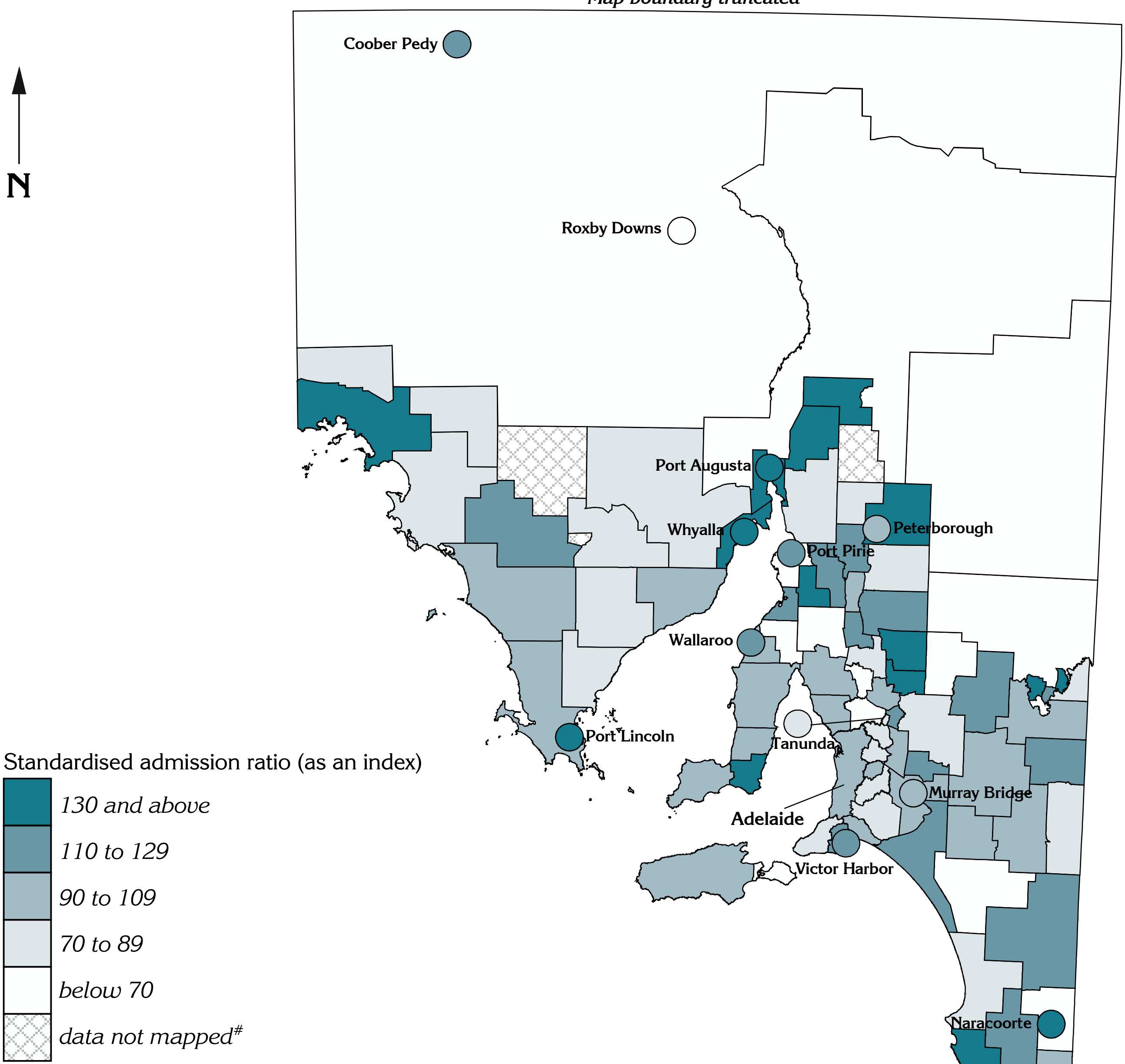
The towns of Whyalla, Port Augusta and Mount Gambier had the largest number of same day admissions of people aged 15 to 24 years, with 1,120, 1,000 and 926 admissions, respectively.

There were correlations of meaningful significance with many of the indicators of socioeconomic disadvantage including children aged 0 to 14 years living in low income families (0.52), single parent families (0.61), SA Housing Trust dwellings (0.70) and dwellings with no motor vehicle (0.58); and clients of Family and Youth Services (0.56), Child and Adolescent Mental Health Services (0.54).

These results, together with the inverse correlation of meaningful significance with the IRSD (-0.53), suggest an association at the SLA level between high rates of same day admissions of people aged 15 to 24 years and socioeconomic disadvantage.

Map 5.30
Same day admissions, people aged 15 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

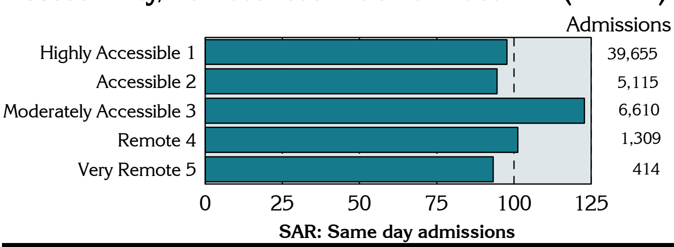


* Expected numbers were derived by indirect age-sex standardisation

\# Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for same day admissions at ages 15 to 24 years show two distinct patterns across the ARIA+ classes. The first is from an SAR of 98 in the Highly Accessible areas to 94 in the Accessible areas; and the second is from an SAR of 123 in the Moderately Accessible class to a low 93 in the Very Remote class.

Source: Calculated on ARIA+ classification

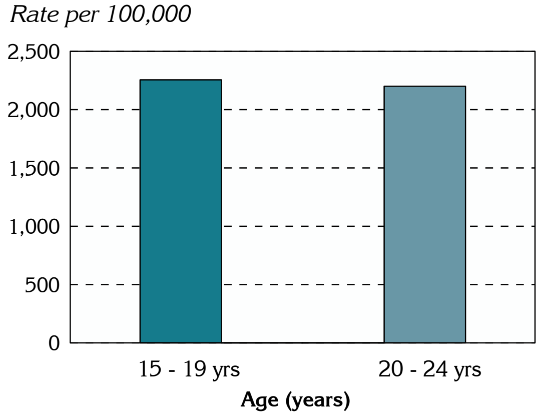
Admissions from injury and poisoning, people aged 15 to 24 years, 1996/97-1998/99

Some general comments on injury are on page 224.

Adelaide

Admission rates from the external causes of injury and poisoning of young people living in Adelaide are similar (**Figure 5.37**) within the 15 to 24 year age category. People in the 20 to 24 year age group a marginally lower hospitalisation rate (an average rate of 2,202 admissions per 100,000 population aged 20 to 24 years), compared with a rate of 2,257 admissions per 100,000 in the 15 to 19 year age group.

Figure 5.37: Admissions from injury and poisoning, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 10,328 admissions of people aged 15 to 24 years from injury and poisoning in Adelaide. This was 15% fewer admissions than were expected from the State rates, a standardised admission ratio (SAR) of 85**. Males accounted for almost three quarters of these admissions (70.0%).

The small number of postcode areas with SARs from injury and poisoning in this age group elevated by 15% or more were scattered throughout the metropolitan areas (**Map 5.31**).

The highest standardised admission ratio was recorded in the postcode area of *Adelaide*, with 94% more admissions than were expected from the State rates (an SAR of 194**).

Relatively high ratios were also recorded for young people in *Blackwood Forward* (with an SAR of 161**), *Old Noarlunga* (145**), *Virginia* (142), *Port Adelaide* (142**), *Woodville* (141**), *West Lakes* (131**), *Osborne* (129*), *Largs Bay* (123) and *Evanston* (121).

In contrast, relatively low ratios were recorded across much of Adelaide, in particular in the eastern, southern and Hills regions. Excluding areas with fewer than 20 admissions, the lowest ratios were recorded in *Eden Hills* (an SAR of 46**; and 34 admissions), *Plympton* (55**; 84 admissions), *Eastwood* (55**; 81 admissions), *Paradise* (56**; 74 admissions), *St Marys* (58**; 85 admissions), *North Adelaide* (60**; 76 admissions), *Outer Harbor* (60**; 38 admissions) and *Stirling Forward* (60**; 31 admissions).

Postcode areas recording in excess of 200 admissions for this variable included *Salisbury* (425 admissions), *Morphett Vale* (371 admissions), *Happy Valley* (290 admissions), *Elizabeth North* (246 admissions), *Salisbury East* (239 admissions) and *Elizabeth* (232 admissions).

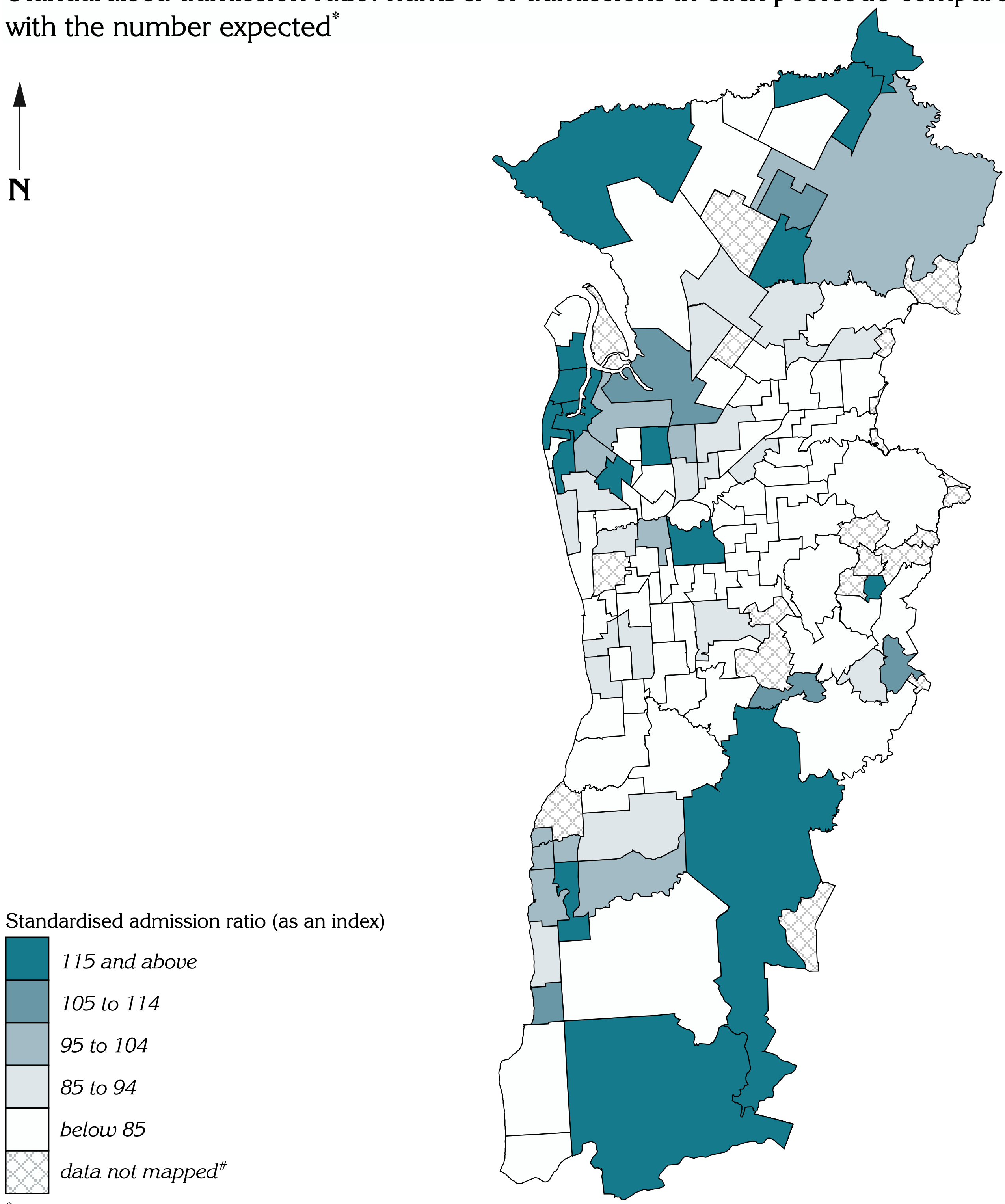
There were weak correlations at the postcode level with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status.

However, when the data were aggregated to the SLA level, correlations of meaningful significance were recorded with the variables for unemployed females (0.61) and unemployed males (0.53) aged 15 to 24 years; people aged 15 to 24 years who left school at 15 years of age or earlier (0.59); Indigenous people aged 0 to 14 years (0.53); and children aged 0 to 14 years living in families with no vehicles (0.52).

These results, together with the inverse correlation with the IRSD (-0.53), suggest an association at the SLA level in Adelaide between high rates of admissions from injury and poisoning of people aged 15 to 24 years and socioeconomic disadvantage.

Map 5.31
Admissions from injury and poisoning, people aged 15 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

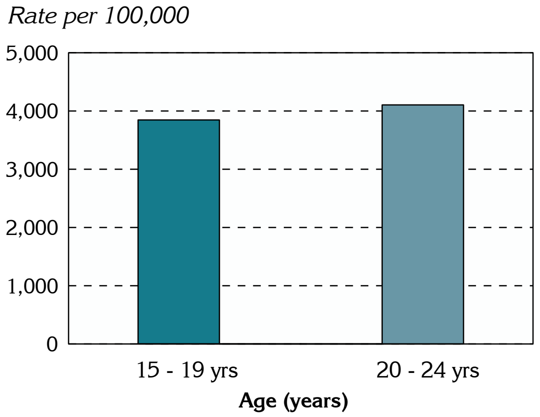
Admissions from injury and poisoning, people aged 15 to 24 years, 1996/97-1998/99

Some general comments on injury are on page 224.

Non-metropolitan South Australia

Admission rates of non-metropolitan South Australians from the external causes of injury and poisoning are similar (**Figure 5.38**) for the five year age groups in the 15 to 24 year age category. People in the 15 to 19 year age group have a lower hospitalisation rate (an average rate of 3,849 admissions per 100,000 population aged 15 to 19 years), compared with a rate of 4,105 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.38: Admissions from injury and poisoning, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 51% more admissions of people aged 15 to 24 years from injury and poisoning over the period 1996/97 to 1998/99 in the non-metropolitan area of South Australia than were expected from the State rates, a standardised admission ratio (SAR) of 151[**]. Males accounted for almost three quarters (72.5%) of the 5,531 admissions.

Almost two thirds of the SLAs (65.6%) in the non-metropolitan area of South Australia had ratios in the highest range mapped (**Map 5.32**). Data for a number of areas were not mapped as there were too few cases to produce reliable results.

A number of areas had at least two and a half times the number of admissions expected; they were Coober Pedy (with an SAR of 315[**]), Meningie (314[**]), Eudunda (312[**]), Lameroo (296[**]), Elliston (290[**]), Port Broughton (279[**]), Jamestown (274[**]), Kanyaka and Quorn (258[**]), Le Hunte (258[**]) and Unincorporated West Coast (257[**]). Highly elevated ratios were also recorded in Ceduna (247[**]) and Kimba (202[**]), located in the west; Peterborough (DC) (239[**]), Crystal Brook-Redhill (203[**]) and Rocky River (201[**]), situated in the mid north; Mount Pleasant (228[**]), on the outskirts of Adelaide; Tatiara (218[**]) and Naracoorte (DC) (214[**]), in the south-east; and elsewhere in Karoonda-East Murray (217[**]), Unincorporated Flinders Ranges and Port Augusta (both 201[**]).

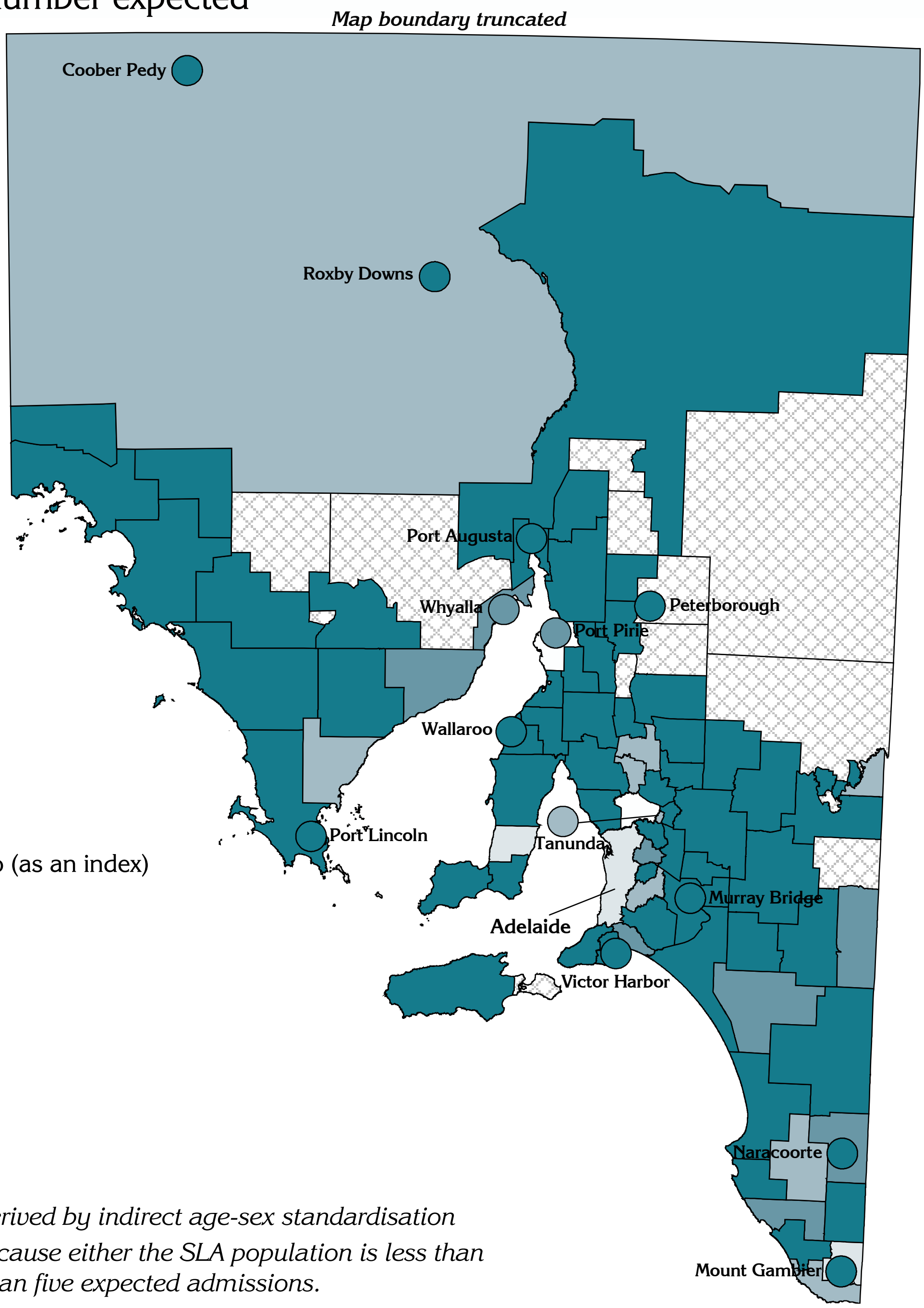
With almost two thirds of the SLAs recording ratios in the highest class interval, very few had ratios lower than expected. The lowest of these (in SLAs with more than 20 admissions) was recorded for young people in Light, with 31% fewer admissions than expected (an SAR of 69[**]). The next lowest ratios were recorded in Mount Gambier (DC) (with an SAR of 75 and 41 admissions), Minlaton (86; 14 admissions), Mount Barker (90; 193 admissions), Saddleworth and Auburn (91; 15 admissions) and Unincorporated Far North (92; 58 admissions).

More than 200 admissions from injury and poisoning of people aged 15 to 24 years were recorded in the towns of Mount Gambier (with 346 admissions), Whyalla (310 admissions), Port Augusta (289 admissions), Port Lincoln (254 admissions) and Murray Bridge (226 admissions).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia of an association between admissions from injury and poisoning of people aged 15 to 24 years and socioeconomic status.

Map 5.32
Admissions from injury and poisoning, people aged 15 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*



N

Standardised admission ratio (as an index)

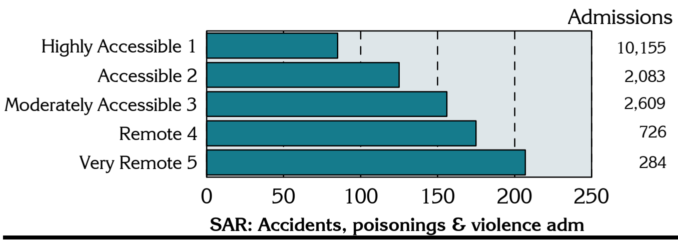
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios for the external causes of injury and poisoning rise across the ARIA+ classes with increasing remoteness, from the lowest ratio in the Highly Accessible areas (an SAR of 85, the only ratio below the level expected), to an elevated ratio of 207 in the Very Remote areas.

Source: Calculated on ARIA+ classification

This page left intentionally blank

Principal procedures for admitted patients

Introduction

There are variations in the rates at which particular procedures are undertaken at a regional level within South Australia. Variations at a small area level can point to differences in health status, in access to and availability of services, and in clinical opinion and practice. They may also, in some instances, raise concerns as to possible over servicing.

Note: A procedure is an intervention that is surgical in nature, carries a procedural risk, carries an anaesthetic risk, requires specialised training, or requires special facilities or equipment only available in an acute setting (National Health Data Committee 1997).

Data mapped

Details are presented in the following pages for the total of all procedures and, separately, for two procedures which are generally regarded as 'sentinel' procedures. Sentinel procedures are common, mostly elective, and considered to be discretionary: that is, there are often conservative or non-surgical alternatives (AIHW 1997).

In most cases, the procedure is the principal procedure; that is, the most significant procedure for treatment of the principal diagnosis.

South Australia has a higher standardised admission rate than the average of the other States for both tonsillectomy (18% higher) and myringotomy (28% higher)) (**Table 5.2**).

The high rate of tonsillectomy in South Australia is long standing. Renwick and Sadkowsky (1991) reported that in 1986 the age–sex standardised ratio for tonsillectomy in South Australia was a statistically significant 159.0*. That is, there were 59% more tonsillectomies performed (as the principal procedure during a hospital episode) on South Australian residents compared with the number that would be expected if the Australia–wide rates had applied in this state. The next highest ratios were in the Australian Capital Territory (108.6*) and in Western Australia (107.4*).

Table 5.2: Admission rates[1] of children aged 0 to 24 years for selected sentinel procedures, public and private hospitals, 1998/1999

Standardised admission ratio

Sentinel procedure	South Australia	Other States/Territories	Difference
Myringotomy	128	98	30.6%
Tonsillectomy	118	99	20.3%

[1]Admission rates have been produced by indirect standardisation
Source: Compiled from data supplied by States and Territories/AIHW?

Context

There were 132,691 admissions of people aged 0 to 24 years to public acute and private hospitals (including day surgery facilities) in South Australia at which at least one surgical procedure was performed. These 132,691 admissions accounted for almost half (43.6%) of all admissions studied. More than three quarters (85.8%) of the admissions involving a procedure were of residents of Adelaide, which comprises almost three quarters (72.6%) of South Australia's young population.

Females accounted for 55.4% of admissions involving a surgical procedure in this age group, varying from 56.7% of admissions of children and young people in Adelaide to 52.0% in the non-metropolitan area of the State.

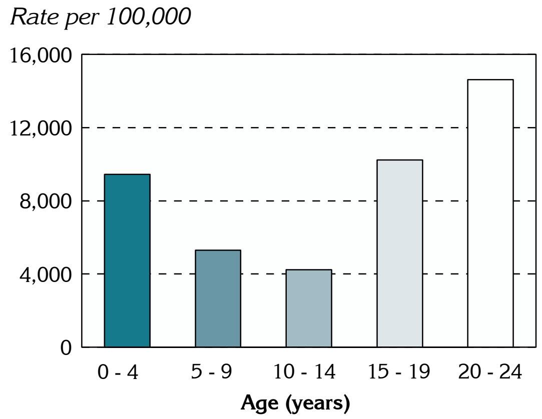
More than half (54.4%) of these principal procedures were performed on a same day basis, with males having slightly more procedures on a same day basis (55.0% of all male principal procedures, compared with 54.0% for females).

Admissions for surgical procedures, people aged 0 to 24 years, 1996/97-1998/99

Adelaide

Admission rates for surgical procedures of children living in Adelaide vary substantially (**Figure 5.39**) within the 0 to 24 year age category. Children in the 0 to 4 year age group have an average rate of 9,448 admissions per 100,000 population, declining to a low of 4,243 per 100,000 in the 10 to 14 year age group. Hospitalisation rates then increase over the next two age groups, to a high of 14,618 admissions per 100,000 population aged 20 to 24 years.

Figure 5.39: Admissions for surgical procedures, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 97,452 admissions for surgical procedures of residents of Adelaide aged 0 to 24 years. This was marginally lower than expected from the State rates, a standardised admission ratio (SAR) of 99**. Females accounted for over half (56.7%) of the admissions.

The most highly elevated ratios were in postcodes scattered across Adelaide, with the main concentration in the north-western suburbs; lower ratios were recorded in the Adelaide Hills and in a number of outer southern suburbs (**Map 5.33**).

The most highly elevated ratio was recorded for children and young people in *Brighton*, an SAR of 142**, indicating that there were 42% more admissions for surgical procedures than the level expected from the State rates. Highly elevated ratios were recorded to the north of the city in *Virginia* (with an SAR of 142**), *Blair Athol* (141**) and *Gepps Cross* (141**). The suburbs of *Ferryden Park* (135**), *Brooklyn Park* (133**), *Adelaide* (130), *Wynn Vale* (129**), *Old Noarlunga* (128**), *Osborne* (127**) and *Ashton* (126) also recorded ratios in the highest range mapped.

Excluding areas with fewer than 20 admissions, *Carey Gully* had the lowest ratio for this variable, with 75% fewer admissions than expected from the State rates (an SAR of 25**). Areas with ratios of 30% or more lower than expected included *Montacute* (41**), *Sellicks Beach* (55**), *Greenhill* (61*), *Stirling Forward* (62**), *MacDonald Park* (63**), *Piccadilly* (64), *Norton Summit* (67), *Aldinga* (69**), *McLaren Vale* (69**) and *Maslin Beach* (70*).

The largest numbers of admissions involving a surgical procedure were of children living in the postcode areas of *Salisbury* (with 4,669 admissions), *Morphett Vale* (3,584 admissions), *Happy Valley* (2,999 admissions), *Smithfield* (2,387 admissions), *Elizabeth North* (2,364 admissions), *Salisbury East* (2,139 admissions) and *O'Halloran Hill* (2,008 admissions).

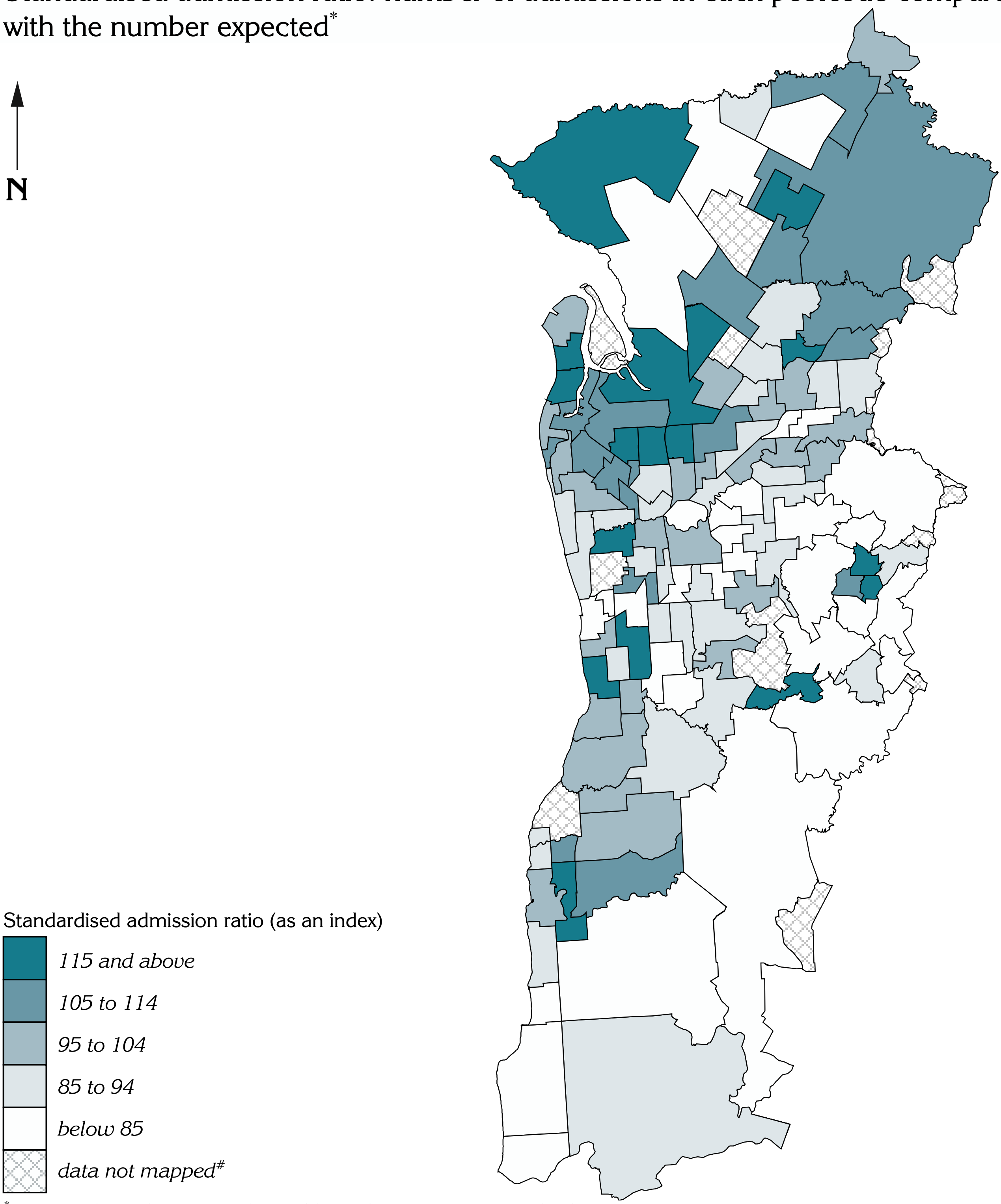
There was no consistent evidence in the correlation analysis at the postcode level of an association between admissions for surgical procedures of people aged 0 to 24 years and socioeconomic status.

However, when the data were aggregated to the SLA level, correlations of meaningful significance were found with the variables for people aged 15 to 24 years who left school at 15 years of age or earlier (0.59); dependent children living in low income families (0.58); and children aged 0 to 14 years living in dwellings rented from the SA Housing Trust (0.54), single parent families (0.50) and low income families (0.50).

These results, together with the inverse correlation with the IRSD (-0.54), suggest an association at the SLA level in Adelaide between high rates of admissions for a surgical procedure of people aged 0 to 24 years and socioeconomic disadvantage.

Map 5.33
Admissions for surgical procedures, people aged 0 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

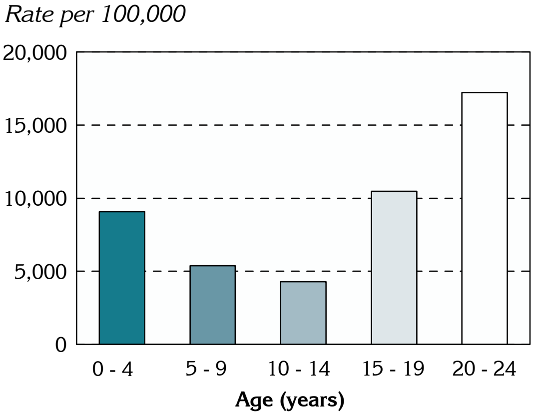
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Admissions for surgical procedures, people aged 0 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Admission rates of non-metropolitan South Australians for surgical procedures vary substantially (**Figure 5.40**) between the five year age groups in the 0 to 24 year age category. Children in the 0 to 4 year age group have an average rate of 9,083 admissions per 100,000 population, declining to a low of 4,286 per 100,000 in the 10 to 14 year age group. Hospitalisation rates then increase over the next two age groups, to a high of 17,227 admissions per 100,000 population aged 20 to 24 years.

Figure 5.40: Admissions for surgical procedures, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the three years 1996/97 to 1998/99, there were 35,239 admissions for surgical procedures of children aged 0 to 24 years living in the non-metropolitan area of South Australia. This was 4% above the level expected from the State rates, a standardised admission ratio (SAR) of 104**. Females accounted for just over half (52.0%) of these admissions.

There is no identifiable pattern in the distribution of standardised admission ratios (**Map 5.34**).

Ratios elevated by 30% or more were recorded for children and young people in Unincorporated West Coast (with an SAR of 241**), Carrieton (163**), Port Augusta (161**), Lameroo (148**), Ceduna (143**), Naracoorte (M) (142**), Unincorporated Whyalla (137**), Wallaroo (135**) and Renmark (132**).

Excluding SLAs with fewer than 20 admissions, the lowest SARs were recorded in Pirie and Naracoorte (DC), with ratios of 21** and 48** respectively. Low ratios were also recorded in the SLAs of Browns Well (with an SAR of 49*), Mount Gambier (DC) (50**), Unincorporated Far North (54**), Light (56**), Beachport (61**), Tumby Bay (65**) and Lucindale (65**).

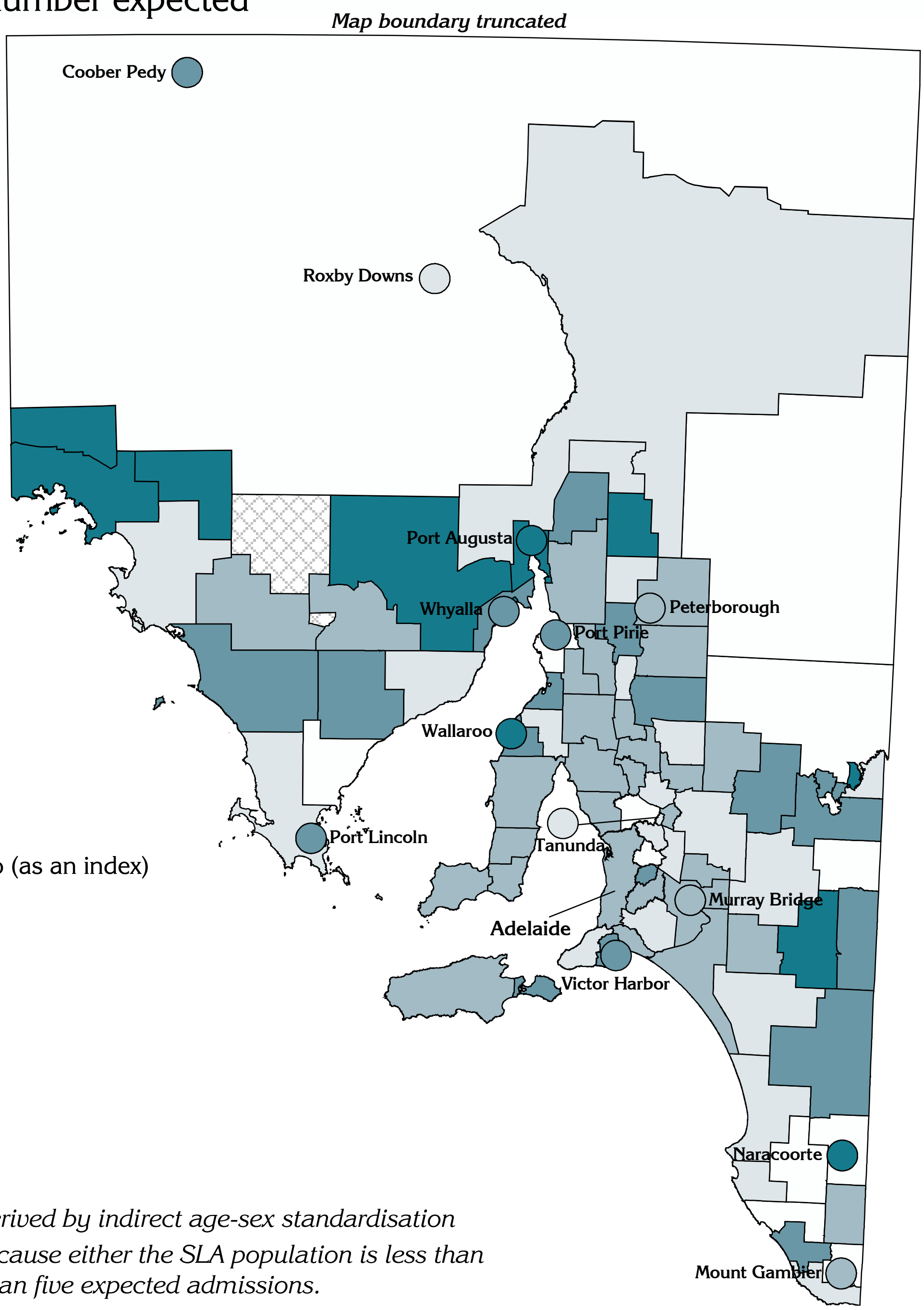
The largest number of admissions for surgical procedures at these ages were recorded for children and young people in Whyalla (with 2,904 admissions), Mount Gambier (2,242 admissions), Port Augusta (2,174 admissions), Mount Barker (1,875 admissions), Murray Bridge (1,500 admissions), Port Pirie (1,444 admissions) and Port Lincoln (1,403 admissions).

There were correlations of meaningful significance with a number of the indicators of socioeconomic disadvantage including children aged 0 to 14 years living in SA Housing Trust dwellings (0.63), single parent families (0.61) and low income families (0.52); and dependent children living in families receiving income support payments (0.54).

These results, together with the meaningful inverse correlation with the IRSD (-0.51), suggest an association at the SLA level between high rates of admissions for surgical procedures of people aged 0 to 24 years and socioeconomic disadvantage.

Map 5.34
Admissions for surgical procedures, people aged 0 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*



Standardised admission ratio (as an index)

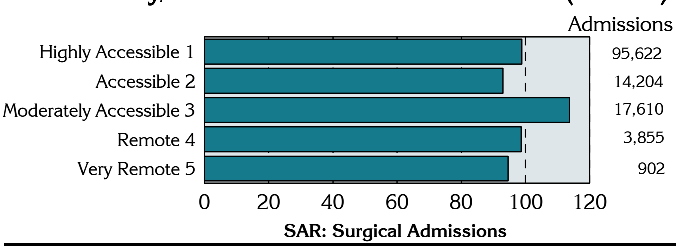
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios for surgical procedures show no particular relationship with remoteness under the ARIA+ classes. They are lowest in the Accessible (93) and Very Remote (95) classes, and highest in the Moderately Accessible (114) class. There were around the expected number of admissions in the Highly Accessible and Remote classes (both with SARs of99).

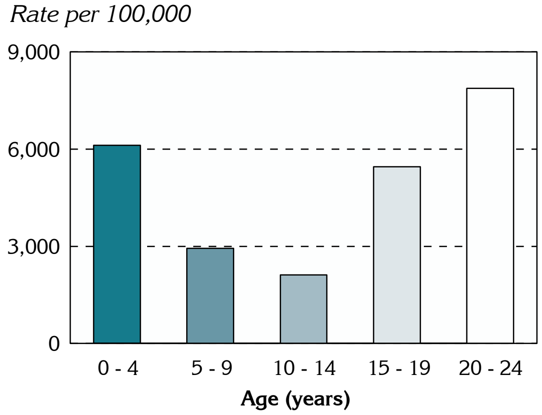
Source: Calculated on ARIA+ classification

Same day admissions for surgical procedures, people aged 0 to 24 years, 1996/97-1998/99

Adelaide

Same day admission rates for surgical procedures of children living in Adelaide vary substantially (**Figure 5.41**) within the 0 to 24 year age category. Children in the 0 to 4 year age group have an average rate of 6,116 admissions per 100,000 population, declining to a low of 2,122 per 100,000 in the 10 to 14 year age group. Hospitalisation rates then increase over the next two age groups, to a high of 7,875 admissions per 100,000 population aged 20 to 24 years.

Figure 5.41: Same day admissions for surgical procedures, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 54,276 same day admissions for a surgical procedure over the period 1996/97 to 1998/99 of children aged 0 to 24 years living in Adelaide; this was marginally higher than expected from the State rates (a standardised admission ratio (SAR) of 101**). Females accounted for 30,886 of these same day admissions (56.9%), while 23,390 were males.

The highest standardised admission ratios for same day surgical procedures tend to be in postcodes lying in a band to the west of the city, and the lowest, to be scattered throughout Adelaide (**Map 5.35**).

The most highly elevated ratio, of 184**, was recorded for children and young people in *Brighton*, indicating that there were 84% more admissions than were expected from the State rates. Other postcode areas with ratios elevated by 30% or more included *Wynn Vale* (with an SAR of 166**), *Brooklyn Park* (158**), *Upper Sturt* (142**), *Summertown* (135), *Ashton* (133), *Virginia* (132**) and *Park Holme* (131**).

Sellicks Beach had the lowest ratio for this variable (of areas with more than 20 admissions), with 47% fewer admissions than expected, an SAR of 53**. To the north of the city, *MacDonald Park*, *Holden Hill* and *Munno Para* recorded low ratios of 67*, 68** and 70** respectively.

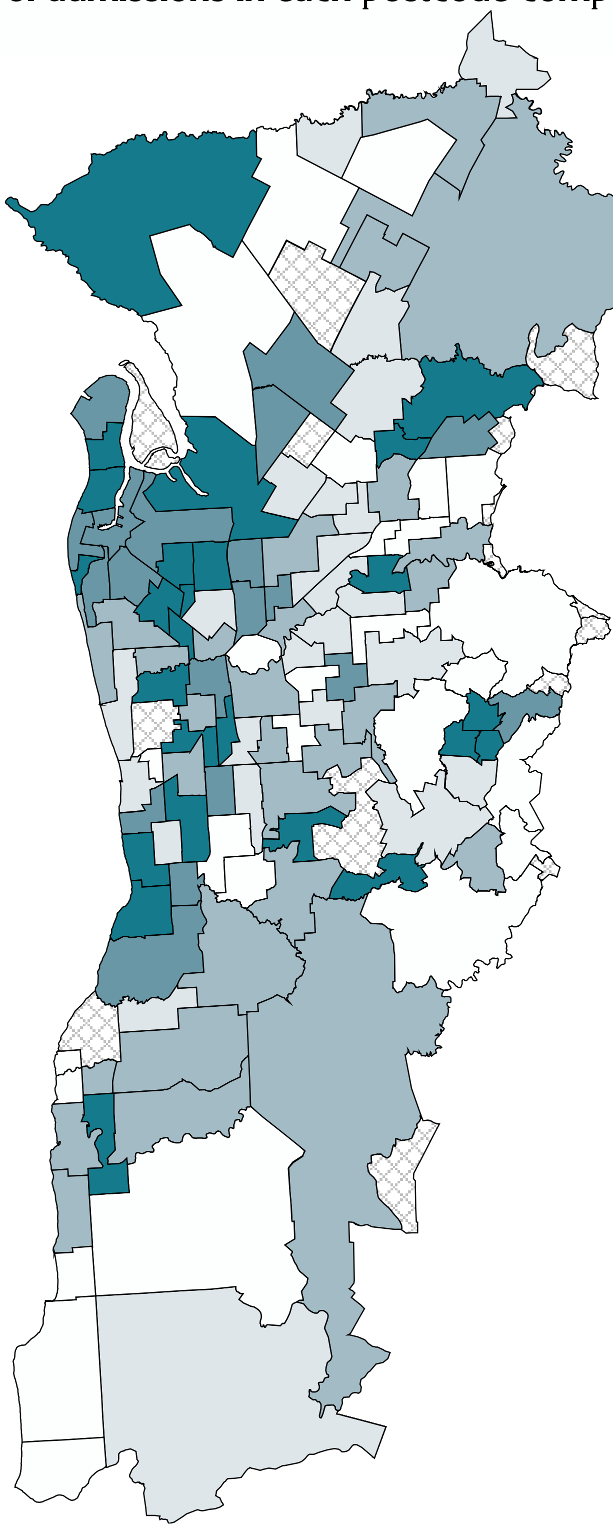
The largest number of same day surgical procedures was recorded in the northern postcode area of *Salisbury*, with 2,488 admissions. More than 1,000 admissions were also recorded for children and young people in *Morphett Vale* (with 1,930 admissions), *Happy Valley* (1,783), *O'Halloran Hill* (1,207), *Elizabeth North* (1,129), *Smithfield* (1,123) and *Salisbury East* (1,048).

There was no consistent evidence in the correlation analysis at the postcode or SLA level between admissions for same day surgical procedures at ages 0 to 24 years and socioeconomic status.

Map 5.35
Same day admissions for surgical procedures, people aged from 0 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*

N



Standardised admission ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

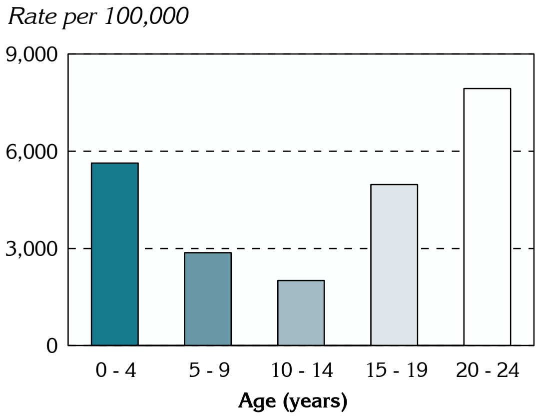
Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Same day admissions for surgical procedures, people aged from 0 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Same day admission rates of non-metropolitan South Australians for surgical procedures vary substantially (**Figure 5.42**) between the five year age groups in the 0 to 24 year age category. Children in the 0 to 4 year age group had an average rate of 5,636 admissions per 100,000 population, declining to a low of 2,012 per 100,000 in the 10 to 14 year age group. Hospitalisation rates then increase over the next two age groups, to a high of 7,940 admissions per 100,000 population aged 20 to 24 years.

Figure 5.42: Same day admissions for surgical procedures, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 17,966 same day admissions for a surgical procedure of residents aged 0 to 24 years of the non-metropolitan area of South Australia. This was three per cent fewer admissions than were expected from the State rates, a standardised admission ratio (SAR) of 97^{**}. Males and females comprised almost equal shares of same day surgical procedures with 50.7% and 49.3%, respectively.

Areas with highly elevated ratios were scattered throughout the State in no notable pattern (**Map 5.36**). The highest standardised admission ratio was recorded for children in Lameroo, with an SAR of 154^{**}, indicating that there 54% more admissions than were expected from the State rates. Ratios mapped in the highest class interval were also recorded in the SLAs of Port Augusta (147^{**}), Barmera and Renmark (both 135^{**}), Whyalla (134^{**}) and Port Broughton (131^{*}).

Areas with low ratios were also widespread throughout South Australia, with the lowest ratio (of areas where more than 20 same day surgical procedures were recorded) occurring in Peterborough (M) (with an SAR of 42^{**}). Unincorporated Far North (with an SAR of 45^{**}), Naracoorte (DC) (51^{**}), Beachport (54^{**}), Light (56^{**}), Mount Gambier (DC) (57^{**}), Streaky Bay, Mount Remarkable and Lucindale (each with 58^{**}), Unincorporated West Coast (59^{*}) and Orroroo (60^{**}) also recorded relatively low ratios for this variable.

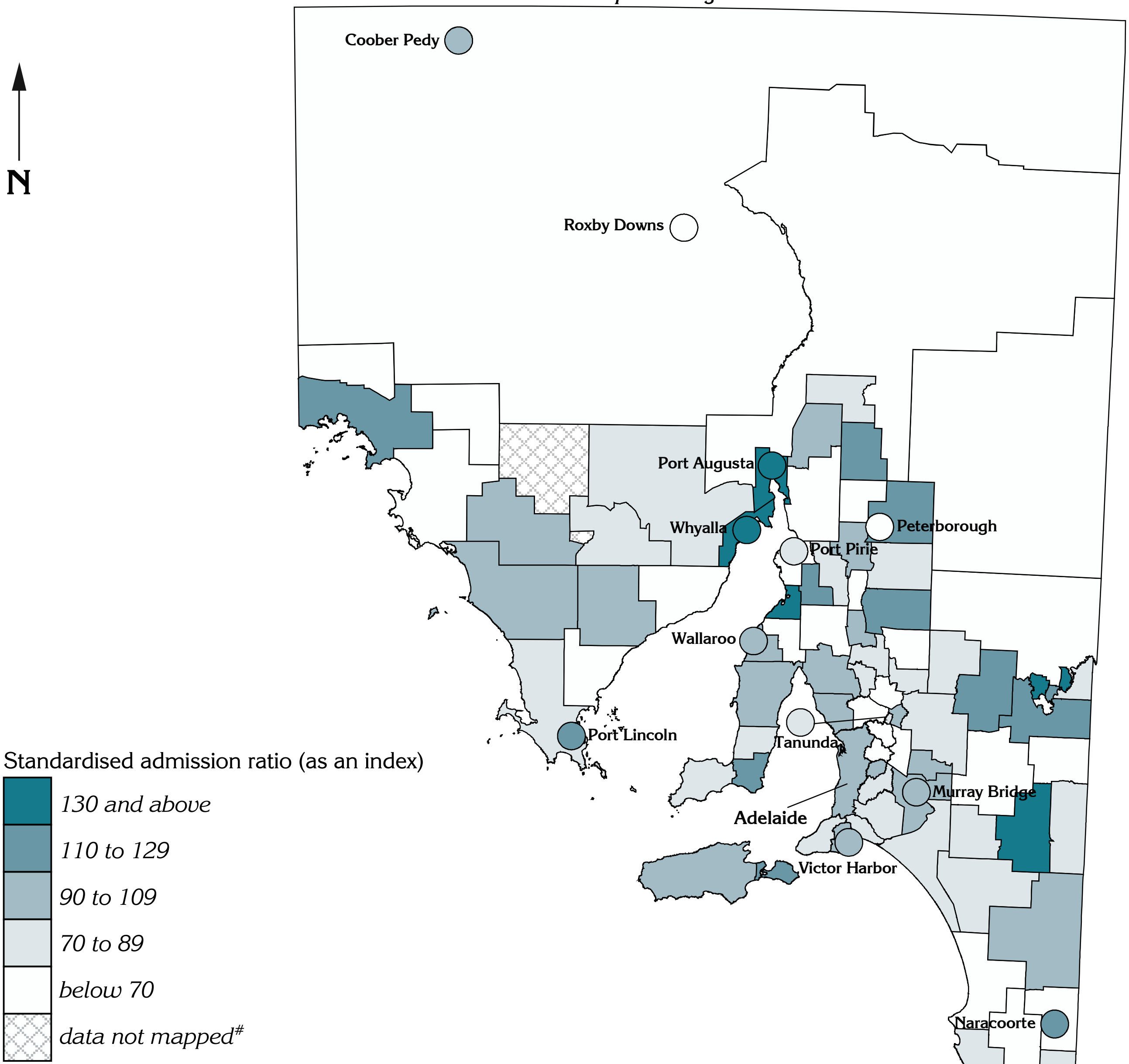
The largest numbers of same day admissions for a surgical procedure in the non-metropolitan area of South Australia were recorded in Whyalla (with 1,694 admissions), Mount Gambier (1,262), Port Augusta (1,088), Mount Barker (969), Murray Bridge (755), Port Lincoln (719), Port Pirie (593) and Renmark (522).

There were correlations of meaningful significance with the variables for children aged 0 to 14 years living in SA Housing Trust rented dwellings (0.65) and single parent families (0.54).

These results, together with the weak inverse correlation with the IRSD (-0.44), indicate an association at the SLA level between high rates of same day admissions for a surgical procedure at ages 0 to 24 years and socioeconomic disadvantage.

Map 5.36
Same day admissions for surgical procedures, people aged from 0 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

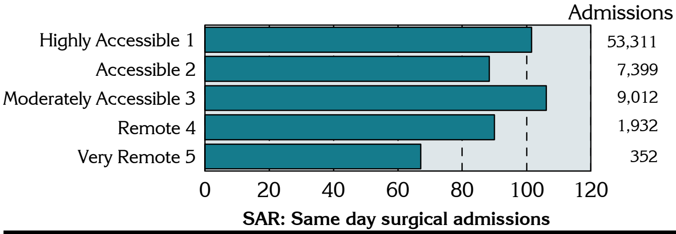


* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for same day admissions involving a surgical procedure were highest in the Highly Accessible and Moderately Accessible areas, with an SAR of 102 and 106 respectively. SARs were similar in the Accessible and Remote classes, with the lowest ratio recorded in the Remote areas (with an SAR of 67).

Source: Calculated on ARIA+ classification

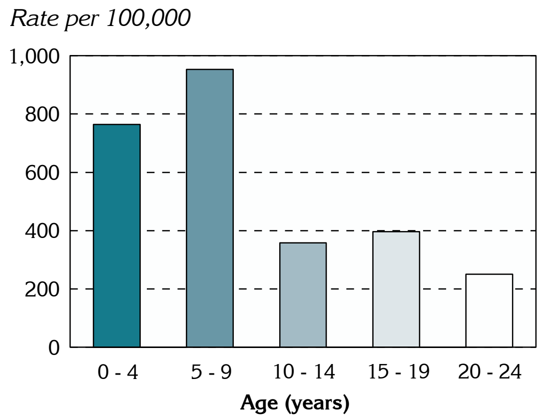
Admissions for a tonsillectomy and/or adenoidectomy, people aged from 0 to 24 years, 1996/97-1998/99

Adelaide

Tonsillectomy involves the surgical removal of a person's tonsils where, for example, there has been repeated infection of the tonsils over an extended period of time. Adenoidectomy is the surgical removal of adenoid tissue from the nasal part of the throat above the soft palate (the nasopharynx).

Admission rates for a tonsillectomy with or without adenoidectomy of people living in Adelaide vary substantially (**Figure 5.43**) within the 0 to 24 year age category. Children in the 5 to 9 year age group have the highest hospitalisation rates (an average rate of 953 admissions per 100,000 population aged 5 to 9 years), with substantially lower rates in the next three age groups (down to 251 admissions per 100,000 in the 20 to 24 year age group).

Figure 5.43: Admissions for a tonsillectomy &/or an adenoidectomy, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1996/97 to 1998/99, there were 5,765 admissions for tonsillectomy with or without adenoidectomy in Adelaide, marginally fewer than expected from the State rates (a standardised admission ratio (SAR) of 98). The numbers of female and male admissions were similar, at 3,220 and 2,545 admissions respectively.

The distribution of SARs across Adelaide is striking, with highly elevated ratios across the northern and north-western suburbs, and generally low ratios in the southern, eastern and inner areas of Adelaide (**Map 5.37**).

Just under a quarter (23.8%) of the postcode areas had ratios elevated by 15% or more. The most highly elevated of these was recorded for children and young people in *Virginia*, with an SAR of 164**.

Highly elevated ratios were also recorded to the north of the city in the postcode areas of *Smithfield* (an SAR of 152**), *Evanston* (144*), *Pooraka* (139**), *Golden Grove* (133**), *Munno Para* (131), *Elizabeth* (130**), *Para Vista* (123), *Wynn Vale* (122), *Parafield Gardens* (118), *Campbelltown* (117), *Enfield* (116), *Salisbury* (116**) and *Tea Tree Gully* (115).

The only suburbs with low standardised admission ratios of statistical significance and more than 20 admissions were *Unley* (with an SAR of 54**), *Aldinga* and *Eastwood* (both 56**), *Goodwood* (57**), *Glenelg* (58**), *Belair* (60*), *Magill* (64**), *Norwood* (66*) *O'Halloran Hill* (70**), *Plympton* (71*), *Happy Valley* (72**), *Blackwood* (72*), *Hackham* (73**) and *Henley Beach* (74*). Other areas with ratios of 15% or more lower than expected from the State rates (and with more than 20 admissions) were *Keswick* (66), *Walkerville* (70), *St Peters* and *Burnside* (both 72), and *Stirling, Nailsworth* and *Glenside* (each 74).

Children and young people in *Salisbury* had the largest number of admissions for a tonsillectomy with or without an adenoidectomy over the three years from 1996/97 to 1998/99, with 314 admissions. The next largest numbers were recorded in *Smithfield* (225 admissions), *Morphett Vale* (213 admissions), *Happy Valley* (155 admissions), *Elizabeth* (155 admissions), *Salisbury East* (151 admissions), *Elizabeth North* (148 admissions), *Golden Grove* (133 admissions), *Parafield Gardens* (111 admissions) and O'Halloran Hill (106 admissions).

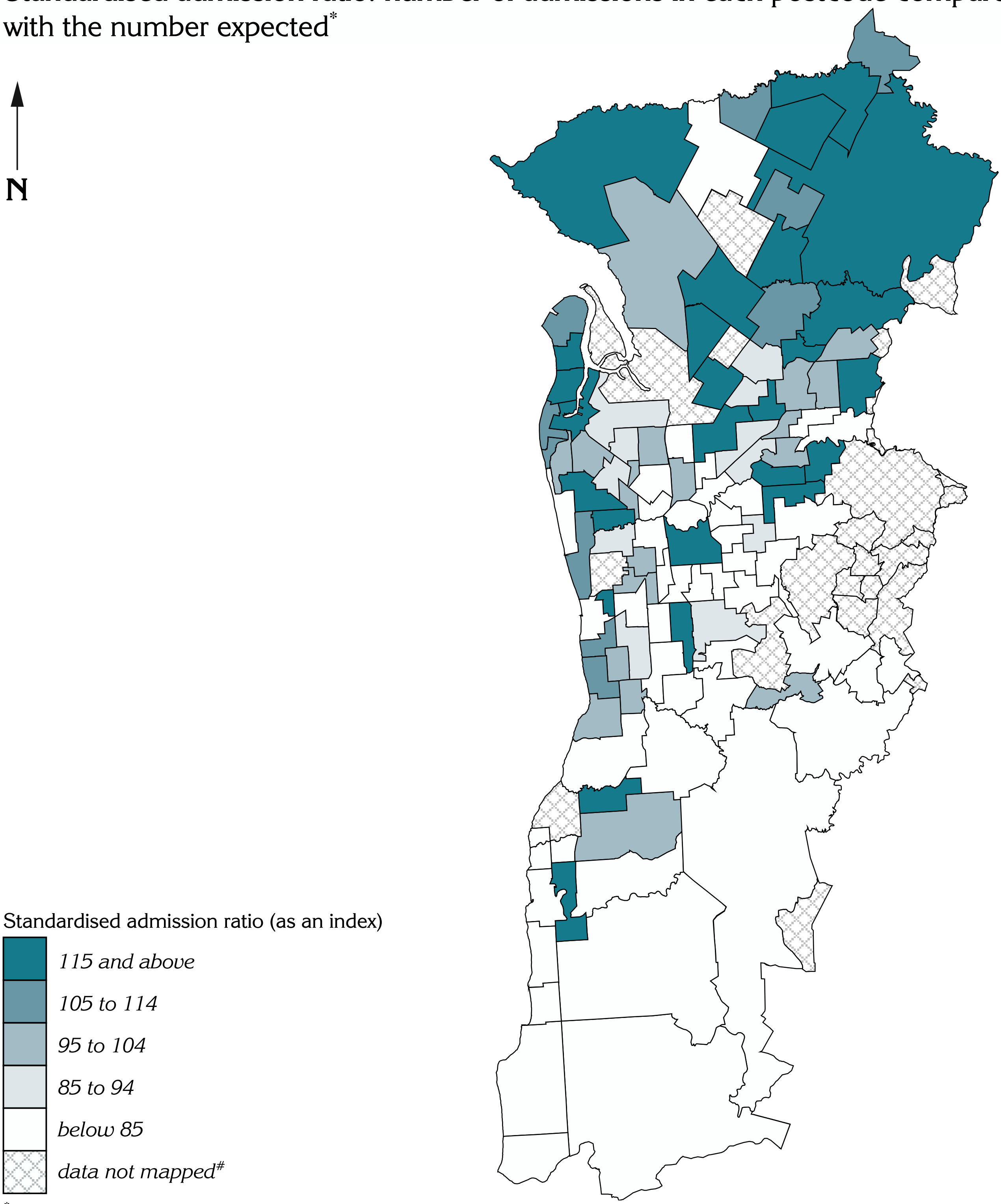
There was no consistent evidence in the correlation analysis at the postcode level of an association between admissions for a tonsillectomy and/or adenoidectomy and socioeconomic status.

However, when the data were aggregated to the SLA level, a correlation of meaningful significance was recorded with the variable for people aged 15 to 24 years who left school at 15 years of age or earlier (0.59). This result, together with the weak inverse correlation with the IRSD (-0.42), suggest an association at the SLA level between high rates of tonsillectomy and/or adenoidectomy at ages 0 to 24 years and socioeconomic disadvantage.

Map 5.37

Admissions for a tonsillectomy and/or adenoidectomy, people aged from 0 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS — *Details of map boundaries are in Appendix 1.2*

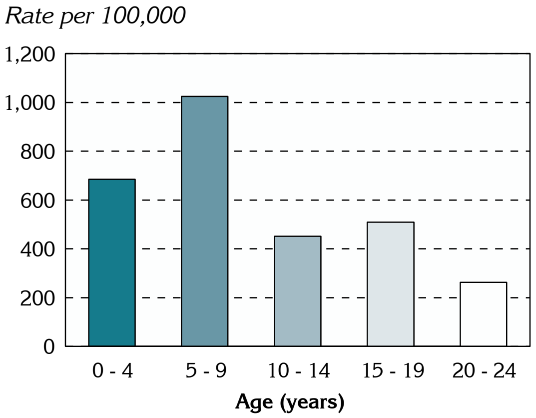
Admissions for a tonsillectomy and/or adenoidectomy, people aged from 0 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

Tonsillectomy involves the surgical removal of a person's tonsils where, for example, there has been repeated infection of the tonsils over an extended period of time. Adenoidectomy is the surgical removal of adenoid tissue from the nasal part of the throat above the soft palate (the nasopharynx).

Admission rates of non-metropolitan South Australians for tonsillectomy with or without adenoidectomy vary substantially (**Figure 5.44**) between the five-year age groups in the 0 to 24 year age category. Children in the 5 to 9 year age group have the highest hospitalisation rates (an average rate of 1,025 admissions per 100,000 population aged 5 to 9 years), with substantially lower rates in the next three age groups (down to 263 per 100,000 in the 20 to 24 year age group).

Figure 5.44: Admissions for a tonsillectomy &/or an adenoidectomy, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

The standardised admission ratio (SAR) recorded for the non-metropolitan area of South Australia was 105**, indicating that there were five per cent more admissions than expected from the State rates. With only 2,493 admissions for a tonsillectomy with or without adenoidectomy over the period from 1996/97 to 1998/99, the numbers for many non-metropolitan SLAs were quite small. The numbers of female and male admissions were similar, at 1,361 and 1,132 admissions respectively.

Despite this relatively low overall rate of admissions, the distribution across SLAs was quite differentiated, with a number of SLAs recording highly elevated ratios (**Map 5.38**).

Ratios elevated by at least 30% (in areas with more than 20 admissions) were recorded for children and young people in Peterborough (with an SAR of 260**), Wallaroo (210**), Jamestown (202**), Mount Remarkable (159*), Port Pirie (150**), Port Augusta (146**), Naracoorte (M) (143*), Victor Harbor (143**), Onkaparinga (142**), Kapunda (141), Lacepede (140), Tatiara (134*) and Mount Barker (133**).

The only SLAs with a ratio lower than expected (and recording at least 20 admissions) were Unincorporated Far North (with an SAR of 50**), Light (61*), Loxton (67*), Berri (68*), Wakefield Plains and Waikerie (both 77), Roxby Downs (81), Meningie (82), Gumeracha (85), Murray Bridge (88) and Lower Eyre Peninsula (92).

None of the SLAs had more than 200 admissions for a tonsillectomy with or without adenoidectomy over this three year period: the largest numbers were recorded in Mount Barker, with 192 admissions; Mount Gambier, with 171 admissions; Whyalla, with 161 admissions; Port Augusta, with 133 admissions; and Port Pirie, with 127 admissions.

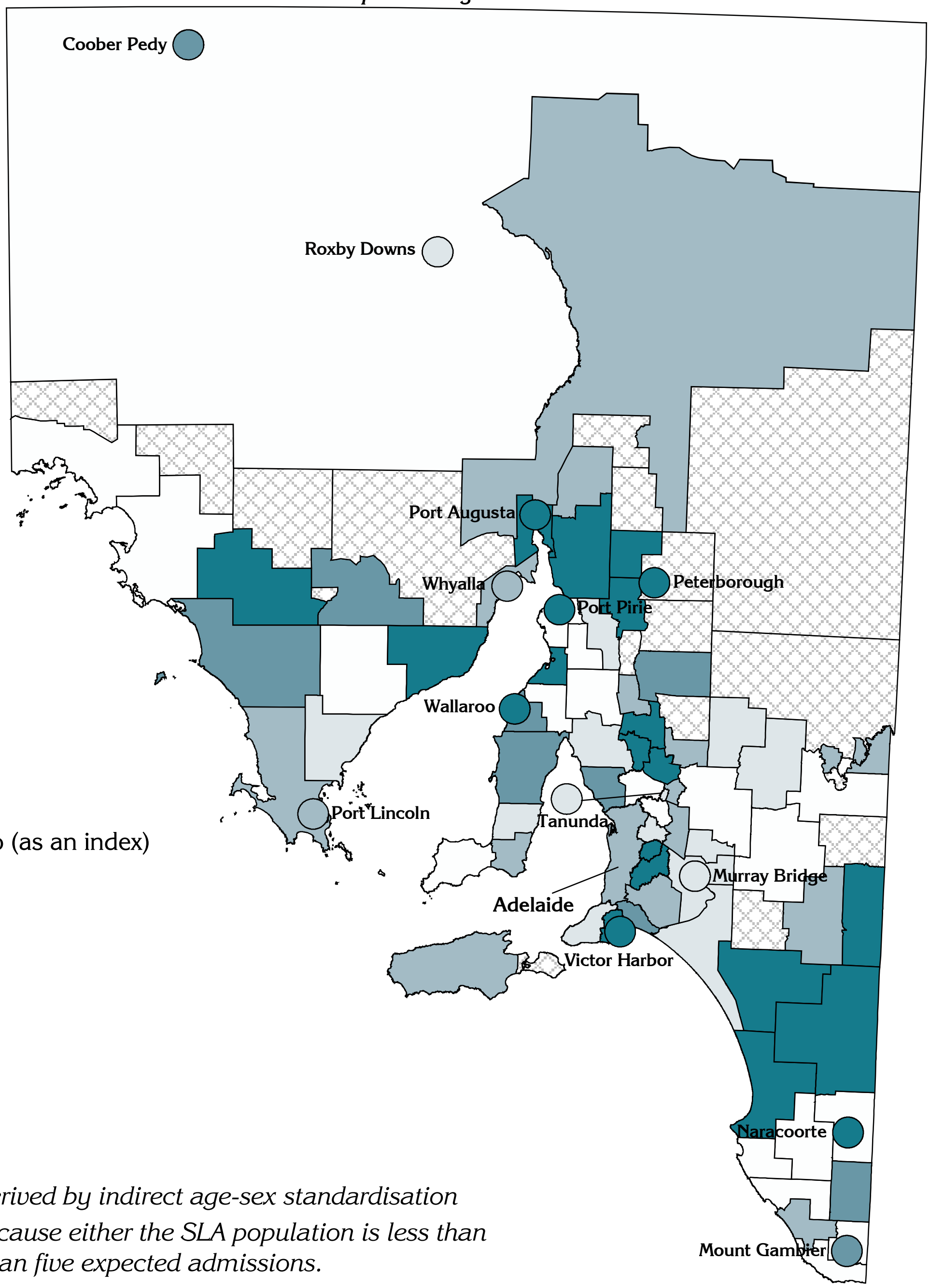
There was a correlation of meaningful significance between admissions for a tonsillectomy with or without adenoidectomy and the variable for children aged 0 to 14 years living in single parent families (0.53).

Map 5.38

Admissions for a tonsillectomy and/or adenoidectomy, aged from 0 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

Map boundary truncated



Standardised admission ratio (as an index)

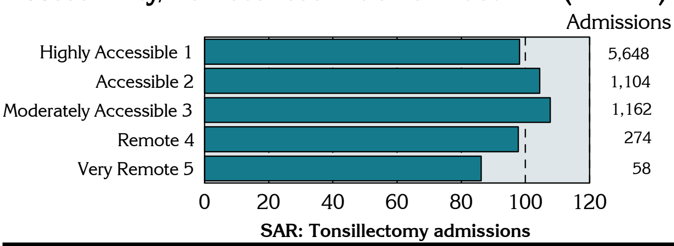
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for admissions involving a tonsillectomy with or without adenoidectomy increase over the first three ARIA+ classes (to an SAR of 108 in the Moderately Accessible areas), before declining to a notably lower ratio of 86 in the Very Remote areas.

Source: Calculated on ARIA+ classification

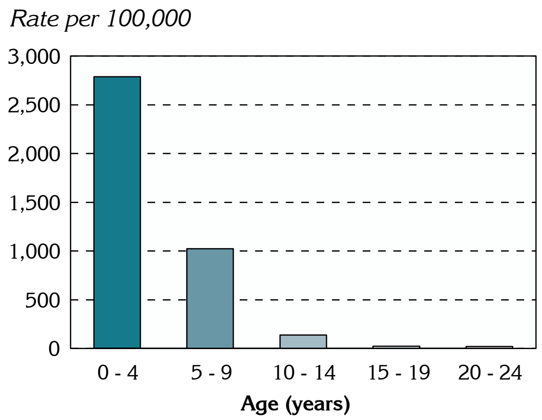
Admissions for a myringotomy, people aged from 0 to 24 years, 1996/97-1998/99

Adelaide

A myringotomy (incision into the eardrum, or tympanic membrane) is usually performed to relieve pressure and allow for drainage of fluid in the middle ear. Ventilation is maintained by putting a small tube (or grommet) into the incision.

Admission rates for a myringotomy of children living in Adelaide vary substantially (**Figure 5.45**) within the 0 to 24 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rates (an average rate of 2,788 admissions per 100,000 population aged 0 to 4 years), dropping markedly with age to 18 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.45: Admissions for a myringotomy, by age, Adelaide, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 8,140 admissions over the three years from 1996/97 to 1998/99 for a myringotomy of children and young people in Adelaide. This was four per cent more admissions than expected from the State rates (a standardised admission ratio (SAR) of 104**). Males accounted for over half (58.5%) of these admissions. The large majority (92.3%) of these admissions were performed on a same day basis.

Postcode areas with the most highly elevated ratios were clustered in three distinct areas: in the north-east, in the middle south and coastal areas, and in a number of inner suburbs (**Map 5.39**). Those in the inner areas (in postcode areas with more than 20 admissions) were *Nailsworth* (with an SAR of 150**), *Unley* (149**), *Thebarton* (130*), *Glen Osmond* (128), *Eastwood* (125*) and *Burnside* (125); those in the middle southern and coastal areas were *Seacliff* (149**), *Blackwood* (135**), *Somerton Park* (134*), *St Marys* (131*) and *Happy Valley* (125**); and those situated in the north-east were *Evanston* (146**), *Fairview Park* (144**), *Modbury North* (130**) and *Wynn Vale* (127*).

Excluding areas with fewer than 20 admissions, the lowest ratio was recorded for children and young people in *Port Adelaide*, with 46% fewer admissions than were expected from the State rates (an SAR of 54**). Low ratios were also recorded in the postcode areas of *Burton* (61**), *Holden Hill* (63*), *Woodville North* (63**), *Christies Beach* (64*), *Ferryden Park* (70), *Stirling Forward* (72*), *Aldinga* (74*), *Henley Beach* and *Woodville* (both 75*) and *Brooklyn Park* (79).

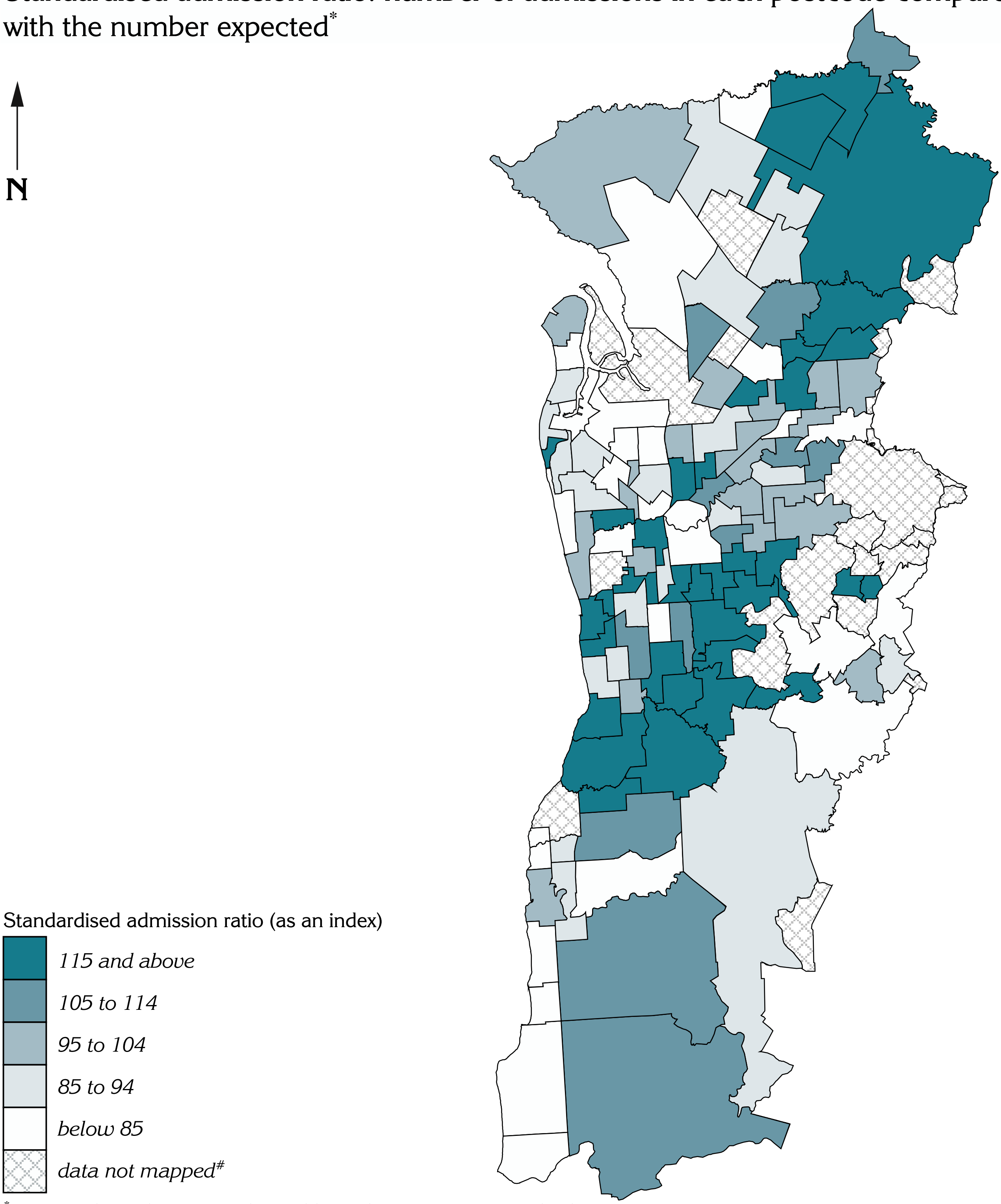
The largest numbers of admissions for a myringotomy were from the postcode areas of *Salisbury*, with 373 admissions; *Happy Valley*, 350 admissions; *Morphett Vale*, 338 admissions; *Smithfield*, 265 admissions; and *O'Halloran Hill*, 244 admissions.

There was an inverse correlation of meaningful significance at the postcode between admissions for a myringotomy and the variable for unemployed males aged 15 to 24 years (-0.55).

There was no consistent evidence in the correlation analysis at either the postcode or SLA level of an association between admissions for a myringotomy and socioeconomic status.

Map 5.39
Admissions for a myringotomy, people aged from 0 to 24 years, Adelaide, 1996/97-1998/99

Standardised admission ratio: number of admissions in each postcode compared with the number expected*



* Expected numbers were derived by indirect age-sex standardisation

\# Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS *Details of map boundaries are in Appendix 1.2*

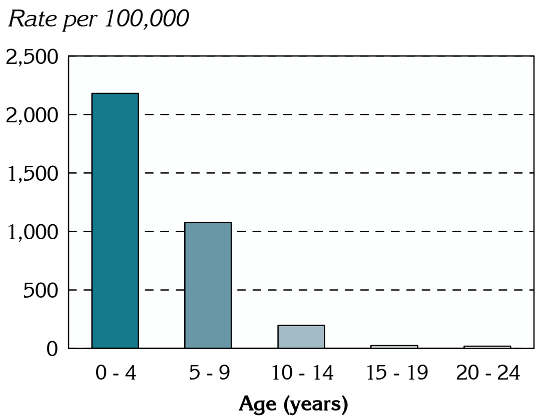
Admissions for a myringotomy, people aged from 0 to 24 years, 1996/97-1998/99

Non-metropolitan South Australia

A myringotomy (incision into the eardrum, or tympanic membrane) is usually performed to relieve pressure and allow for drainage of fluid in the middle ear. Ventilation is maintained by putting a small tube (or grommet) into the incision.

Admission rates of non-metropolitan South Australians for a myringotomy vary substantially (**Figure 5.46**) between the five year age groups in the 0 to 24 year age category. Children in the 0 to 4 year age group have the highest hospitalisation rate (an average rate of 2,181 admissions per 100,000 population aged 0 to 4 years), dropping markedly with age to 19 admissions per 100,000 in the 20 to 24 year age group.

Figure 5.46: Admissions for a myringotomy, by age, non-metropolitan areas, 1996/97-1998/99



Source: Compiled in HealthWIZ from data supplied by DHS

There were 3,074 admissions of children aged 0 to 24 years resident in the non-metropolitan area of South Australia for a myringotomy, nine per cent fewer than expected from the State rates (a standardised admission ratio (SAR) of 91**). More than half of these admissions were males (58.0%, 2,784 admissions); females accounted for 42.0% (1,290 admissions). The majority (89.7%) of the admissions (2,758 admissions) were performed on a same day basis.

Data have not been mapped for a number of SLAs, as there were considered to be too few cases to produce reliable results (**Map 5.40**). Of SLAs that did record data for this variable, only 30% had higher than expected standardised admission ratio.

By far the highest ratio was recorded for children in Unincorporated West Coast, with seven times more admissions than expected, an SAR of 712**. The remaining SLAs mapped in the highest range (with more than 20 admissions) included Lameroo (with an SAR of 261**), Port Broughton (254**), Burra Burra (228**), Loxton (198**), Riverton (151), Cleve (147), Coober Pedy (138), Clare (138*), Renmark (135**), Tatiara (131**) and Mallala (130*).

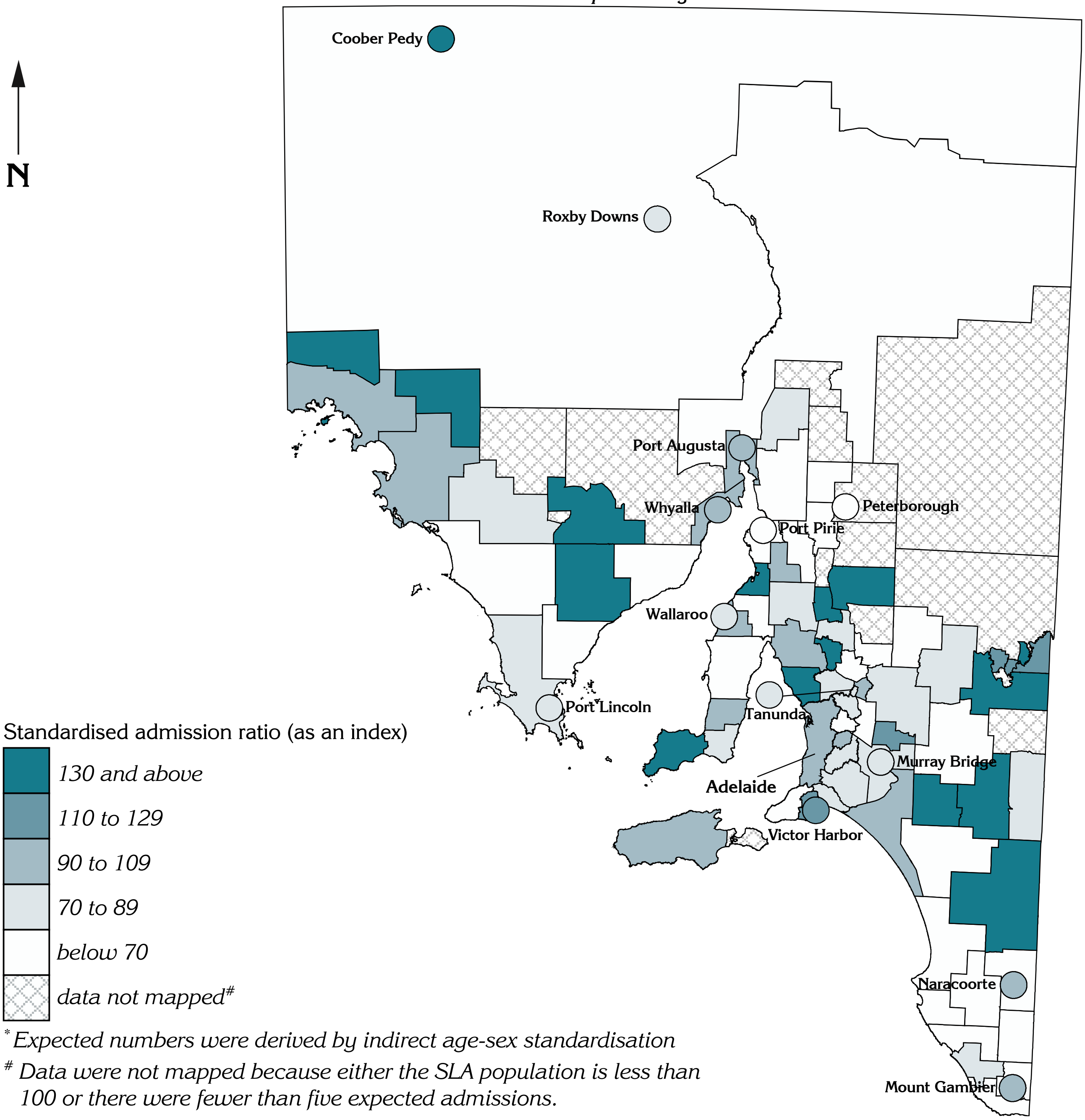
A large number of SLAs (39.9% of SLAs) were mapped in the lowest range, with SARs of less than 70. However, only four of these SLAs recorded more than twenty admissions. These areas included Port Pirie (with an SAR of 35**), Gumeracha (52**), Mount Gambier (DC) (55**) and Unincorporated Far North (62**).

Children and young people in Whyalla had the largest number of admissions in the non-metropolitan area of South Australia for a myringotomy, with 242 admissions. More than 100 admissions were also recorded for children and young people in Mount Gambier (C) (200 admissions), Mount Barker (162 admissions), Port Augusta (143 admissions), Loxton (124 admissions) and Murray Bridge (118 admissions).

There was no consistent evidence in the correlation analysis at the SLA level in the non-metropolitan area of South Australia of an association between admissions for a myringotomy and socioeconomic status.

Map 5.40
Admissions for a myringotomy, people aged 0 to 24 years, South Australia, 1996/97-1998/99

Standardised admission ratio: number of admissions in each Statistical Local Area compared with the number expected*

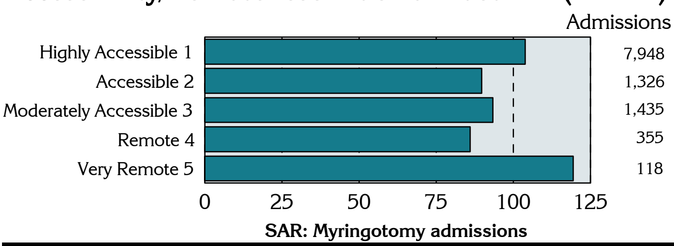


*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected admissions.

Source: Compiled in HealthWIZ from data supplied by DHS *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised admission ratios (SARs) for admissions involving a myringotomy were above the level expected in the Highly Accessible (an SAR of 104) and Very Remote (119) areas. SARs of 90, 93 and 86 were recorded in the middle three ARIA+ classes.

Source: Calculated on ARIA+ classification

Hospital inpatient booking lists for elective (non-urgent) surgical procedures, people aged 0 to 24 years, 30 June 2001

The major metropolitan public hospitals each maintain a list of people who have been assessed as needing elective (ie. non-urgent) surgery: these lists are referred to as 'booking lists'. Those requiring urgent treatment for life-threatening conditions are not placed on a booking list but are admitted for treatment. Where the condition of a person on a booking list deteriorates to the extent that their condition becomes life-threatening, they are admitted for treatment, regardless of their position (relative to others) on the booking list. Hospitals with inpatient booking lists are Flinders Medical Centre, Lyell McEwin Health Service, Modbury Hospital, Royal Adelaide Hospital and The Queen Elizabeth Hospital. Summary details of specialties included on the booking lists and time on the list are in **Table A18** in **Appendix 1.7**.

At 30 June 2001, there were 1,481 people[2] aged 0 to 24 years on a booking list, 258 who had been on a list for between 6 and 12 months and a further 440 who had been on a list for in excess of 12 months. More than one third (36.7%) of people on the booking list were waiting for surgical procedures involving the ears, nose and throat (E.N.T.), in particular for tonsillectomies (15.6%). Relatively large numbers of people were also on a booking list for orthopaedic surgery (12.2%) or for plastic surgery (10.1%).

Children and young people in Adelaide's poorest areas are over-represented on the booking lists, reflecting their poorer access to these services. For example, children and young people in the most disadvantaged areas have 22% more admissions to a hospital for a surgical procedure than those in the most advantaged areas, with 43% more admissions overall. However, they are on a booking list more than two and a half times (2.52) the rate of those in the most well off areas.

Adelaide

The data mapped are of people aged 0 to 24 years who have waited more than six months for an elective surgical procedure. The data have been mapped at the SLA level as there were too few cases in each postcode from which to calculate reliable rates. Nine SLAs had at least 15% more residents on a booking list for six months or more than expected from the metropolitan rate. These were mainly located in the outer northern, inner northern and north-western suburbs, and in the south (**Map 5.41**).

The most highly elevated ratio was recorded in the SLA of Elizabeth, with 81% more residents on a booking list than expected (SR of 181**). Other highly elevated ratios were recorded in the inner northern and north-western areas of Enfield [Part B] (with an SR of 163), Enfield [Part A] (125) and Hindmarsh and Woodville (123); in the southern coastal areas of Brighton (158), Noarlunga (142**) and Marion (135*); and in the outer northern areas of Munno Para (144*) and Salisbury (115).

In areas where there were more than five expected cases, the lowest ratios were recorded in Unley and Burnside with SRs of 24** and 44* respectively. Tea Tree Gully (with an SR of 52**), Payneham (58), Gawler (61), Stirling (65), Happy Valley (68), Prospect (78), West Torrens (80) and Campbelltown (81) all had ratios of 15% fewer than expected.

Residents of Salisbury and Noarlunga recorded the largest number of 0 to 24 year old on a booking list (both with 62 people), followed by Marion (42 people), Hindmarsh and Woodville (41 people), Munno Para (29 people) and Mitcham (25 people).

There were correlations of meaningful significance with the variables for people aged 0 to 24 years living in single parent families (0.67), dwellings rented from the State Housing Trust (0.67), dwellings with no vehicle (0.66) and low income families (0.64); Indigenous people aged 0 to 14 years (0.60) and 15 to 24 years (0.57); unemployed females (0.60) and males (0.57) aged 15 to 24 years; and people who left school at age 15 years or earlier (0.55). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.64), indicate an association at the SLA level between high rates of people on a booking list and socioeconomic disadvantage.

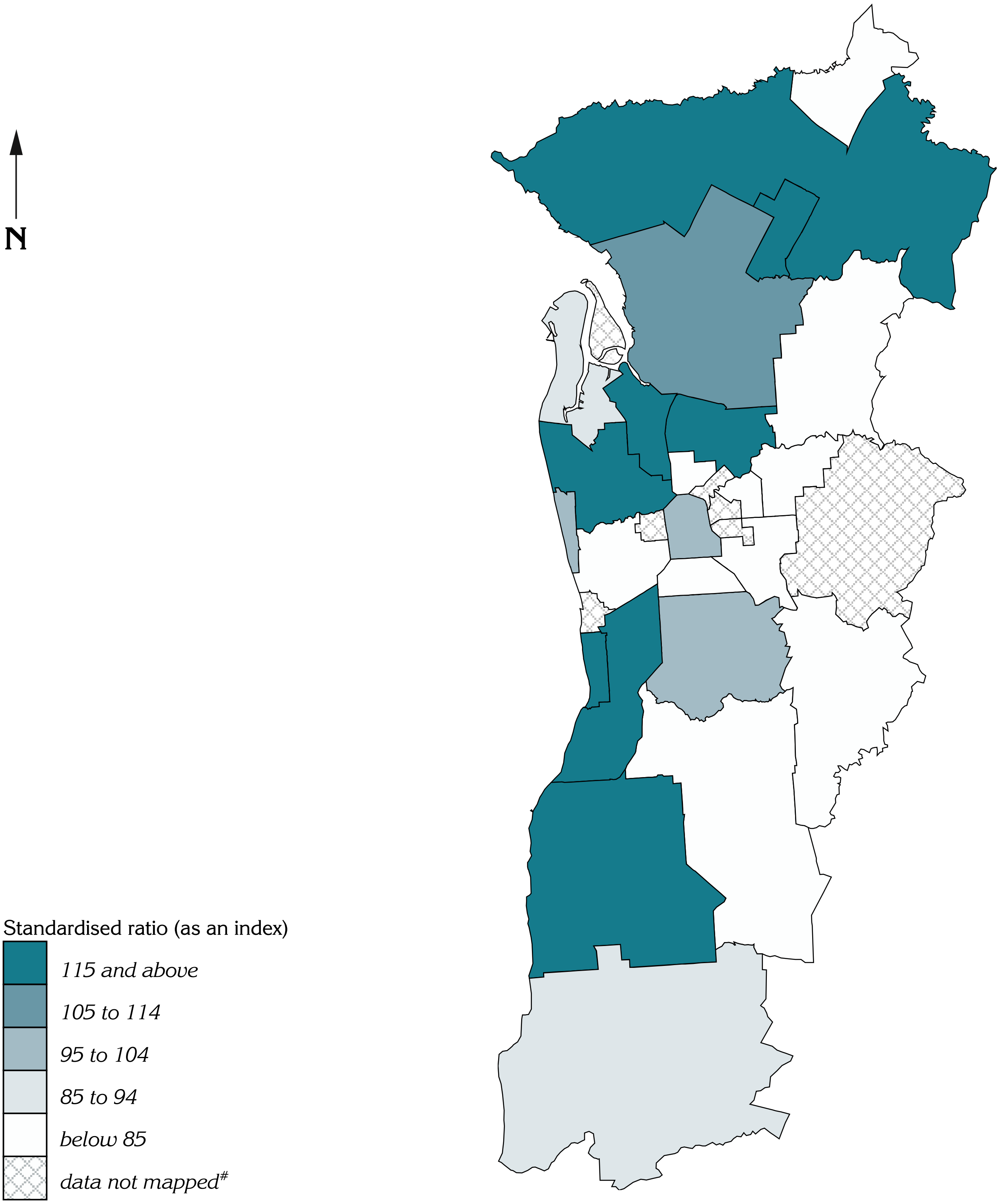
Non-metropolitan areas

Hospitals in non-metropolitan areas do not maintain these lists. It is therefore unclear whether or not non-metropolitan residents are waiting for elective procedures; and, if they are, what the length of wait and the socioeconomic status of those waiting might be.

[2] Although referred to as the number of 'people' on a booking list, the data discussed here may count some people more than once, if they are on more than one list at a hospital, or on a list at more than one hospital. An investigation of booking lists has shown that these are rare occurrences.

Map 5.41
Hospital inpatient booking lists for elective (non-urgent) surgical procedures, Adelaide, 30 June 2001

Standardised ratio: number of people on a booking list in each Statistical Local Area compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because there were fewer than five expected people on a booking list.

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Terminations of pregnancy of women aged 15 to 24 years, 1997 to 1999

Termination of pregnancy can be undertaken at prescribed hospitals in South Australia on certain specified grounds. These grounds mainly apply where continuance of the pregnancy would have involved greater risk to the life, or of injury to the physical or mental health, of the pregnant woman than if the pregnancy had been terminated; or where there is substantial risk that, if the child were born, it would suffer from such physical or mental abnormalities as to be seriously handicapped.

Terminations of pregnancy for women aged 15 to 24 years represent 50.0% of all terminations in South Australia. The highest rate of terminations is for women aged 20 to 24 years (32.6 per 1,000 women of that age), followed by those aged 15 to 19 years (24.5 per 1,000) and 25 to 29 years (22.9 per 1,000).

The proportion of teenage pregnancies terminated in Australia (54%) is higher than in New Zealand (40%) or the USA (35%), but lower than in the Scandinavian countries and Japan (59%-70%) (Singh & Darroch 2000).

Adelaide

Over the three year period 1997 to 1999, there were 6,966 terminations recorded for women aged 15 to 24 years resident in Adelaide, 83.0% of all terminations for South Australian women at these ages. This is five per cent more terminations than expected from the State rates (an SR of 105^{**}).

The distribution of postcodes with elevated standardised ratios of terminations of pregnancy in Adelaide is similar to the pattern of socioeconomic disadvantage evident in many of the maps in Chapter 3. The most highly elevated rates are in postcode areas in the inner western and north-western suburbs, in the outer north and in some southern suburbs (**Map 5.42**). This distribution is similar to that mapped for terminations at all ages for the period 1990 to 1992. The major difference evident in the later distribution is the higher rate in a number of outer northern (and, to a lesser extent, outer southern) postcode areas, reflecting the higher rate of terminations among younger women (ie. under 25 years of age and, in particular, under 20 years of age) in these areas.

The postcode area of *Ferryden Park* had the highest ratio for this variable with more than twice the number of terminations among women aged 15 to 24 years than were expected from the State rates (an SR of 215^{**}). More than fifty per cent more terminations than expected were also recorded for young women in *Adelaide* (with an SR of 198^{**}); in the inner northern and western areas of *Hindmarsh* (193^{**}), *Woodville North* (182^{**}), *Enfield* and *Semaphore* (both 174^{**}), *Alberton* (166^{**}), *Blair Athol* (157^{**}), *Prospect* (154^{**}) and *Thebarton* (151^{**}); in the southern coastal areas of *Old Noarlunga* (181^{**}) and *Christie Downs* (176^{**}); and in the outer north in *Virginia* (172^{*}).

Less than half of the postcode areas in Adelaide had ratios lower than expected. The majority of these were mapped in the lowest range, and were generally located in the north-eastern, southern and Hills regions. In postcode areas where there were more than ten terminations in this age group, the lowest ratios were recorded for residents of *Stirling Forward* (an SR of 44^{**}), *Glen Osmond* (51^{**}), *Kingswood* (58^{**}), *Magill* (60^{**}), *Tea Tree Gully* (63^{**}), *Burnside* (64^{**}), *Paradise* and *St Marys* (both 65^{**}) and *Flinders Park* (65^{*}).

The outer postcode areas of *Salisbury* (with 309 terminations), *Morphett Vale* (236 terminations), *Elizabeth* (163 terminations), *Elizabeth North* (159 terminations), *Salisbury East* (152 terminations) and *Happy Valley* (134 terminations) had the largest numbers of women aged 15 to 24 years undergoing a termination of pregnancy.

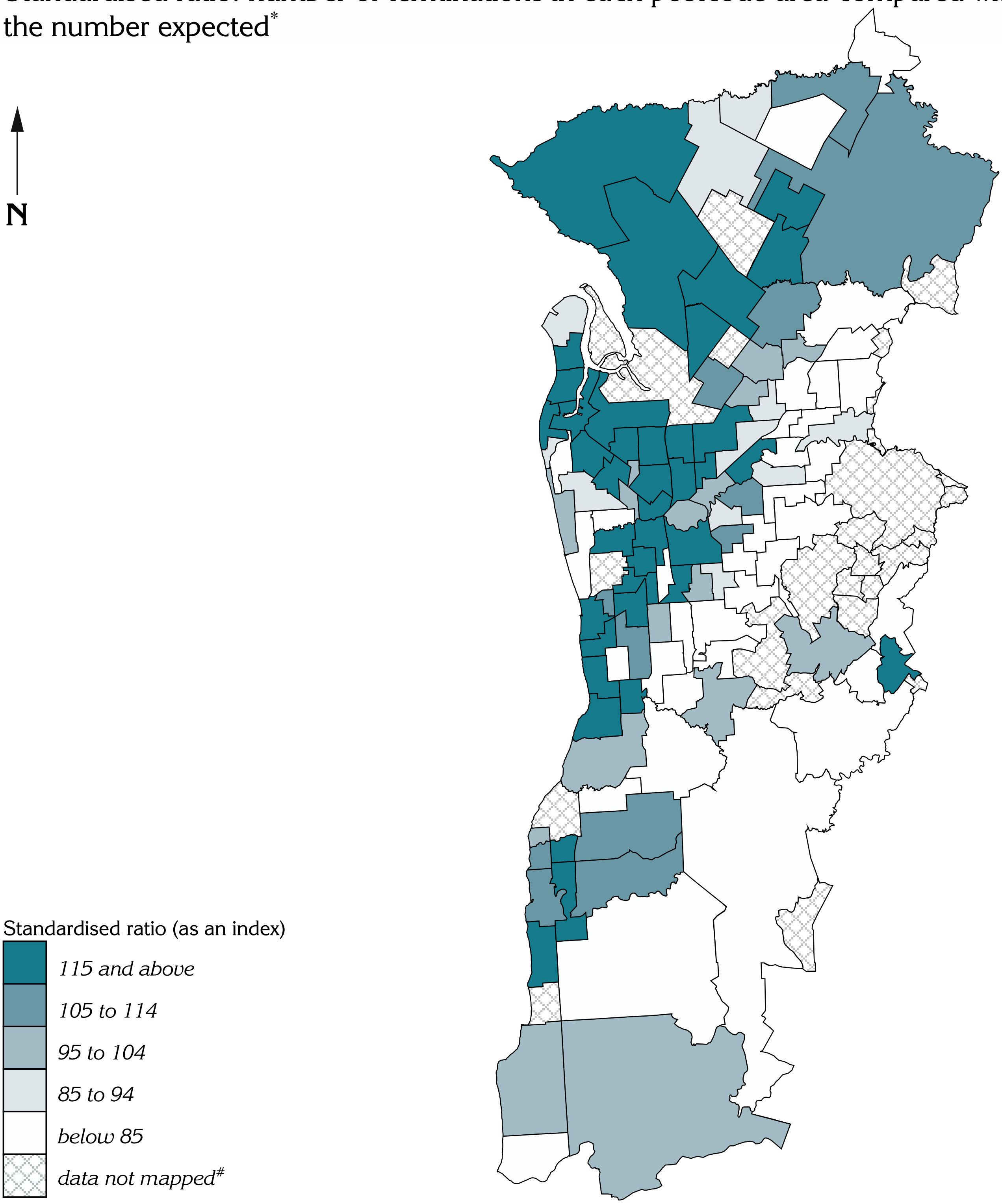
The difference in information provided by the standardised ratio and the number illustrates the need to use data appropriate to the purpose. The latter (absolute) measure is more appropriate to an examination of service location issues, while the former (relative) measure has a role in developing an understanding as to which group(s) of women is more likely to undergo a termination.

There were correlations of meaningful significance with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.64), low income families (0.61), single parent families (0.59) and dwellings rented from the SA Housing Trust (0.56); unemployed males (0.55) and females (0.53) aged 15 to 24 years; and people aged 15 to 24 years who were full-time students (-0.50).

These results, together with the inverse correlation with the IRSD (-0.63), indicate an association at the postcode level in Adelaide between high rates of termination of pregnancy at ages 15 to 24 years and socioeconomic disadvantage.

Map 5.42
Terminations of pregnancy of women aged 15 to 24 years, Adelaide, 1997 to 1999

Standardised ratio: number of terminations in each postcode area compared with the number expected*



Standardised ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either, the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected terminations.*

Source: Compiled from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Terminations of pregnancy of women aged 15 to 24 years, 1997 to 1999

Non-metropolitan South Australia

Female residents in the non-metropolitan areas of South Australia had 23% fewer terminations of pregnancy among women aged 15 to 24 years than were expected from the State rates (an SR of 77** and 1,415 terminations). This lower rate may reflect the true situation in these areas: it may also occur, in part, because country residents having a termination of pregnancy in Adelaide may seek to enhance anonymity by not reporting the postcode of their usual (country) residential address.

None of the Health Regions had ratios above the level expected, with the highest ratios recorded for female residents in the ***Whyalla, Flinders and Far North*** (an SR of 89), ***Eyre Peninsula*** (83*) and ***Hills, Mallee and Southern*** (80**) regions. The lowest standardised ratios were in the ***Mid North*** (56**) and ***Riverland*** (68**) Health Regions.

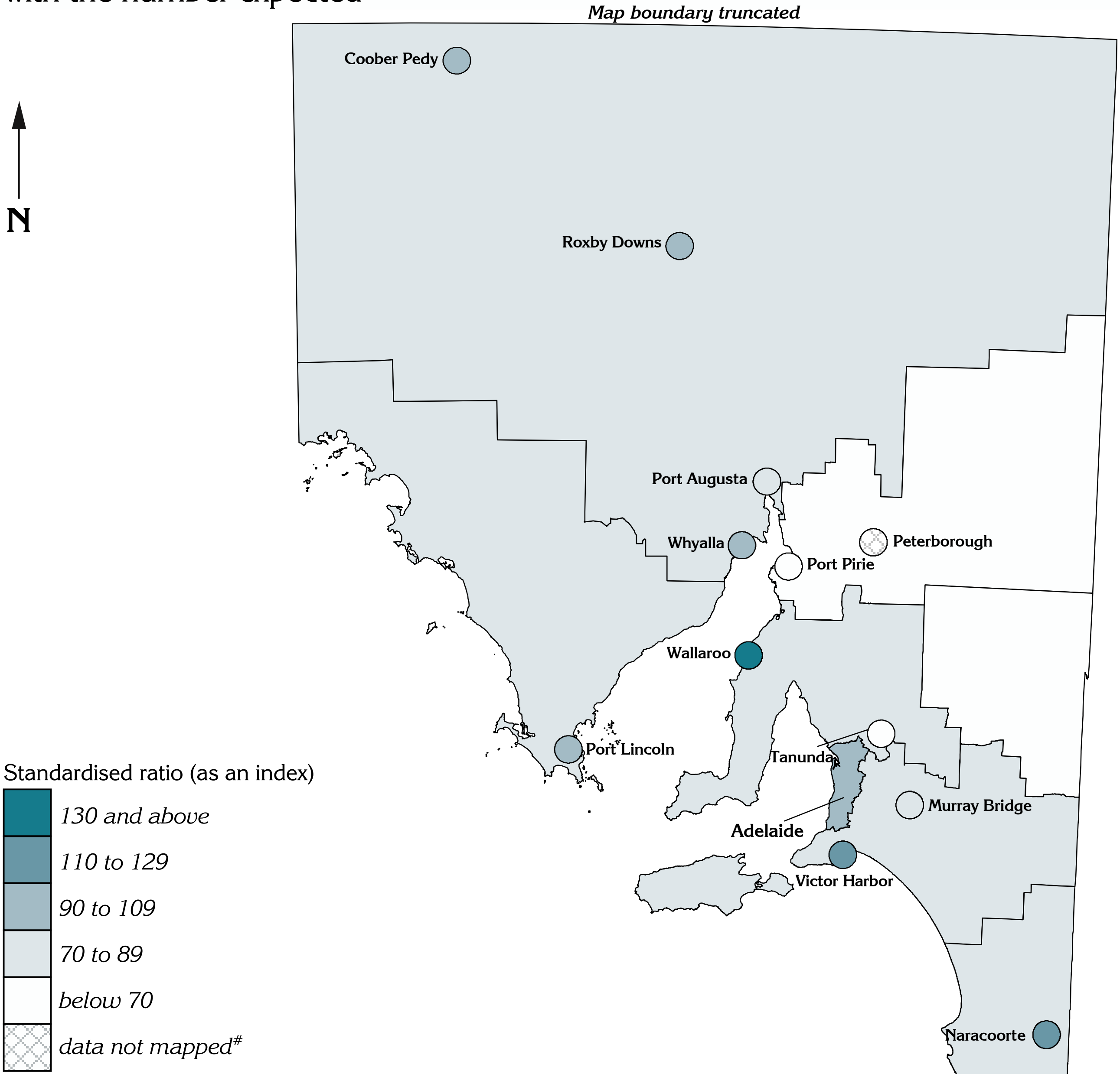
The highest standardised ratio in the towns mapped was recorded for young females in Wallaroo, with 71% more terminations than were expected from the State rate (a SR of 171*). Elevated ratios were also recorded in Victor Harbor (129), Naracoorte (113), Port Lincoln and Whyalla (both 108) and Roxby Downs (104). Excluding areas with fewer than 10 terminations, Tanunda had the lowest ratio for this variable, with an SR of 44**. Relatively low ratios were also recorded in the towns of Port Pirie (65**) and Port Augusta (77*).

Over the period from 1997 to 1999, more than 200 terminations among women aged 15 to 24 years were recorded in the ***Hills, Mallee and Southern*** (with 352 terminations), ***Whyalla, Flinders and Far North*** (258 terminations) and ***South East*** and ***Yorke, Lower North and Barossa*** (both with 235 terminations) Health Regions.

The correlation analysis was not undertaken as there were too few areas with sufficient cases on which to base reliable results.

Map 5.43
Terminations of pregnancy of women aged 15 to 24 years, South Australia, 1997 to 1999

Standardised ratio: number of terminations in Country Health Region compared with the number expected*

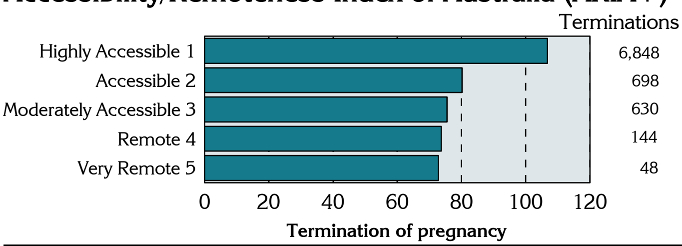


*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the SLA population is less than 100 or there were fewer than ten terminations.

Source: Compiled from data supplied by DHS | *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



Female residents of the Highly Accessible areas under the ARIA+ classification accounted for the majority of terminations of pregnancy (81.8%) and had the only elevated ratio (107). Ratios in the other classes were all lower than expected, with a standardised ratio of 73 in the Very Remote class (27% fewer terminations than expected from the State rates).

Source: Calculated on ARIA+ classification

This page left intentionally blank

General medical practitioner services

Introduction

General medical practitioners (GPs) comprise the largest group of health professionals providing primary health care services. They are frequently the first point of contact with the health care system for the 80% of the population who visit them each year. As such, they are a significant part of the health care system.

Data limitations

Coverage

The following analysis uses Medicare statistics for the year 1998. Details of the number of GP services in each postcode were provided by the Medicare Statistics Section, Department of Health and Ageing, based on Medicare data from the Health Insurance Commission. This dataset includes services provided at a surgery/clinic, at the patient's home or in an institution (hostel, nursing home, etc). It excludes GP type services not covered by Medicare, which are mainly:

- inpatient services to 'hospital' patients in public acute hospitals (ie. patients receiving treatment in hospital under Medicare);
- attendances at accident and emergency/ casualty departments of public acute hospitals for GP type services;
- GP services at some community health services which do not bill their clients;
- services operated by the Aboriginal Medical Service and some State funded Aboriginal health services; and
- medical services provided by private companies (eg. mining companies), the Defence Forces and the Royal Flying Doctor Service.

National data are not available of the number of attendances at accident and emergency departments of public hospitals that are for primary health care services: that is, services that could have been provided by a GP. A study in South Australia in 1993/94 found that up to one third of such attendances were of this kind. This represents the equivalent of approximately 1.3% of GP attendances recorded in the Medicare statistics collection for that year. These attendances are likely to be predominantly of people of low socioeconomic status and their inclusion would strengthen the spatial distribution evident in the data mapped in this section.

Similarly, the exclusion of data for attendances at community health centres is also unlikely to change the spatial patterns of distribution evident in the maps. Not only do these centres account for a relatively small number of attendances, their clients are also predominantly of lower socioeconomic status.

The impact on the data of services provided by Aboriginal Medical Services is of particular relevance in rural and remote areas. Details of the number of services provided through Aboriginal Medical Services by GPs, Aboriginal health workers, and others, are not currently available. The Office of Aboriginal and Torres Strait Islanders Health has been working for some years on the collection of this information which may, in time, fill an important gap in the available data.

The impact on the data presented below of the relatively small number of medical services provided by private companies, the Defence Forces and the Royal Flying Doctor Service is also likely to be minimal.

Other gaps and deficiencies

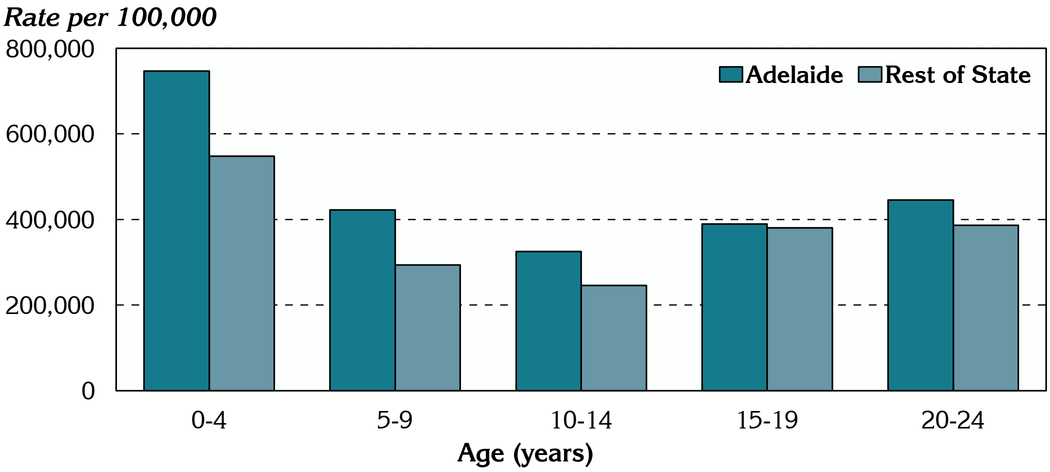
The data presented here are of services provided by general practitioners and not by specialist medical practitioners. The spatial patterns of distribution of services of specialist medical practitioners would be of value in informing policy development and strategic and service planning activities. They cannot, however, be mapped as details of the large number of such services provided through public hospital outpatient departments (and the lesser number through public hospital accident and emergency departments) are not available at an area level. Details of such services provided outside public hospitals by specialist medical practitioners (and billed through Medicare) are available, but to map just this sub-set would provide a biased view of the distribution of specialist services at the small area level.

GP services by age and area of residence

Children and young people in Adelaide used more GP services than those in non-metropolitan areas, accounting for more than three quarters (76.9%) of services in South Australia in 1998. Metropolitan residents accounted for more services per 100,000 population at each age group analysed.

In both metropolitan and non-metropolitan areas the rates were highest in the 0 to 4 year age group and lowest among children aged from 10 to 14 years (**Figure 5.47**).

Figure 5.47: General medical practitioner services, by age and area of residence, 1998



Source: *Data supplied by the Department of Health and Ageing*

This page left intentionally blank

General medical practitioner services to children aged 0 to 4 years, 1998

Adelaide

Young children aged from 0 to 4 years living in Adelaide received over half a million (518,868) services from general medical practitioners (GPs) in 1998. This was nine per cent more GP services than were expected from the State rates (a standardised GP service ratio (SSR) of 109**). GP services to these children account for almost one third (30.3%) of all services to people aged 0 to 24 years.

The highest ratios were primarily in postcode areas located to the north (both inner- and outer north), north-west and north-east of Adelaide, with a cluster of high ratios in the outer south (**Map 5.44**).

The most highly elevated ratio for this variable was recorded for young children in *Virginia*, with more than twice the number of GP services expected from the State rates (an SSR of 218**). Highly elevated ratios were also recorded in the Adelaide Hills in *Ashton* (with an SSR of 161**) and *Summertown* (145**) (see box); in the north-western suburbs of *Woodville North* (144**), *Outer Harbour* and *Rosewater* (both 143**), *West Lakes Shores* (139**), *Ferryden Park* (129**) and *Largs Bay* (127**); in the outer southern areas of *Moana* (132**) and *Old Noarlunga* (131**); and in the outer northern postcode areas of *Parafield Gardens* (131**), *Angle Vale* (130**), *Gepps Cross* (127**) and *Salisbury* (125**).

The lowest ratio, of 14**, was recorded for young children in *Carey Gully*, indicating that there were 86% fewer services from GPs than the level expected from the State rate (see box). Relatively low ratios were also recorded in the postcode areas of *Montacute* (with an SSR of 22**), *Basket Range* (45**), *North Adelaide* (52**), *Piccadilly* (59**), *Stirling Forward* (64**) and *Greenhill* (66**).

More than 12,000 GP services were recorded for young children in *Salisbury* (32,111 services), *Morphett Vale* (22,287 services), *Smithfield* (16,091 services), *Happy Valley* (15,077 services), *Elizabeth North* (13,496 services), *Salisbury East* (12,540 services) and *Elizabeth* (12,394 services).

There were weak correlations at the postcode level with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status.

When the data were aggregated to the SLA level, correlations of meaningful significance were recorded with the variables for children aged 0 to 14 years living in single parent families (0.70), low income families (0.69), dwelling rented from the SA Housing Trust (0.64) and dwellings with no vehicles (0.58); Indigenous people aged 15 to 24 years (0.67) and 0 to 14 years (0.55); and people who left school at 15 years of age or earlier (0.52).

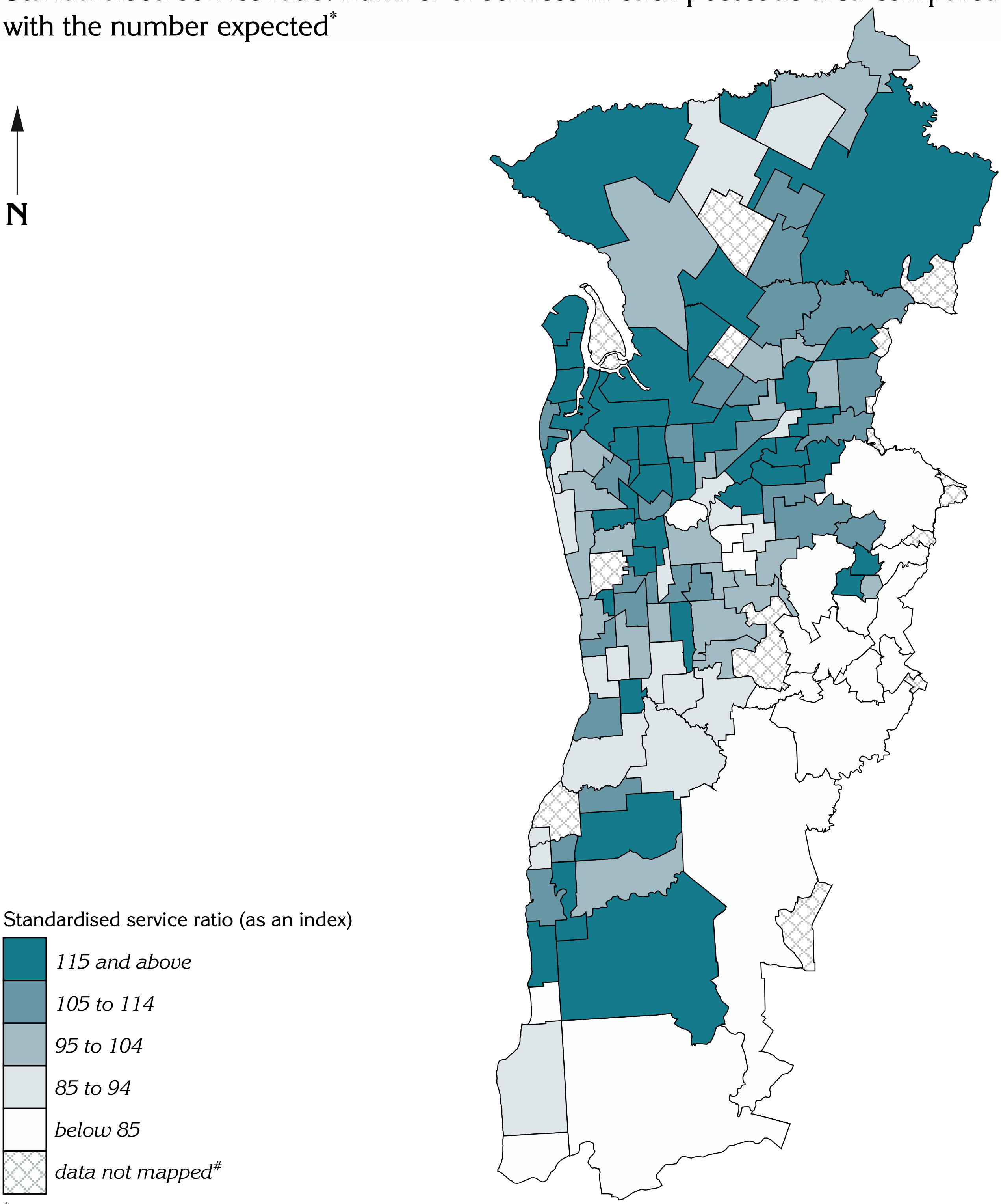
These results, together with the inverse correlation with the IRSD (-0.70), indicate an association at the SLA level between high rates of GP services to children aged 0 to 4 years and socioeconomic disadvantage.

The high and low ratios in adjacent postcode areas in the Adelaide Hills postcodes of *Ashton* and *Summertown* (high) and *Carey Gully*, *Montacute*, *Basket Range*, *North Adelaide* and *Piccadilly* (low) suggest that the postcode of address in the Medicare data and the estimate of the postcode population produced by the ABS and used as the denominator in the standardisation process are not the same area (see the discussion on page 17, Chapter 2, for further details of this issue).

When these postcodes are combined the SSR averages out at 67**.

Map 5.44
General medical practitioner services to children aged 0 to 4 years, Adelaide, 1998

Standardised service ratio: number of services in each postcode area compared with the number expected*



**Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected services.

Source: Data supplied by the Department of Health and Ageing ***Details of map boundaries are in Appendix 1.2***

General medical practitioner services to children aged 0 to 4 years, 1998

Non-metropolitan South Australia

Young children aged 0 to 4 years living in the non-metropolitan area of South Australia had significantly fewer services from GPs in 1998 than were expected from the State rates, a standardised GP service ratio (SSR) of 77**. Overall, there were 154,240 GP services.

The low rate (both overall and in some regions) of use of GP services funded through Medicare in the non-metropolitan area of the State is likely to reflect a number of things, including:

- the lesser availability of GPs – 1,517 people per GP in the non-metropolitan area compared with 1,145 people per GP in Adelaide (Glover 1999);
- the exclusion of data for services operated by the Aboriginal Medical Service and some State funded Aboriginal health services.

Only nine SLAs had standardised ratios above the level expected from the State rates (**Map 5.45**): these were Carrieton (with an SSR of 139**), Wallaroo (113**), Murray Bridge (109**), Orroroo (106), Victor Harbor (105**), Peake (104), Mount Barker (104**), Port Broughton (103) and Yankalilla (102). The highest ratios in the remaining SLAs were recorded in Onkaparinga (with an SSR of 100), Meningie (98), Northern Yorke Peninsula (96*), Port Elliot and Goolwa (92**) and Minlaton (90**).

At the other end of the scale, 79% fewer GP services than expected were recorded for young children in Browns Well, an SSR of 21** and 32 services. Relatively low ratios were also recorded in the far northern and western areas of Unincorporated Far North (with an SSR of 23**), Hawker (24**), Unincorporated Lincoln (28**), and Unincorporated Pirie and Unincorporated Flinders Ranges (both 31**); in the south-eastern SLAs of Port MacDonnell (28**), and Mount Gambier (DC) and Lucindale (both 32**).

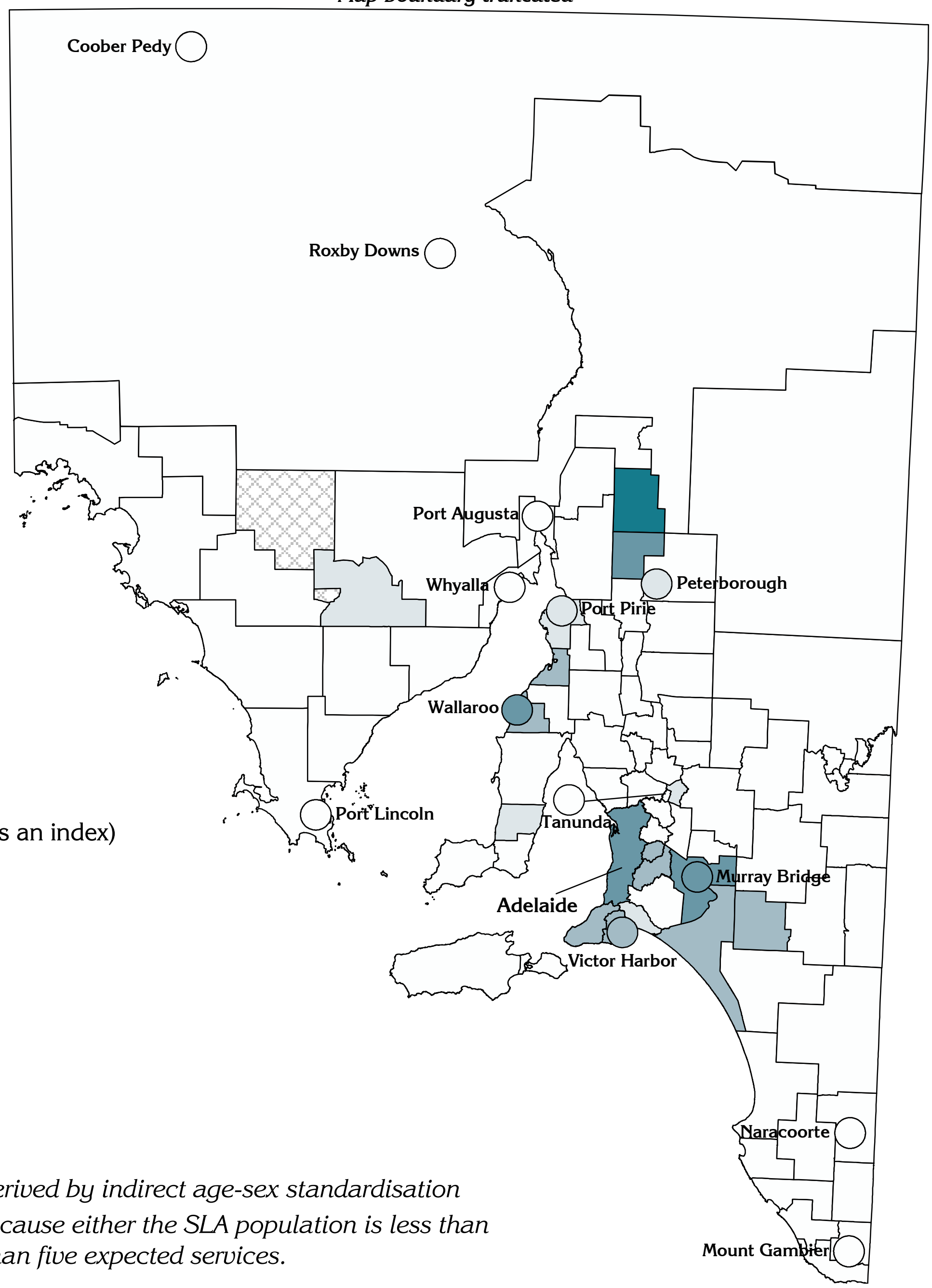
In 1998, the largest numbers of GP services were recorded in the towns of Whyalla (with 11,551 services), Murray Bridge (9,817 services), Mount Gambier (9,699 services), Port Pirie (6,353 services) and Port Augusta (6,037 services).

There were inverse correlations of meaningful significance at the SLA level between the variable for GP services to children aged 0 to 4 years and high proportions of Aboriginal and Torres Strait Islander children aged 0 to 14 years and 15 to 24 years (both -0.55). These inverse correlations indicate that areas with relatively high proportions of Indigenous children generally have low rates of use of GP services funded through Medicare.

Map 5.45
General medical practitioner services to children aged 0 to 4 years, South Australia, 1998

Standardised service ratio: number of services in each Statistical Local Area compared with the number expected*

Map boundary truncated



N

Standardised service ratio (as an index)

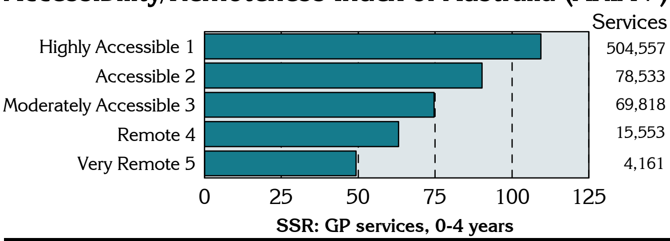
- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected services.*

Source: Data supplied by the Department of Health and Ageing — ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised ratios for GP services to 0 to 4 year olds decrease steadily across the ARIA+ classes, from a relatively high ratio of 109 in the Highly Accessible areas, to a low ratio in the Very Remote areas (49).

Source: Calculated on ARIA+ classification

General medical practitioner services to children aged 5 to 14 years, 1998

Adelaide

Children in Adelaide aged from 5 to 14 years received 528,279 services from GPs in 1998, nine per cent more than expected from the State rates (a standardised GP service ratio (SSR) of 110**). GP services among people aged 5 to 14 years accounted for almost a third (30.8%) of all services in the 0 to 24 year age group.

The distribution of SSRs for GP services to children aged 5 to 14 years across postcode areas in Adelaide is similar to that recorded for those aged 0 to 4 years, with the highest ratios primarily in areas located to the north, north-west and north-east of the city; and in the outer south (**Map 5.46**).

The most highly elevated ratios were in the Hills postcode areas of *Ashton* (with an SSR of 245**), *Uraidla* (167**) and *Summertown* (142**) (see box); in the outer northern suburbs of *Virginia* (213**) and *Angle Vale* (143**); in *Gepps Cross* (213**); in the north-western areas of *Osborne* (166**), *Woodville North* (144**), *Ferryden Park* (143**) and *Outer Harbor* (141); and in the southern postcode areas of *Old Noarlunga* (165**) and *Moana* (144**).

The postcode area of *Carey Gully* had the lowest ratio for this variable with 80% fewer services than were expected from the State rates (an SSR of 20**) (see box). Areas with more than 25% fewer than expected were also recorded in the Adelaide Hills in *Montacute* (44**), *Piccadilly* (48**), *Stirling Forward* (62**), *Blackwood Forward* (67**), *Belair* (70**), *Bridgewater* (71**) and *Upper Sturt* (72**).

The largest numbers of GP services were recorded for children in *Salisbury* (with 29,271 services), *Morphett Vale* (21,197 services), *Happy Valley* (16,581 services), *Smithfield* (15,856 services) and *Elizabeth North* (14,546 services).

Users should note the comment (under the variable for GP services to 0 to 4 year old children) as to the existence of high and low ratios in adjacent postcode areas in the Adelaide Hills (page 284). That comment is relevant to this age group.

When these postcodes are combined the SSR averages out at 68**.

There were weak correlations at the postcode level with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status.

When the data were aggregated to the SLA level, correlations of substantial significance were recorded with the variables for Indigenous people aged 15 to 24 years (0.89) and 0 to 14 years (0.84); children aged 0 to 14 years living in low income families (0.86), single parent families (0.84), dwellings with no vehicles (0.83) and dwellings rented from the SA Housing Trust (0.79); and people who left school at 15 years of age or earlier (0.72).

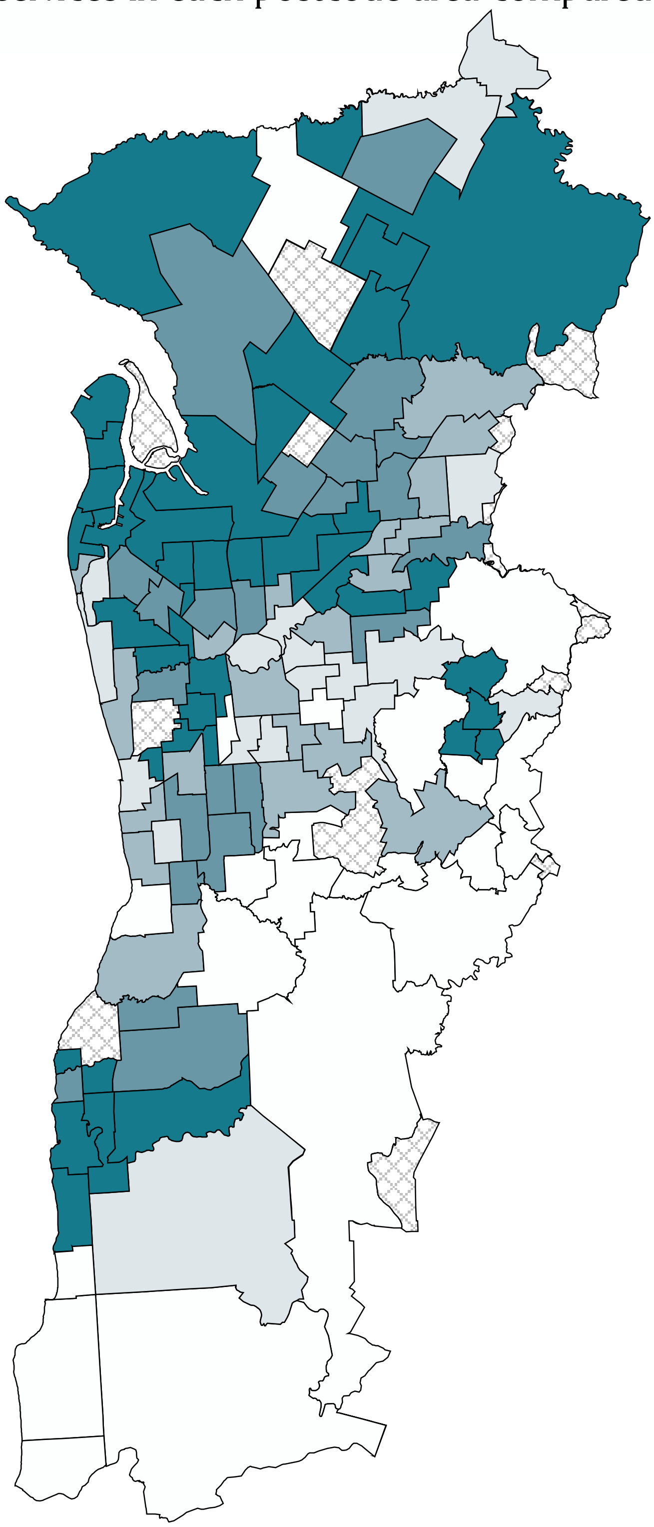
These results, together with the inverse correlation of substantial significance with the IRSD (-0.84), indicate an association at the SLA level between high rates of GP services to children aged 5 to 14 years and socioeconomic disadvantage.

Map 5.46

General medical practitioner services to children aged 5 to 14 years, Adelaide, 1998

Standardised service ratio: number of services in each postcode area compared with the number expected*

N



Standardised service ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected services.

Source: Data supplied by the Department of Health and Ageing ***Details of map boundaries are in Appendix 1.2***

General medical practitioner services to children aged 5 to 14 years, 1998

Non-metropolitan South Australia

As was the case for children aged 0 to 4 years living outside the metropolitan area, 5 to 14 year old children had significantly fewer services from GPs in 1998 than were expected from the State rates, a standardised GP service ratio (SSR) of 77**. Overall there were 164,229 GP services.

The majority of SLAs had standardised ratios below the level expected from the State rates (**Map 5.47**): see page 286 for some possible reasons for these low rates. The exceptions are the SLAs of Wallaroo (with an SSR of 129** and 1,340 services), Port Broughton (126**), Victor Harbor and Meningie (both 107**), Orroroo (106), Murray Bridge (106**), Port Elliott and Goolwa (105**) and Northern Yorke Peninsula (104*).

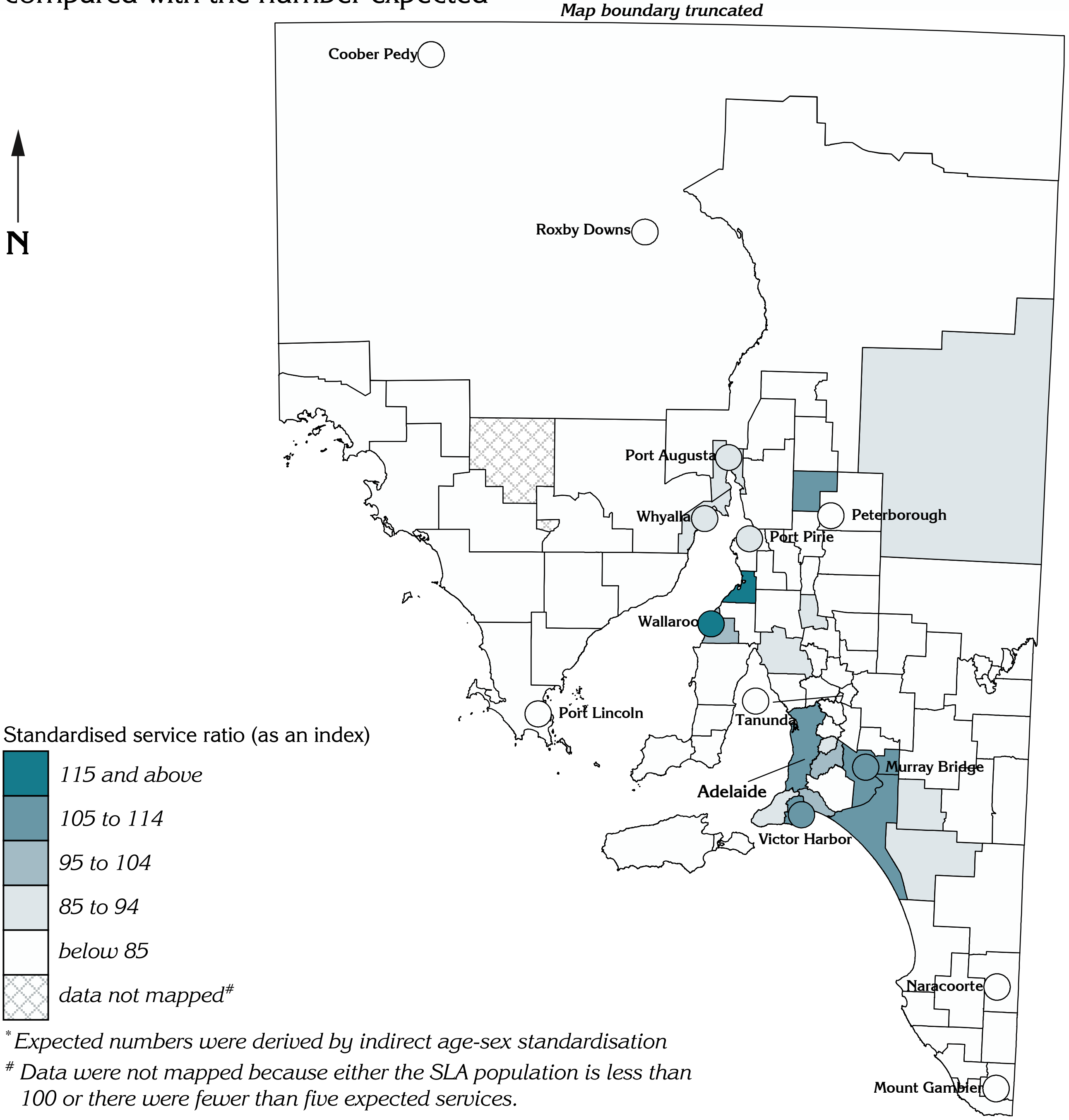
The lowest ratios were recorded in the SLAs of Browns Well and Unincorporated Far North, with SSRs of 21** and 26** respectively. Relatively low ratios were also recorded in south-eastern areas of Port MacDonnell (27**), Mount Gambier (DC) (28**), Lucindale (32**) and Robe (48**); in the northern SLAs of Hawker (35**), and Unincorporated Flinders Ranges and Hallett (both 39**); on the Eyre Peninsula in Le Hunte (36**); and in the SLA of Karoonda-East Murray (50**).

The largest number of GP services was recorded in the towns of Whyalla (with 11,482 services), Murray Bridge (8,870 services), Mount Gambier (8,172 services), Port Augusta (6,922 services) and Port Pirie (6,014 services).

There were inverse correlations of weak significance at the SLA level between the variable for GP services to children aged 5 to 14 years and high proportions of Aboriginal and Torres Strait Islander children aged 0 to 14 years (-0.44) and 15 to 24 years (-0.46). These inverse correlations indicate that areas with relatively high proportions of Indigenous children generally have low rates of use of GP services funded through Medicare.

Map 5.47
General medical practitioner services to children aged 5 to 14 years, South Australia, 1998

Standardised service ratio: number of services in each Statistical Local Area compared with the number expected*

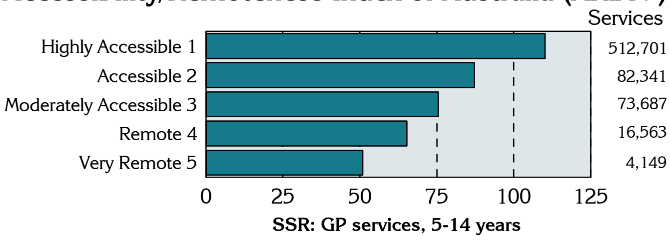


*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected services.

Source: Data supplied by the Department of Health and Ageing — *Details of map boundaries are in Appendix 1.2*

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised ratios for GP services to 5 to 14 year olds decrease steadily across the ARIA+ classes, from a relatively high ratio of 110 in the Highly Accessible areas, to a low ratio in the Very Remote areas (51).

Source: Calculated on ARIA+ classification

General medical practitioner services to people aged 15 to 24 years, 1998

Adelaide

There were 666,825 GP services to residents of Adelaide aged 15 to 24 years in 1998, two per cent more than were expected from the State rates (a standardised GP service ratio (SSR) of 102**).

The distribution of GP services to people aged 15 to 24 years across Adelaide shows a slightly different pattern to that evident for the two younger age groups mapped, with the highest ratios in postcode areas largely located in the outer north and the north-west, as well as in a number of outer southern suburbs (**Map 5.48**).

Young people in *Virginia* had the highest ratio for this variable, with more than twice the number of services expected from the State rates (an SSR of 221**). Ratios elevated by 40% or more were also recorded in the Adelaide Hills in *Uraidla* (with an SSR of 195**), *Summertown* (144**) and *Ashton* (143**) (see box); in the outer southern postcode areas of *Old Noarlunga* (169**), *Christies Downs* (161**) and *Moana* (148**); in the north-western area of *Osborne* (152**); and in the outer northern postcode areas of *Elizabeth North* (147**) and *Smithfield* (142**).

By far the lowest ratio was recorded in the postcode area of *Carey Gully*, with 86% fewer services than were expected (an SSR of 14**) (see box). The next lowest ratios were recorded for young people in *North Adelaide* (49**), *Basket Range* (56**), *Norwood* (57**), *Keswick* (61**), *Montacute* (66**), *Eastwood* (67**), *Kensington Park* (67**), *Novar Gardens* (69**) and *Adelaide* (70**).

The largest number of GP services to people aged 15 to 24 years was recorded in *Salisbury*, with 32,488 services. More than 14,000 services were also recorded in *Morphett Vale* (with 26,199 services), *Happy Valley* (19,101 services), *Elizabeth North* (17,050 services), *Salisbury East* (16,868 services), *Smithfield* (14,887 services) and *Elizabeth* (14,852 services).

There were weak correlations at the postcode level with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status.

When the data were aggregated to the SLA level, correlations of statistical significance were recorded with the variables for people who left school at 15 years of age or earlier (0.88); children aged 0 to 14 years living in low income families (0.75), dwellings rented from the SA Housing Trust (0.70), single parent families (0.66) and dwellings with no vehicles (0.53); unemployed females (0.68) and males (0.62) aged 15 to 24 years; and Indigenous people aged 15 to 24 years (0.62) and 0 to 14 years (0.58).

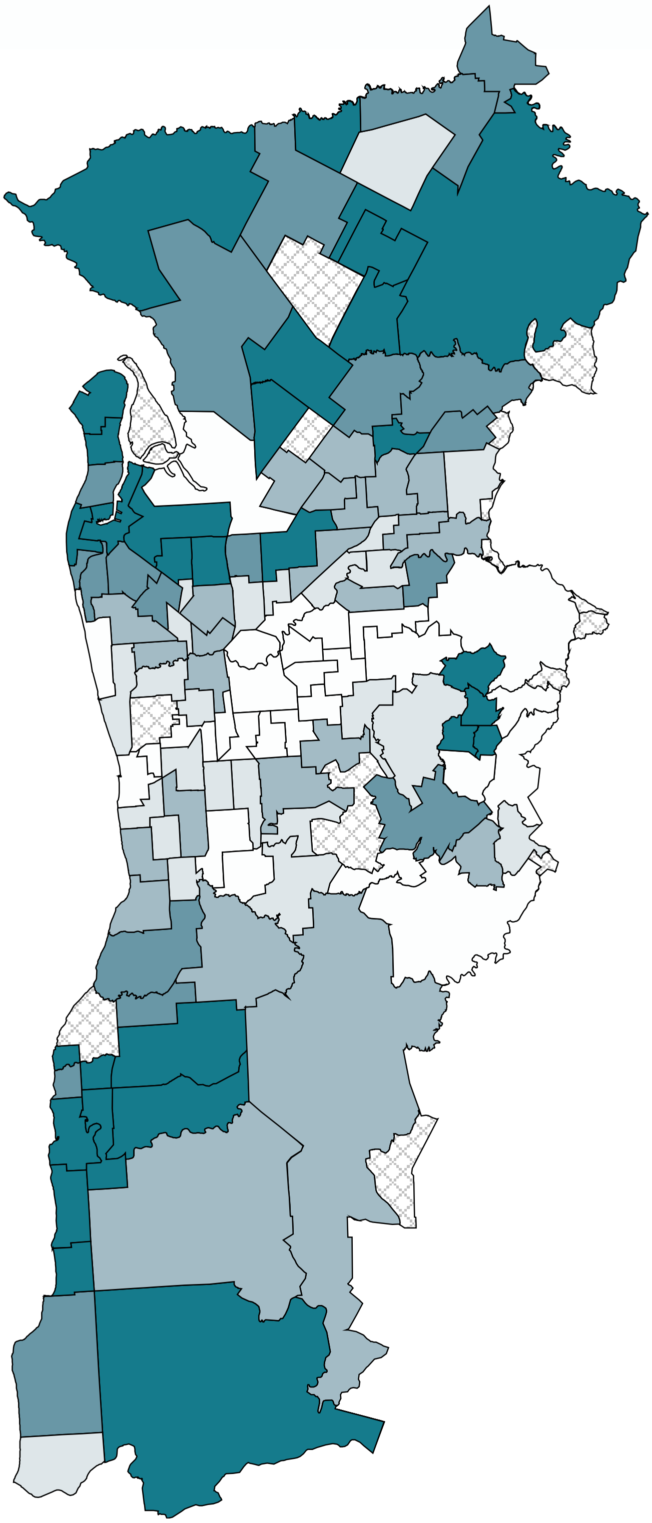
These results, together with the inverse correlation of substantial significance with the IRSD (-0.74), indicate an association at the SLA level between high rates of GP services to people aged 15 to 24 years and socioeconomic disadvantage.

Users should note the comment (under the variable for GP services to 0 to 4 year old children) as to the existence of high and low ratios in adjacent postcode areas in the Adelaide Hills (page 284). That comment is relevant to this age group.

When these postcodes are combined the SSR averages out at 73**.

Map 5.48
General medical practitioner services to people aged 15 to 24 years, Adelaide, 1998

Standardised service ratio: number of services in each Statistical Local Area compared with the number expected*



Standardised service ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

** Expected numbers were derived by indirect age-sex standardisation*

 # Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected services.

Source: Data supplied by the Department of Health and Ageing ***Details of map boundaries are in Appendix 1.2***

General medical practitioner services to people aged 15 to 24 years, 1998

Non-metropolitan South Australia

There were 171,029 GP services to people aged 15 to 24 years in the non-metropolitan area of South Australia in 1998, nine per cent fewer than were expected from the State rates (a standardised GP service ratio (SSR) of 91^{**}).

Just over one third (35.4%) of the SLAs mapped for this variable had elevated ratios (**Map 5.49**).

The highest of these was in the SLA of Northern Yorke Peninsula, where 30% more GP services were provided than were expected from the State rates (an SSR of 130^{**} and 3,782 services). Ratios elevated by 15% or more were also recorded in Minlaton (with an SSR of 129^{**}), Port Elliott and Goolwa (128^{**}), Clare (127^{**}), Naracoorte (DC) and Murray Bridge (both 121^{**}), Yankalilla (119^{**}), Wallaroo and Victor Harbor (both 118^{**}), Coober Pedy (117^{**}), Peterborough (DC) (117) and Kanyaka and Quorn (115^{**}).

Unincorporated Far North had the lowest ratio, with an SSR of 24^{**}, indicating that there were 76% fewer services than expected from the State rates. The south-eastern SLAs of Port MacDonnell (an SSR of 26^{**}), Mount Gambier (DC) (32^{**}) and Lucindale (53^{**}); and the northern SLAs of Unincorporated Flinders Ranges (49^{**}), Unincorporated Pirie (52^{**}) and Hawker (54^{**}), also recorded relatively low ratios.

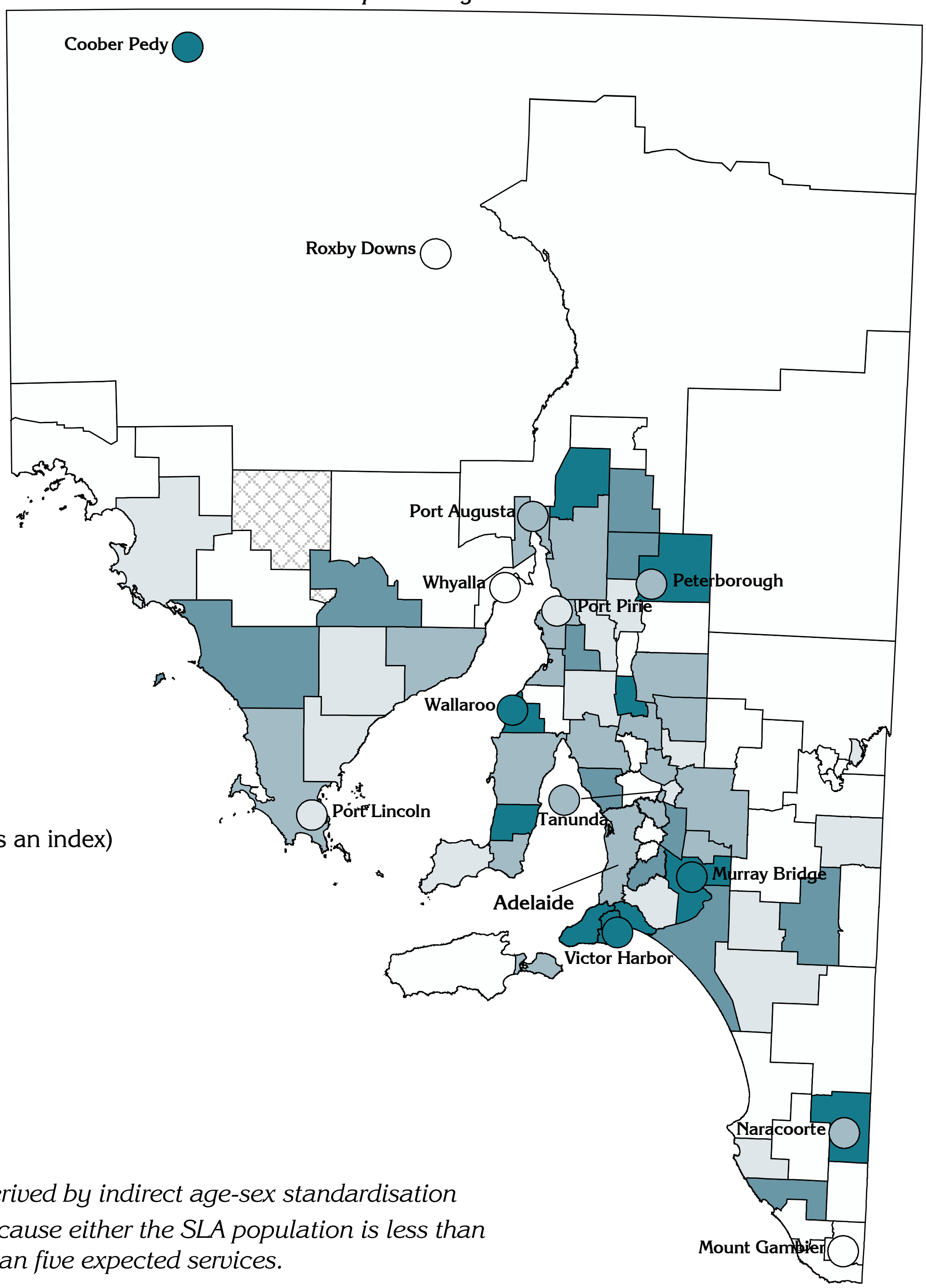
Young people in Mount Barker had the largest number of GP services for people aged 15 to 24 years in 1998 (with 11,761 services), followed by Whyalla (11,630 services), Mount Gambier (C) (11,422 services) and Murray Bridge (10,492 services).

There were weak inverse correlations of meaningful significance between GP services to children aged 15 to 24 years and high proportions of Aboriginal and Torres Strait Islander children aged 0 to 14 years (-0.44) and 15 to 24 years (-0.45). These inverse correlations indicate that areas with relatively high proportions of Indigenous children generally have low rates of use of GP services funded through Medicare.

Map 5.49
General medical practitioner services to people aged 15 to 24 years, South Australia, 1998

Standardised service ratio: number of services in each Statistical Local Area compared with the number expected*

Map boundary truncated



Standardised service ratio (as an index)

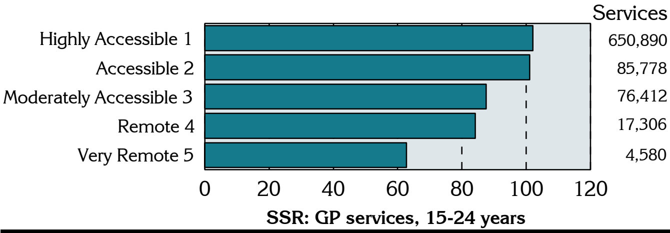
- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected services.*

Source: Data supplied by the Department of Health and Ageing ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



Standardised ratios for GP services to 15 to 24 year olds decrease across the ARIA+ classes, from near average ratios of 102 and 101 in the Highly Accessible and Accessible areas, respectively; to a low ratio in the Very Remote area (63).

Source: Calculated on ARIA+ classification

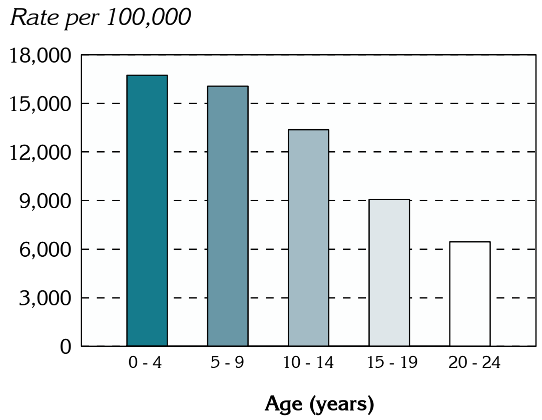
Family and Youth Services clients, 0 to 24 years, 1999

For Family and Youth Services, a Division of the Department of Human Services, details are available for individual clients. This is a better measure than the total number of services, as is available for clients of GPs, or admissions to hospital. Family and Youth Services provides a range of services to people in the community, including emergency financial assistance, individual and family support, counselling (eg. personal, financial), crisis care (including after hours care) and child protection.

Adelaide

The number of clients of Family and Youth Services (FAYS) in Adelaide varies substantially between the five year age groups within the 0 to 24 year age category (**Figure 5.48**). Children in the 0 to 4 year age group have the highest rate (16,740 clients per 100,000 population aged 0 to 4 years), and those in the 20 to 24 year age group have the lowest rate (6,461 clients per 100,000).

Figure 5.48:Family and Youth Services clients, by age, Adelaide, 1999



Source: Compiled in HealthWIZ from data supplied by DHS

In 1999 there 43,432 FAYS clients aged 0 to 24 years in Adelaide, 15% fewer clients than were expected from the State rates (a standardised client ratio (SCR) of 85**).

The distribution of FAYS clients across Adelaide has a distinctive spatial pattern, which is strongly associated with the distribution of disadvantaged populations. It is also striking in that postcode areas generally fall into either the highest or lowest ranges. The highest ratios are in a group of postcodes across the north-west, north and outer northern suburbs, with high ratios also recorded in a small number of middle and outer southern postcode areas (**Map 5.50**).

Almost five times the number of clients expected from the State rates were recorded for children and young people in *Adelaide*, an SCR of 490**. Postcode areas also recording highly elevated ratios were *Woodville North* (412**), *Blair Athol* (386**), *Ferryden Park* (278**), *Enfield* (206**), *Gepps Cross* (199**) and *Klemzig* (146**), in the inner north and north-west; *Park Holme* (184**) and *Edwardstown* (149**) to the south of the city; *Christies Downs* (286**), *Darlington* (260**), *Old Noarlunga* (250**) and *Hackham* (195**) in the outer south; and *Elizabeth North* (273**), *Elizabeth* (228**), *Evanston* (216**) and *Parafield Gardens* (152**) in the outer northern suburbs.

In contrast, ratios below the level expected from the State rates were recorded in almost three quarters (72.7%) of the postcode areas. Excluding areas with fewer than 20 clients, the lowest ratios were recorded for children and young people in *Kingswood* (with an SCR of 8**; and 52 clients), *Belair* (8**; 22 clients), *Eden Hills* (9**; 20 clients), *Unley* (10**; 43 clients), *Somerton Park* (10**; 32 clients), *West Lakes* (10; 26 clients), *Kensington Park* (11**; 58 clients), *Glenside* (13**; 56 clients) and *Blackwood* (14**; 85 clients).

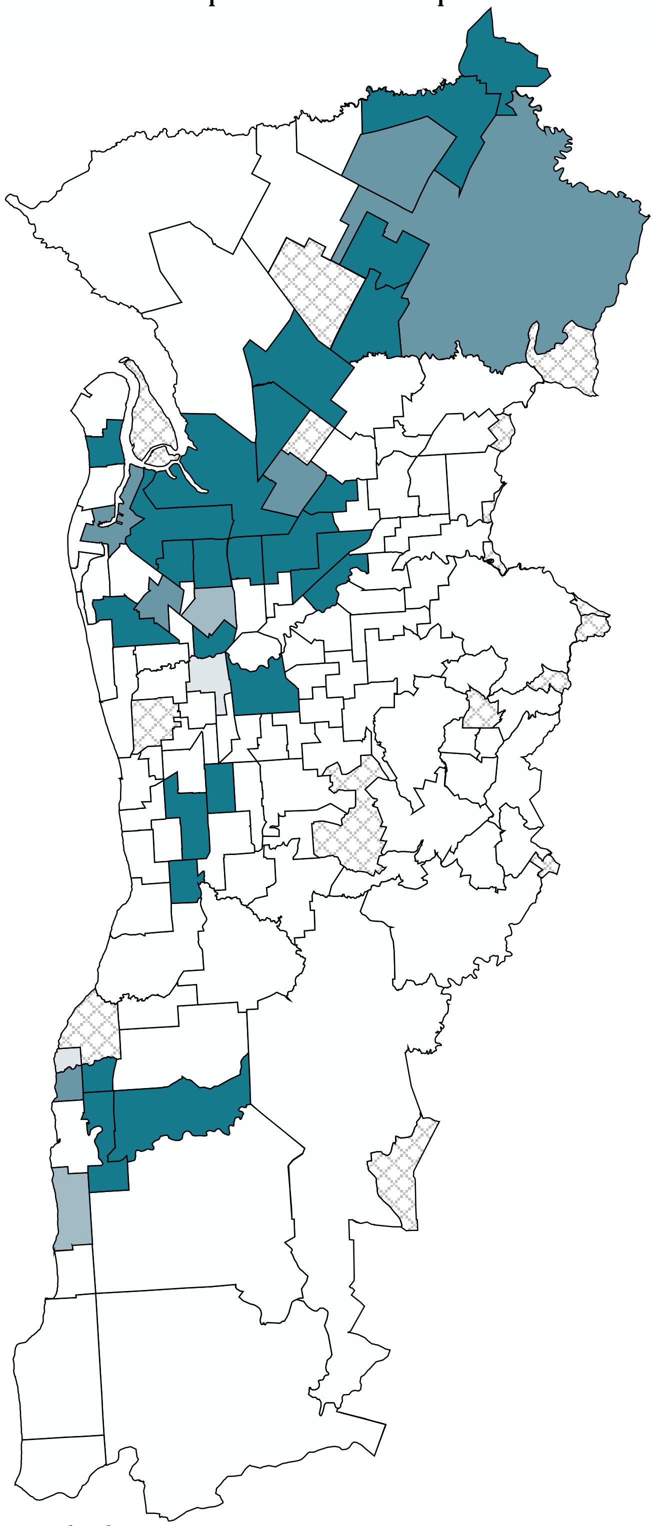
The largest numbers of clients were in postcodes located predominantly in the outer northern suburbs, including *Elizabeth North* (with 3,007 clients), *Salisbury* (2,848 clients), *Elizabeth* (2,304 clients), *Woodville North* (1,741 clients), *Hackham* (1,662 clients) and *Blair Athol* (1,636 clients).

There were correlations of substantial significance at the postcode level with the variables for children aged 0 to 14 years living in dwellings with no motor vehicles (0.79) and dwellings rented from the SA Housing Trust (0.76). Correlations of meaningful significance were also recorded with the variables for children aged 0 to 14 years living in low income families (0.69) and single parent families (0.68); unemployed females (0.62) and males (0.56) aged 15 to 24 years; people who left school at age 15 years or earlier (0.60); and Indigenous people aged 15 to 24 years (0.58). Inverse correlations were recorded with the variables for female labour force participation (-0.71) and high-income families (-0.55).

These results, together with the inverse correlation with the IRSD (-0.73), indicate the existence of a strong association at the postcode level between high rates of FAYS clients and socioeconomic disadvantage.

Map 5.50
Family and Youth Services clients, 0 to 24 years, Adelaide, 1999

Standardised client ratio: number of clients in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected clients.

Source: Compiled in HealthWIZ from data supplied by DHS *Details of map boundaries are in Appendix 1.2*

Family and Youth Services clients, 0 to 24 years, 1999

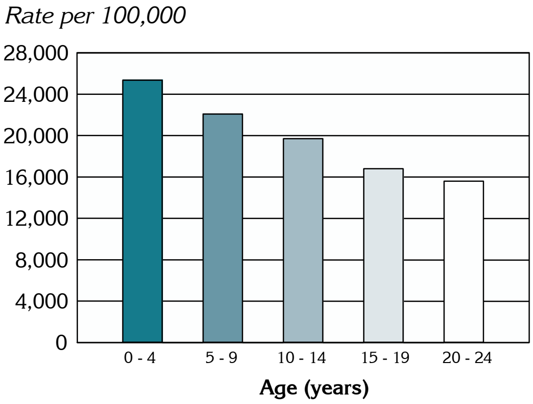
For Family and Youth Services, a Division of the Department of Human Services, details are available for individual clients. This is a better measure than the total number of services, as is available for clients of GPs, or admissions to hospital.

Family and Youth Services provides a range of services to people in the community, including emergency financial assistance, individual and family support, counselling (eg. personal, financial), crisis care (including after hours care) and child protection.

Non-metropolitan South Australia

The number of clients of Family and Youth Services (FAYS) in the non-metropolitan areas varies substantially between the five year age groups within the 0 to 24 year age category (**Figure 5.49**). Children in the 0 to 4 year age group have the highest rate (25,398 clients per 100,000 population aged 0 to 4 years), and those in the 20 to 24 year age group have the lowest rate (15,645 clients per 100,000).

Figure 5.49: Family and Youth Services clients, by age, non-metropolitan areas, 1999



Source: Compiled in HealthWIZ from data supplied by DHS

There were 27,375 FAYS clients aged 0 to 24 years living in the non-metropolitan area of South Australia in 1999, 36% more clients than were expected from the State rates (a standardised client ratio (SCR) of 136**).

SLAs with high ratios were concentrated in three main locations: one extending from Whyalla and Port Augusta to the north and north-west of the State, another in the Riverland and the third located in and around Murray Bridge (**Map 5.51**). These are generally areas with relatively large Indigenous populations.

Ratios elevated by more than twice the expected levels were recorded for children and young people in Unincorporated West Coast (with an SCR of 626** and 241 clients), Coober Pedy (562**), Ceduna (473**), Port Augusta (449**), Port Lincoln (280**), Unincorporated Whyalla (270**), Unincorporated Far North (235**) and Whyalla (213**), located in the far north and west of the State; Unincorporated Riverland (372**) and Berri (315**), in the Riverland; and Murray Bridge (272**), in the Murray Mallee. Other highly elevated ratios were recorded in Mannum (189**), Kanyaka and Quorn (186**), Renmark (179**), Morgan (169**), Paringa (167**) and Port Pirie (161**).

Excluding SLAs with fewer than 20 clients, the lowest ratios were recorded for residents of Tanunda (with an SCR of 19**; and 41 clients), Yorketown (20**; 22 clients), Onkaparinga (24**; 102 clients), Tumby Bay (25**; 31 clients), Mount Pleasant (26**; 28 clients), Yankalilla (27**; 43 clients), Port MacDonnell (28**; 38 clients), Gumeracha (29**; 102 clients), Clare (29**; 64 clients) and Mount Gambier (DC) (30**; 80 clients).

The largest numbers of FAYS clients aged 0 to 24 years were recorded in the towns of Port Augusta (with 3,428 clients), Whyalla (2,696 clients), Murray Bridge (2,353 clients), Port Lincoln (1,965 clients) and Mount Gambier (1,947 clients).

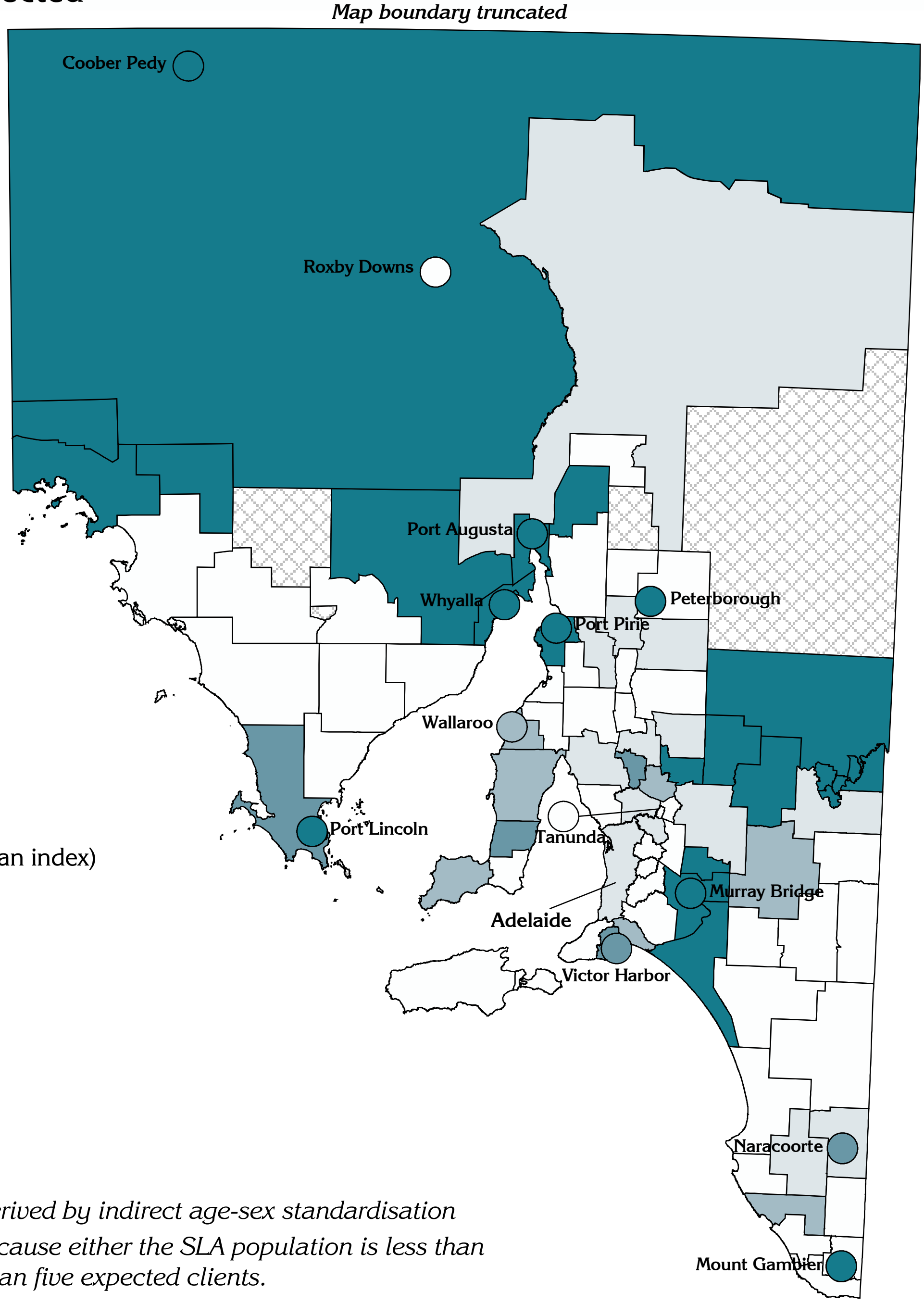
There were correlations of substantial significance with the variables for substantiated cases of child abuse (0.88), children aged 0 to 14 years living in dwellings with no motor vehicles (0.83) and dwellings rented from the SA Housing Trust (0.73) and clients of Child and Adolescent Mental Health Services (0.72); and of meaningful significance with children aged 0 to 14 years living in a single parent family (0.58) and Indigenous children aged from 0 to 14 years (and a weaker correlation. Of 0.42, with children aged 15 to 24 years). There were also inverse correlations of meaningful significance with full-time students aged 15 to 24 years (-0.52), PES scores (-0.67) and managers and administrators, and professionals (-0.52).

These results, together with the inverse correlation with the IRSD (-0.70), indicate an association at the SLA level between high rates of FAYS clients and socioeconomic disadvantage.

Map 5.51
Family and Youth Services clients, 0 to 24 years, South Australia, 1999

Standardised client ratio: number of clients in each Statistical Local Area compared with the number expected*

Map boundary truncated



Standardised client ratio (as an index)

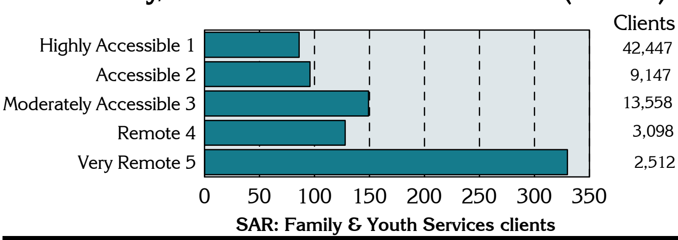
- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected clients.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



The distribution of FAYS clients shows a strong relationship with remoteness. The ratios increase by almost four times (3.8 times), from an SCR of 86 in the Highly Accessible areas to 330 in the Very Remote areas. The second highest ratio is in the Moderately Accessible areas (149), with ratios of 96 and 128 in the Accessible and Remote areas, respectively.

Source: Calculated on ARIA+ classification

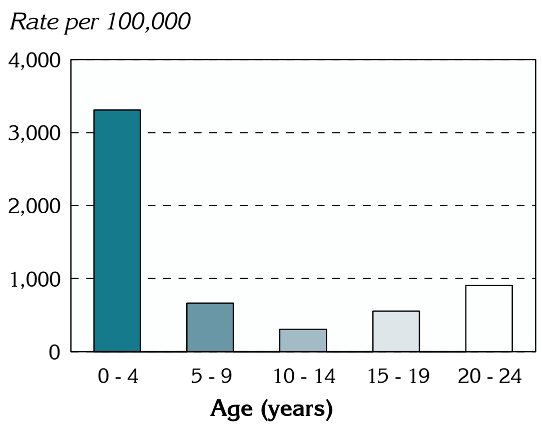
Community based health services, one-to-one clients, 0 to 24 years, 1997 to 1999

Details are recorded for individuals at each community health service they attend (ie. clients attending more than one community health service will be recorded at each location). Community health centres provide a regional network of health services at the community level, covering rural and metropolitan areas, including specific Aboriginal health services.

Adelaide

The number of clients of community based health services in Adelaide varies substantially between the five year age groups within the 0 to 24 year age category (**Figure 5.50**). Children in the 0 to 4 year age group have the highest rate (3,311 clients per 100,000 population aged 0 to 4 years), decreasing to a rate of 306 per 100,000 population in the 10 to 14 year age group, before increasing to 904 per 100,000 population among people aged 20 to 24 years.

Figure 5.50: Use of community based health services, by age, Adelaide, 1997 to 1999



Source: Compiled in HealthWIZ from data supplied by DHS

There were 36,541 clients aged 0 to 24 years of community based health services in Adelaide over the three years from 1997 to 1999. This was 36% more than were expected from the State rates, a standardised client ratio (SCR) of 136**.

The distribution of clients is highly concentrated in the inner northern, north-western and outer northern suburbs, as well as across a wide area of the southern areas of the city (**Map 5.52**), a pattern which strongly reflects the location of community health centres. The postcode areas with the most highly elevated ratio for clients of community based health services are *Ferryden Park* (with an SCR of 1,576**) and *Woodville North* (1,067**). These values are very high in comparison with the ratios recorded for this variable in other postcodes, or indeed for the other variables in this atlas. As noted above, these services are not universally available across Adelaide: they are, however, relatively accessible to residents of *Ferryden Park* and *Woodville North*.

Ratios elevated by at least three times the level expected from the State rates were also recorded in *Port Adelaide* (528**), *Old Noarlunga* (468**), *Rosewater* (450**), *Christie Downs* (357**), *Moana* and *Hackham* (both 341**), *Morphett Vale* (334**), *Gepps Cross* (327**) and *Port Noarlunga* (300**).

In contrast, standardised client ratios were relatively low throughout the inner southern suburbs, the eastern and Hills areas and in several locations along the coastline. Excluding areas with fewer than 20 clients, *Magill* (with an SCR of 10**; and 23 clients), *St Peters* (12**; 22 clients), *Flinders Park* (16**; 25 clients), *Paradise* (19**; 47 clients), *Fulham* (20**; 50 clients), *Goodwood* (24**; 53 clients), *Marden* (27**; 70 clients), *Athelstone* (28**; 65 clients), *Eastwood* (29**; 83 clients), *Walkerville* (29; 50 clients), *North Adelaide* (30**; 49 clients) and *Stirling Forward* (30**; 46 clients) all recorded at least 70% fewer clients than were expected.

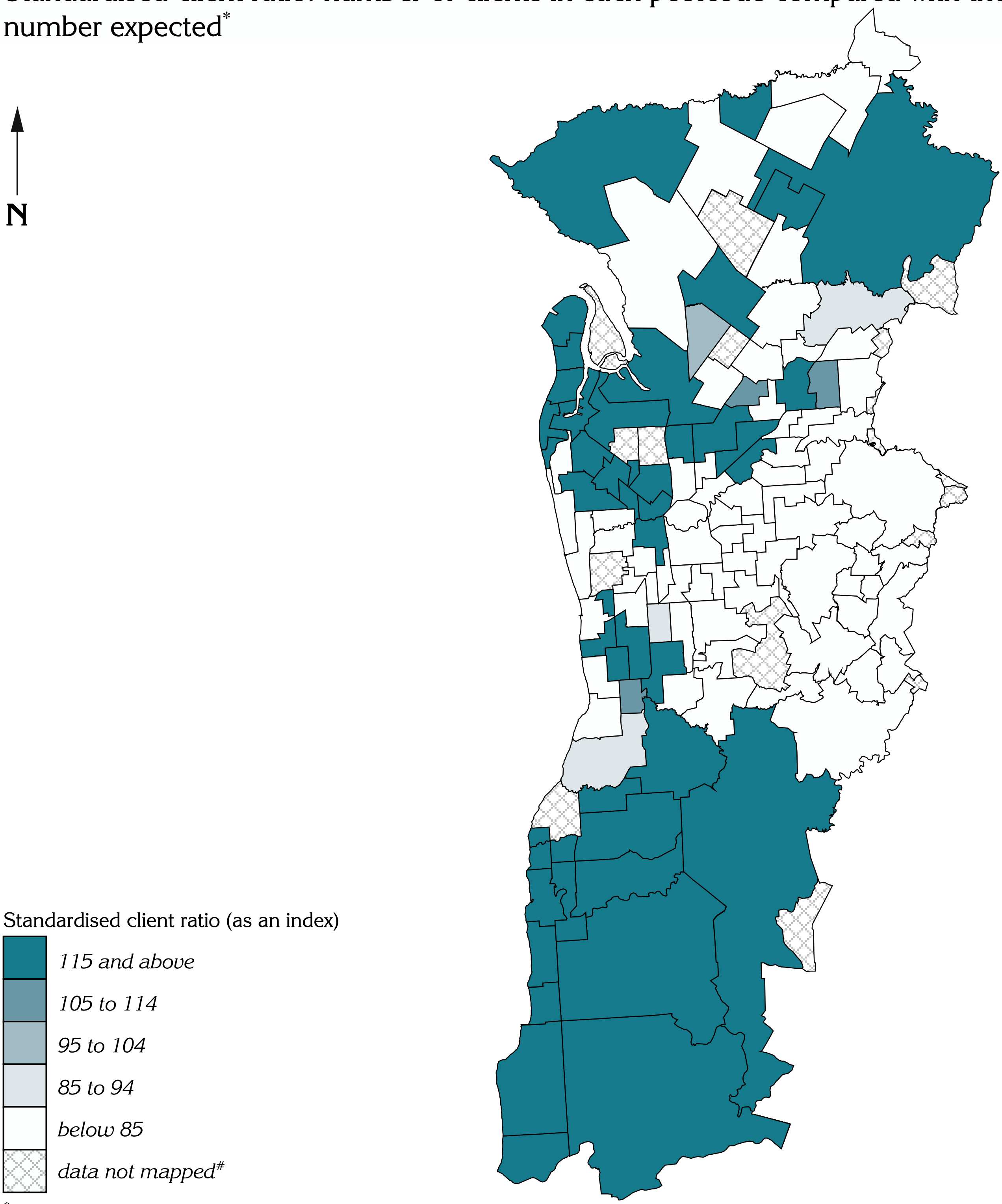
More than 1,000 clients of community based health services were recorded for children and young people in *Morphett Vale* (3,385 clients), *Woodville North* (2,541 clients), *Ferryden Park* (2,157 clients), *Happy Valley* (1,586 clients), *Hackham* (1,558 clients), *Salisbury* (1,544 clients) and *Rosewater* (1,102 clients).

There were correlations of meaningful significance at the postcode level with the variables for children aged 0 to 14 years living in dwellings rented from the SA Housing Trust (0.70), low income families (0.60), single parent families (0.57) and dwellings with no motor vehicles (0.55); people aged 15 to 24 years from non-English speaking countries (0.55); and unemployed females aged 15 to 24 years (0.51). These results, together with the inverse correlation with the IRSD (-0.65), indicate an association at the postcode level between high rates of community health services and socioeconomic disadvantage.

The non-metropolitan area of the States has not been mapped for this variable, as there were too few cases to produce reliable results.

Map 5.52
Community health services one-to-one clients, 0 to 24 years, Adelaide, 1997 to 1999

Standardised client ratio: number of clients in each postcode compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected clients.

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Child and Adolescent Mental Health Services, one-to-one clients, 0 to 24 years, 1997 to 1999

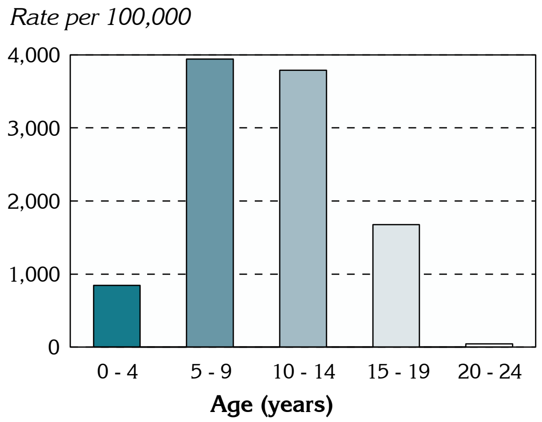
For Child and Adolescent Mental Health Services (CAMHS), details are available for individual clients (ie. clients attending at more than one location will be recorded at each location). This is a better measure than the total number of services, as available for clients of GPs, or admissions, as are available for hospitals.

CAMHS provides a confidential counselling service for children and young people and their families. Services are provided by child and family specialists including psychologists, psychiatrists, social workers, nurses, occupational therapists and speech pathologists who are experienced in helping children with emotional, behavioural or mental health difficulties.

Adelaide

The number of clients of CAMHS in Adelaide varies substantially between the five year age groups within the 0 to 24 year age category (**Figure 5.51**). Children in the 5 to 9 year age group have the highest rates (an average rate of 3,940 clients per 100,000 population aged 5 to 9 years), with a similar rate in the 10 to 14 year age group and the lowest rate (44 clients per 100,000 population) in the 20 to 24 year age group.

Figure 5.51: Use of child and adolescent mental health services, by age, Adelaide, 1997 to 1999



Source: Compiled in HealthWIZ from data supplied by DHS

Over the period 1997 to 1999, there were 65,732 clients aged 0 to 24 years of Child and Adolescent Mental Health Services (CAMHS) in Adelaide. This was four per cent lower than expected from the State rates (a standardised client ratio (SCR) of 96**).

CAMHS clients aged from 0 to 24 years were mainly from postcodes located in the city's north-western and south-western suburbs, as well as in the outer south and, to a lesser extent, the outer north (**Map 5.53**).

More than twice the expected number of CAMHS clients were recorded in the postcode areas of *Park Holme* (with an SCR of 317**), *Osborne* (236**), *Darlington* (233**) and *Christies Downs* (210**).

Ratios elevated by 50% or more were also recorded in the southern suburbs of *Old Noarlunga* (189**), *Hackham* (166**), *Brighton* (159**), *Seaton* (151**) and *Morphett Vale* (150**); in the north-western postcode areas of *Largs Bay* (168**), *Port Adelaide* (167**), *Ferryden Park* and *Woodville* (both 155**) and *Woodville North* (151**); and the inner northern area of *Enfield* (168**).

Excluding areas with fewer than 20 clients, the lowest ratios were recorded in *Glenside* and *North Adelaide*, with 90% and 86% fewer clients than were expected, respectively. Relatively low ratios were also recorded in the postcode areas of *Glen Osmond* (with an SCR of 15**), *Angle Vale*, *Kensington Park* and *Burnside* (each 18**), *Aldgate* (27**), *Bridgewater* and *Stirling* (28**) and *Eastwood* (30**).

Over the three years 1997 to 1999, there were more than 2,000 CAMHS clients aged 0 to 24 years from *Morphett Vale* (with 3,947 clients), *Salisbury* (2,739 clients), *Park Holme* (2,660 clients), *Happy Valley* (2,517 clients) and *Elizabeth North* (2,177 clients).

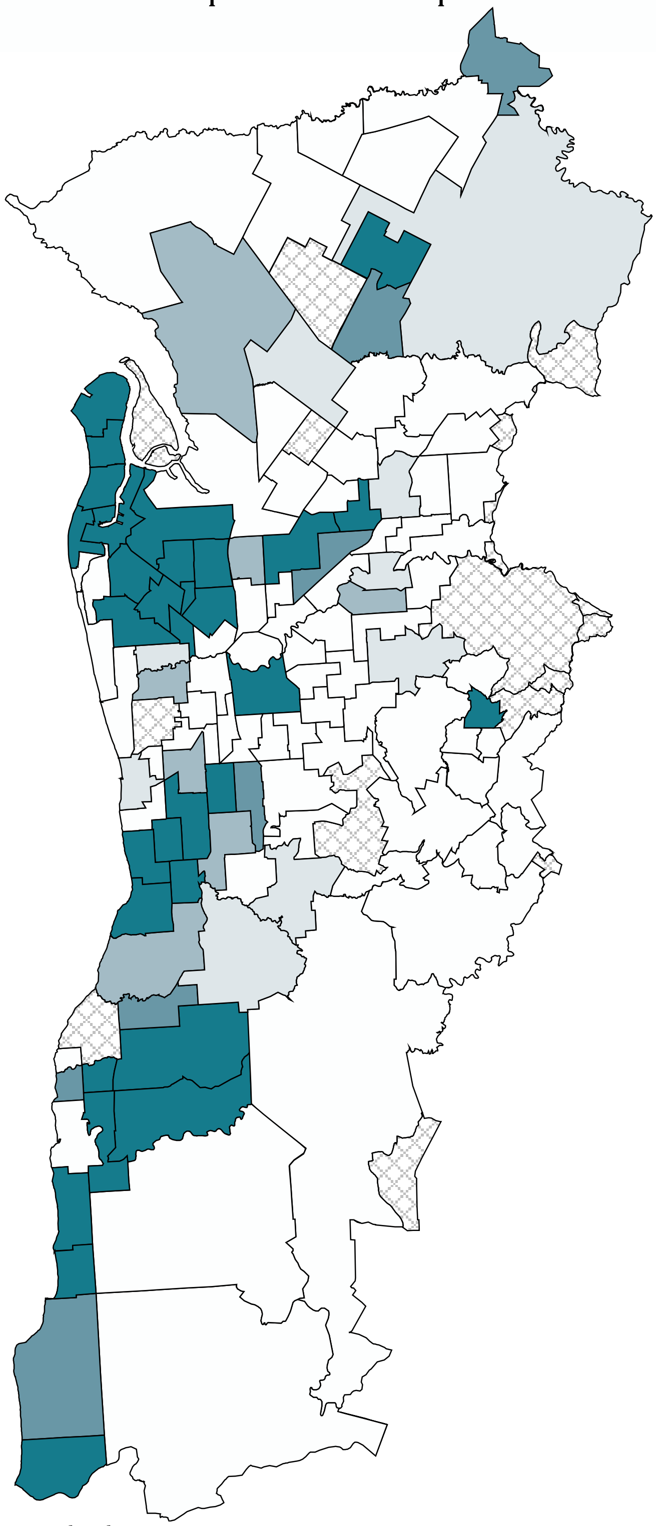
Correlations of meaningful significance were recorded at the postcode level with the variables for children aged 0 to 14 years living in single parent families (0.64), low income families (0.60), dwellings rented from the SA Housing Trust (0.57) and dwellings with no motor vehicles (0.56). An inverse correlation was also recorded with the variable for people aged 15 to 24 years who were full-time students (-0.50).

These results, together with the inverse correlation with the IRSD (-0.60), indicate an association at the postcode level between CAMHS and socioeconomic disadvantage.

Map 5.53
Child and Adolescent Mental Health Services one-to-one clients, 0 to 24 years, Adelaide, 1997 to 1999

Standardised client ratio: number of clients in each postcode compared with the number expected*

N



Standardised client ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *data not mapped#*

* *Expected numbers were derived by indirect age-sex standardisation*

\# *Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five expected clients.*

Source: Compiled in HealthWIZ from data supplied by DHS ***Details of map boundaries are in Appendix 1.2***

Child and Adolescent Mental Health Services, one-to-one clients, 0 to 24 years, 1997 to 1999

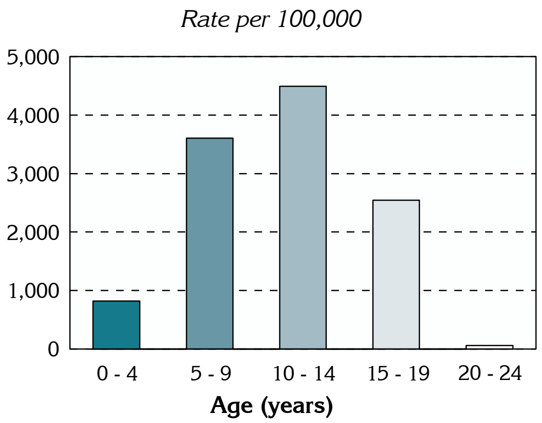
For Child and Adolescent Mental Health Services (CAMHS), details are available for individual clients (ie. clients attending at more than one location will be recorded at each location). This is a better measure than the total number of services, as is available for clients of GPs, or admissions, as are available for hospitals.

CAMHS provides a confidential counselling service for children and young people and their families. Services are provided by child and family specialists including psychologists, psychiatrists, social workers, nurses, occupational therapists and speech pathologists who are experienced in helping children with emotional, behavioural or mental health difficulties.

Non-metropolitan South Australia

The number of clients of CAMHS in non-metropolitan South Australia varies substantially between the five year age groups within the 0 to 24 year age category (**Figure 5.53**). From a relatively low rate at ages 0 to 4 years (an average rate of 817 clients per 100,000 population over the three years), it increases to the highest rate in the 10 to 14 year age group (4,492 clients per 100,000 population aged 10 to 14 years) then declines to a low of 56 clients per 100,000 population among people aged 20 to 24 years.

Figure 5.52: Use of child and adolescent mental health services, by age, non-metropolitan areas, 1997 to 1999



Source: Compiled in HealthWIZ from data supplied by DHS

There were 30,457 clients aged 0 to 24 years of CAMHS in the non-metropolitan area of South Australia over the period from 1997 to 1999. This was six per cent higher than expected from the State rates (a standardised client ratio (SCR) of 106**).

The highest ratios were primarily in a number of the towns and across a broad area from the Riverland, south to Murray Bridge and down into parts of the south-east (**Map 5.54**).

Ratios of at least twice the level expected from the State rates were recorded in the SLAs of Murray Bridge (with an SCR of 266**), Meningie (257**), Unincorporated Lincoln (234*), Unincorporated Riverland (227**) and Berri (203**).

Relatively high ratios were also recorded in Mount Gambier (C) (199**), Mannum (198**), Peake (197**), Robertstown (191**), Port Lincoln (189**), Unincorporated Whyalla (187**), Port Augusta (186**), Renmark (168**), Morgan (158**), Karoonda-East Murray (154**), Beachport (150**) and Penola (150**).

Children and young people in Roxby Downs, Yankalilla and Unincorporated Far North had the lowest ratios (of areas with more than 20 clients) for this variable, with SCRs of 13**, 14** and 15** respectively. Other areas with particularly low ratios included Tumby Bay (with an SCR of 17**), Le Hunte (18**), Blyth-Snowtown (22**), Unincorporated Flinders Ranges and Onkaparinga (both 30**), Mount Pleasant and Central Yorke Peninsula (both 35**).

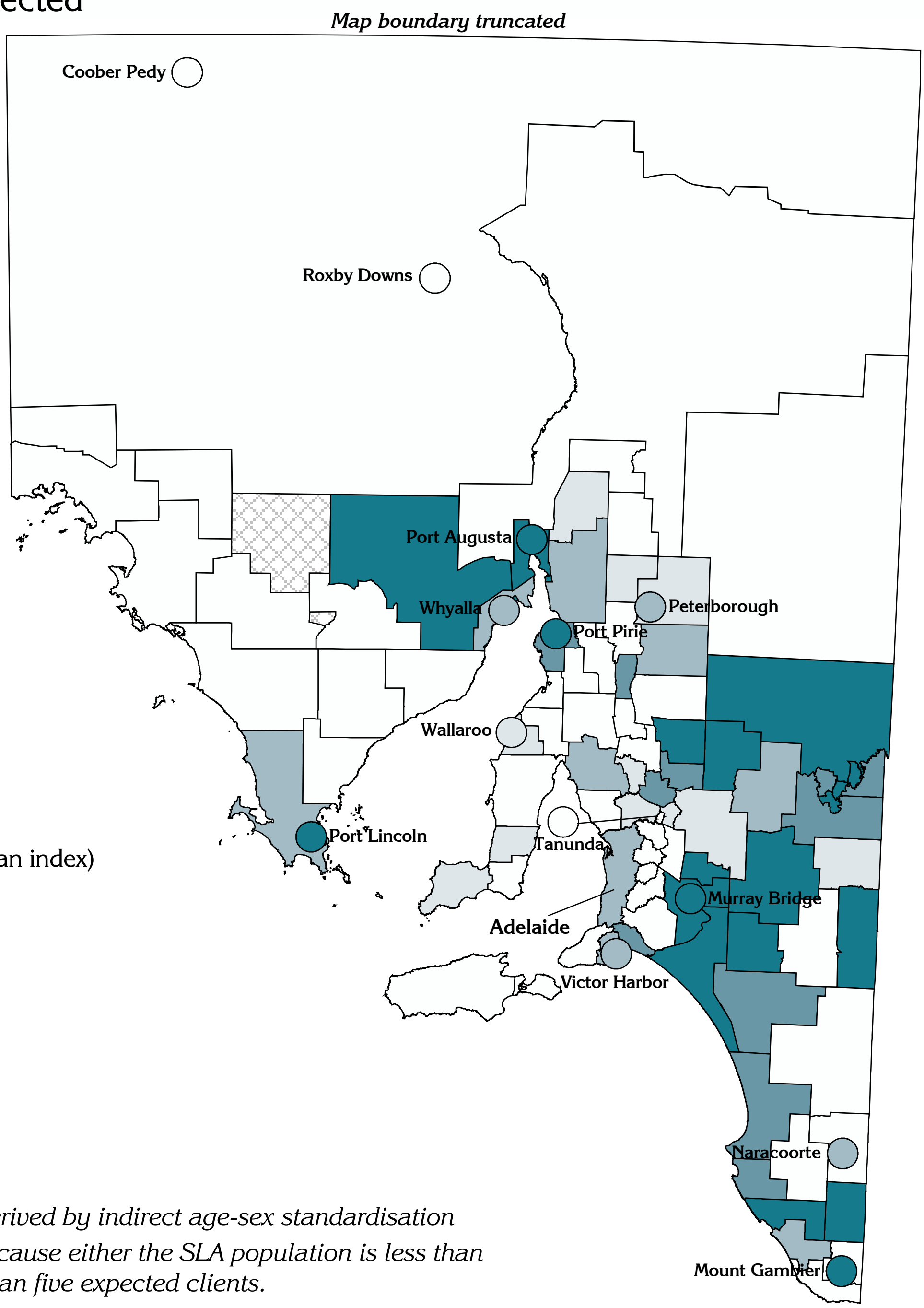
The largest numbers of CAMHS clients aged from 0 to 24 years were recorded in Mount Gambier (with 3,315 clients), Murray Bridge (3,103 clients), Port Augusta (2,007 clients), Whyalla (1,885 clients) and Port Lincoln (1,847 clients).

There was a correlation of substantial significance with clients of Family and Youth Services (0.72) and correlations of meaningful significance with the variables for children aged 0 to 14 years living in houses rented from the SA Housing Trust (0.69), single parent families (0.64), dwellings with no motor vehicles (0.53) and low income families (0.52); and dependent children (0.55) and unemployed males aged 15 to 24 years (0.50).

These results, together with the inverse correlation with the IRSD (-0.59), indicate an association at the SLA level between high rates of CAMHS clients and socioeconomic disadvantage.

Map 5.54
Child and Adolescent Mental Health Services one-to-one clients, 0 to 24 years, South Australia, 1997 to 1999

Standardised client ratio: number of clients in each Statistical Local Area compared with the number expected*



Standardised client ratio (as an index)

- *130 and above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *data not mapped#*

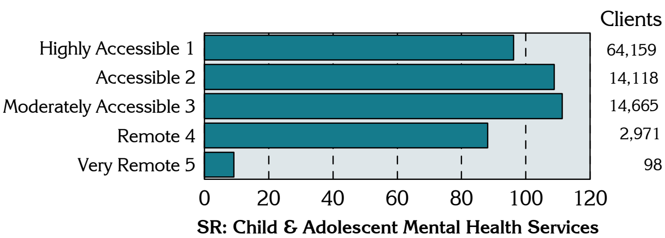
Expected numbers were derived by indirect age-sex standardisation

Data were not mapped because either the SLA population is less than 100 or there were fewer than five expected clients.

Source: Compiled in HealthWIZ from data supplied by DHS

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia (ARIA+)



The majority (66.8%) of one-to-one Child and Adolescent Mental Health Service clients were in the Highly Accessible ARIA+ class. However, the highest standardised ratios were recorded in the Moderately Accessible (an SCR of 111) and Accessible (109) classes. The Very Remote areas had 91% fewer clients than were expected from the State rates (an SCR of 9).

Source: Calculated on ARIA+ classification

Immunisation status of children at 12 months of age, 2001

Immunisation data are collected by the Health Insurance Commission, which maintains the Australian Childhood Immunisation Register (ACIR). The ACIR, a project funded by the Commonwealth Government through the Commonwealth Department of Health and Ageing, provides comprehensive information on the immunisation status of children under seven years of age in Australia. These data are used to provide a measure of coverage at a national, State/Territory and local level and to provide an effective management tool for monitoring immunisation coverage and service delivery. The register was commenced in 1996 and by mid 1998 had sufficient coverage of the immunisation status of children at twelve months of age to be used for this analysis.

The data shown here are of the proportion of children born between 1 January 1999 and 31 December 1999 who were registered with Medicare and who were shown on the ACIR at 17 April 2001 as being fully immunised. Children who are fully immunised at 12 months of age are those who have been immunised for three doses of DTP (diphtheria, tetanus and pertussis), three doses of OPV (oral polio vaccine) and three doses of Hib (*Haemophilus influenza* type b). The calculations shown were made by the National Centre for Immunisation Research and Surveillance, who also supplied the data.

Adelaide

In 2001, 12,299 children in Adelaide aged 12 months were fully immunised; that is, 94.7% of children at this age.

The highest immunisation rates were in postcode areas scattered throughout Adelaide in no notable pattern (**Map 5.55**).

Several postcode areas had proportions of 100% or more[3]; they included *Sellicks Beach*, *Maslin Beach*, *Upper Sturt*, *Aldgate*, *Uraidla*, *Norton Summit*, *Angle Vale*, *Gepps Cross*, *Belair*, *Seacliff*, *Darlington* and *West Lakes Shore*.

The next highest proportions were recorded in *St Agnes* (98.9%), *Burton* (98.7%), *Ingle Farm* (98.3%) and *Rosewater* (98.3%).

The postcode area of *MacDonald Park* had the lowest immunisation rates in 2001, with 80.0% of 12 month old children in this category. Relatively low immunisation rates were also recorded in the southern postcode areas of *Christies Beach* and *Blackwood Forward* (both 86.2%) and *McLaren Vale* (87.8%); in the north-western and inner northern postcode areas of *Osborne* (88.1%), *Ferryden Park* (89.3%) and *Blair Athol* (89.4%); and in the outer northern areas of *Evanston* (88.5%), *Elizabeth* (89.3%) and *Elizabeth North* (89.5%).

The largest numbers of fully immunised children were recorded in *Salisbury* (534 children), *Morphett Vale* (466 children), *Happy Valley* (422 children) and *Smithfield* (365 children).

There was no consistent evidence in the correlation analysis at the postcode level of an association between children fully immunised at 12 months of age and socioeconomic status.

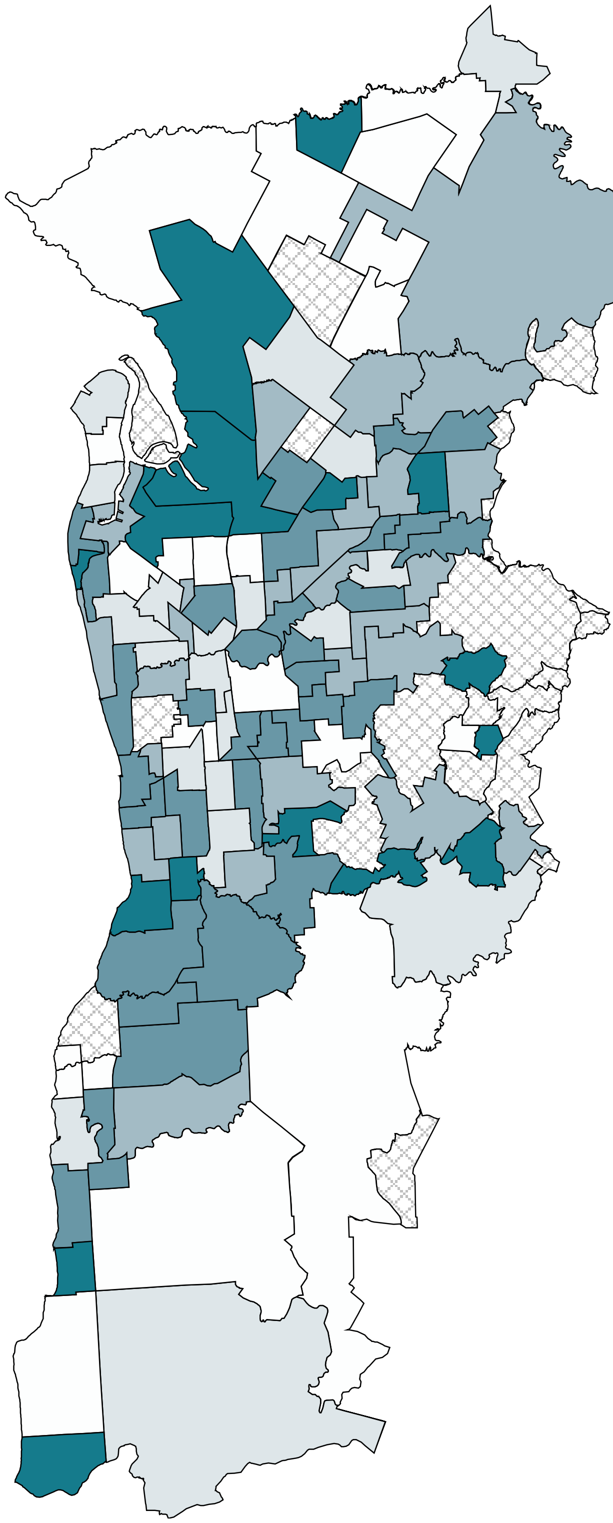
When the data were aggregated to the SLA level, inverse correlations of substantial significance were found with the variables for unemployed males (-0.75) and females (-0.71) aged 15 to 24 years. Inverse correlations of meaningful significance were also recorded with Indigenous people aged 0 to 14 years (-0.64) and 15 to 24 years (-0.57); and children aged 0 to 14 years living in low income families (-0.63), dwellings with no vehicles (-0.61), dwellings rented from the SA Housing Trust (-0.55) and single parent families (-0.51).

These results, together with the correlation of meaningful significance with the IRSD (0.60), indicate an association at the SLA level between high rates of childhood immunisation at 12 months of age and high socioeconomic status.

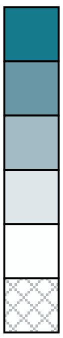
[3] The reason for the occurrence of a proportion of 100% or higher is unclear. It may reflect, in part, a mismatch between the area represented by the postcode data from immunisation records and the area represented by the 'postal' area constructed by the ABS (see page 18).

Map 5.55
Immunisation status of children at 12 months of age, Adelaide, 2001

as a percentage of all children at 12 months of age in each postcode area



Per cent children fully immunised



** Data were not mapped because either the postcode population is less than 100, only a small part of the postcode is located in Adelaide or there were fewer than five children.*

Source: Data supplied by the NCIRS

Details of map boundaries are in Appendix 1.2

Immunisation status of children at 12 months of age, 2001

A general description of the immunisation data is included on the previous the text page.

Non-metropolitan South Australia

In 2001, 4,887 children in the non-metropolitan area of South Australia were fully immunised at the age of 12 months, 95.0% of children at this age.

SLAs with the highest rates of immunisation were distributed across a wide area (**Map 5.56**).

Several SLAs have proportions of 100.0% or more[4]. They include Bute, Carrieton, Cleve, Coonalpyn Downs, Dudley, Eudunda, Franklin Harbor, Hallett, Hawker, Jamestown, Kanyaka and Quorn, Kimba, Lacepede, Lameroo, Orroroo, Peake, Pinnaroo, Port MacDonnell, Robe, Robertstown, Saddleworth and Auburn, Spalding, Tanunda, Warooka, and Yorketown. It is unclear as to why these rates are so high: it is possible that it is related, at least in part, to the conversion of postcode based data to SLA.

The next highest immunisation rates were recorded in the south-eastern SLAs of Naracoorte (DC) (99.2%), Naracoorte (M) (99.0%) and Mount Gambier (DC) (98.7%); in Onkaparinga (98.5%), Kapunda (97.7%), Strathalbyn (97.4%) and Angaston (97.3%), located in the areas surrounding Adelaide; and in the mid northern areas of Light (98.5%), Clare (98.3%), Crystal Brook-Redhill (98.2%) and Peterborough (98.1%).

Immunisation rates below 92.0% were primarily found in SLAs located in the far northern and western parts of the State, in areas which included Unincorporated Whyalla (68.7%), Le Hunte (87.5%), Streaky Bay (87.9%), Elliston (90.1%), Port Augusta (91.1%), Unincorporated Flinders Ranges (91.5%) and Coober Pedy (91.7%). Proportions of below 92.0% were also recorded in the SLAs of Riverton (84.2%), Burra Burra (85.9%), Barmera (86.0%), Central Yorke Peninsula (87.4%), Port Broughton (87.5%), Paringa (88.4%), Rocky River (88.9%), Peterborough (89.5%) and Victor Harbor (91.4%).

The largest number of fully immunised children in the non-metropolitan areas was recorded in the town of Mount Gambier, a total of 413 children. More than 150 fully immunised children were also recorded in Mount Barker (342 children), Whyalla (300 children), Murray Bridge (222 children), Port Lincoln (195 children), Port Augusta (192 children) and Port Pirie (184 children).

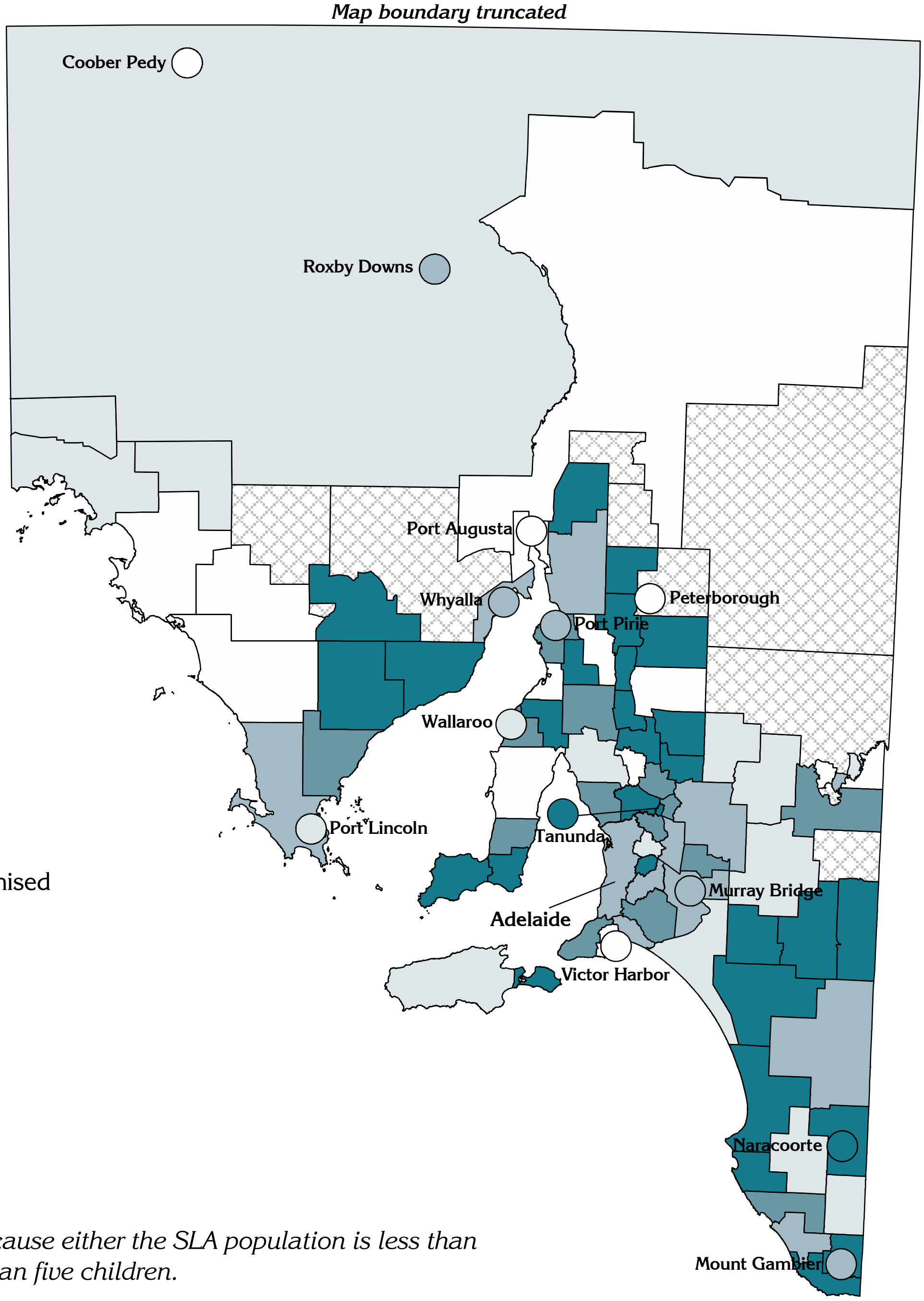
There was an inverse correlation of meaningful significance with the variable children aged 0 to 14 years and born in predominantly non-English speaking countries (-0.55), indicating lower immunisation rates in areas with relatively more children born in these countries.

[4] The reason for the occurrence of a proportion of 100% or higher is unclear.

Map 5.56
Immunisation status of children at 12 months of age, South Australia, 2001

as a percentage of all children at 12 months of age in each Statistical Local Area

Map boundary truncated



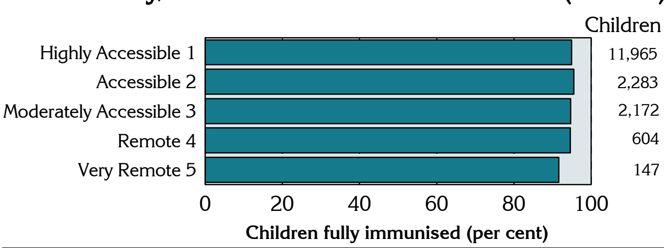
Per cent children fully immunised

- *98.0% or more*
- *96.0 to 97.9%*
- *94.0 to 95.9%*
- *92.0 to 93.9%*
- *fewer than 92.0%*
- *data not mapped**

* *Data were not mapped because either the SLA population is less than 100 or there were fewer than five children.*

Source: Data supplied by the NCIRS ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia (ARIA+)



There is little variation in immunisation rates across the first four ARIA+ classes, with between 94.6% and 95.5% of 12 month old children being fully immunised. The lowest rate, of 91.6%, was recorded in the Very Remote areas.

Source: Calculated on ARIA+ classification

This page left intentionally blank

6 Statistical analysis

Introduction

Two sets of analyses have been undertaken to illustrate the extent of association between areas with low socioeconomic status and poor health. Correlation coefficients have been produced to indicate interdependence between the indicators of socioeconomic status, health status and use of health services. The correlation analysis was undertaken for metropolitan postcode and SLAs and non-metropolitan SLAs. Non-metropolitan Health Regions were eliminated from the analysis as there were too few variables that met the criteria for inclusion.

Inequalities in health have traditionally been indicated by an approximation to social class, frequently based on a categorisation of occupations. The other major indicators traditionally used have included income, education, ethnicity and employment status (which allows for the inclusion of unemployed people and those not in the labour force). The measures of socioeconomic status included in this analysis include income, education, occupation, labour force status and Aboriginality.

Correlation analysis

Description

Correlation is the degree to which one variable is statistically associated with another. The correlation coefficient is a measure of the strength of this association. When high values for one variable are matched by high values for the other (or when low values are matched by low values), then they are positively correlated. Where the interdependence is inverse (ie. high values for one are matched by low values for another), the two variables are negatively correlated.

Methods

The Pearson product-moment correlation coefficient (r) has been used in the analysis to indicate the degree of correlation between pairs of variables. Pearson correlation coefficients range from +1 (complete positive correlation) through 0 (complete lack of correlation) to –1 (complete negative correlation). As a general rule, correlations of plus or minus 0.5 or above are considered to be of meaningful statistical significance. Correlations of plus or minus 0.71 or above are of substantial statistical significance, because this higher value represents at least 50 per cent shared variation (r^2 greater than or equal to 0.5).

Correlation coefficients were calculated by comparing the value (expressed as a percentage or as a standardised ratio) for each variable in the SLA (or postcode) with the value of each of the other variables. Correlation coefficients are generally referred to as being, for example, 'a correlation of children living in low income families with the *paired* variable of hospital admissions'. However, to promote ease of reading where many correlations are quoted in the text, the word 'paired' has been omitted. For similar reasons the symbol used to indicate a correlation coefficient (r) has been omitted.

Three measures of socioeconomic status included in the analysis in this section have not been mapped. They are people in high status occupations classified as 'managers and administrators', and professionals'; families receiving an income of $52,000 or more per annum; and female labour force participation. These three measures were included as they indicate high socioeconomic status, in contrast to most other measures, which were chosen because they indicate low socioeconomic status.

The results of the correlation analysis, which was undertaken separately for Adelaide and the rest of the State, are shown in the following tables: coefficients of from 0.5 to 0.7 and from 0.71 to 1 (both positive and negative) are highlighted in the tables, and are referred to in the individual map commentaries, as appropriate.

When discussing the results of the correlation analysis in the text, mention is often made of 'the indicators of socioeconomic disadvantage'. This reference is to variables such as those for children living in single parent families, low income families, dwellings with no motor vehicles and dwellings rented from the SA Housing Trust; unemployed people; and Indigenous people. Reference to 'high socioeconomic status' reflects the variables for high income families, female labour force participation and managers and administrators, and professionals.

The associations discussed in the text are, in general, limited to associations between the variable under discussion and the indicators of socioeconomic status from Chapter 3. The extent of any association with the other variables analysed can be ascertained from an examination of the correlation matrices (**Table 6.1**, **6.2** and **6.3**).

When there are small numbers of cases, the correlation analysis can be affected. In undertaking this analysis for school achievement scores at the postcode level, the initial results showed there to be little in the way of correlation between the variables. When grouped to SLAs, however, there were noticeable correlations with a number of indicators of socioeconomic status. The correlations were re-run, excluding postcode areas with fewer than 20 students. This increased the number of correlations of meaningful or substantial significance.

Similarly, the relatively large number of SLAs in the non-metropolitan areas with relatively small numbers of cases reduces the strength of the analysis. SLAs with populations below 4,000 were excluded from the analysis, increasing the number of correlations of meaningful or substantial significance.

Results

Adelaide by postcode

The results of the correlation analysis for postcode areas in Adelaide showed significant relationships between a number of the demographic, health status and health service utilisation variables. Generally, and as would be expected, variables within the separate chapters of the atlas tended to be correlated more often with each other than with variables from other chapters. For example, demographic variables tended to be associated with other demographic variables, socioeconomic indicators with other socioeconomic indicators, and so on. However, there were also some notable relationships between variables across chapters. This chapter summarises the most notable and statistically significant results. To review the complete analysis, refer to **Table 6.1**.

There were correlations of significance at the postcode level between the indicators of socioeconomic disadvantage and a number of the health status and health service use variables. The strongest of these were with the variables for substantiated reports of child abuse and neglect; public acute hospital admissions for children aged 0 to 14 years and young people aged 15 to 24 years; general medical practitioner services to children aged 5 to 14 years; and clients of Family and Youth Services.

Adelaide by Statistical Local Areas

As can be seen from a comparison of **Table 6.1** and **Table 6.2**, the correlation coefficients at the SLA level were generally stronger than at the postcode level. Correlations of substantial significance were recorded with a number of the indicators of socioeconomic disadvantage: they included the variables for admissions of children aged 0 to 14 years to a public acute hospital, and to any (public acute plus private) hospital for respiratory system diseases, as well as for bronchitis, emphysema and asthma; admissions of young people aged 15 to 24 years to a public acute hospital or to any hospital, and admissions of females at these ages; and clients of Family and Youth Services. There were inverse correlations of substantial significance between a number of the indicators of socioeconomic disadvantage and immunisation rates of children at 12 months of age and admission to a private hospital of children aged 0 to 14 years and young people aged 15 to 24 years.

Non-metropolitan areas

It is clear from **Table 6.3** that there are fewer correlations of significance at the SLA level in the non-metropolitan areas of South Australia than there were in Adelaide.

The strongest correlations with the indicators of socioeconomic disadvantage were with the variables for substantiated reports of child and abuse and neglect, a number of the hospital admission variables (including for procedures), with general medical practitioner services and services to clients of Child and Adolescent Mental Health Services; and with clients of Family and Youth Services.

Table 6.1: Correlation matrix for postcode areas in Adelaide

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47	V48	V49	
V1	1.00	0.81	0.64	0.88	0.01	-0.42	-0.34	0.80	0.16	0.33	0.25	0.10	0.11	0.14	-0.22	-0.06	0.28	0.27	-0.31	0.56	-0.61	-0.50	-0.59	-0.44	-0.46	-0.44	-0.33	0.46	0.65	0.23	0.16	-0.01	-0.03	0.15	-0.01	0.15	-0.47	0.01	-0.06	-0.14	0.08	-0.01	-0.07	0.33	0.42	-0.36	-0.04	0.41	0.14	V1
V2	0.81	1.00	0.83	0.96	0.12	-0.67	-0.49	0.81	-0.08	0.06	0.04	-0.19	-0.19	-0.14	-0.40	-0.26	0.03	0.04	-0.10	0.34	-0.42	-0.27	-0.32	-0.23	-0.26	-0.20	-0.06	0.24	0.57	0.13	0.06	-0.04	-0.03	-0.05	-0.22	-0.13	-0.18	-0.19	-0.22	-0.27	-0.13	-0.09	-0.19	0.22	0.20	-0.03	0.03	0.25	0.03	V2
V3	0.64	0.83	1.00	0.91	0.39	-0.72	-0.37	0.82	-0.30	-0.16	-0.11	-0.39	-0.27	-0.29	-0.47	-0.34	-0.13	-0.18	0.16	0.19	-0.31	-0.11	-0.15	-0.05	-0.06	0.01	0.16	0.04	0.48	0.06	-0.09	-0.15	0.02	-0.22	-0.35	-0.28	-0.10	-0.31	-0.33	-0.35	-0.26	-0.29	-0.39	0.03	-0.03	0.11	0.02	0.01	-0.15	V3
V4	0.88	0.96	0.91	1.00	0.21	-0.67	-0.44	0.88	-0.10	0.07	0.06	-0.19	-0.14	-0.12	-0.41	-0.25	0.05	0.03	-0.07	0.39	-0.48	-0.31	-0.37	-0.25	-0.27	-0.21	-0.07	0.26	0.61	0.15	0.04	-0.07	-0.01	-0.05	-0.22	-0.11	-0.26	-0.18	-0.23	-0.28	-0.12	-0.15	-0.25	0.20	0.20	-0.09	0.01	0.23	0.00	V4
V5	0.01	0.12	0.39	0.21	1.00	-0.02	0.55	0.52	-0.43	-0.38	-0.18	-0.40	-0.15	-0.35	-0.17	-0.12	-0.34	-0.25	0.54	-0.23	0.09	0.36	0.22	0.24	0.19	0.44	0.40	-0.25	0.15	-0.07	-0.19	-0.30	-0.07	-0.29	-0.10	-0.17	0.21	-0.08	-0.11	-0.02	-0.15	-0.32	-0.18	-0.27	-0.39	0.38	-0.15	-0.25	-0.31	V5
V6	-0.42	-0.67	-0.72	-0.67	-0.02	1.00	0.82	-0.31	0.23	0.15	0.13	0.35	0.31	0.24	0.49	0.39	0.13	0.23	-0.18	-0.07	0.13	0.05	0.03	-0.06	-0.08	0.01	-0.18	0.04	-0.36	0.01	0.15	-0.01	-0.16	0.27	0.40	0.39	-0.05	0.33	0.41	0.30	0.35	0.26	0.40	-0.02	0.08	-0.20	-0.06	0.02	0.04	V6
V7	-0.34	-0.49	-0.37	-0.44	0.55	0.82	1.00	0.03	-0.05	-0.09	0.01	0.06	0.17	0.00	0.31	0.26	-0.08	0.05	0.16	-0.19	0.15	0.26	0.16	0.09	0.04	0.26	0.08	-0.10	-0.22	-0.04	0.01	-0.17	-0.17	0.06	0.27	0.23	0.07	0.23	0.27	0.24	0.20	0.04	0.23	-0.17	-0.15	0.04	-0.13	-0.13	-0.14	V7
V8	0.80	0.81	0.82	0.88	0.52	-0.31	0.03	1.00	-0.13	0.03	0.07	-0.18	-0.07	-0.13	-0.29	-0.14	0.01	0.06	0.00	0.33	-0.43	-0.20	-0.31	-0.23	-0.28	-0.10	-0.04	0.23	0.57	0.14	0.05	-0.17	-0.10	-0.03	-0.10	0.00	-0.25	-0.09	-0.11	-0.19	-0.03	-0.14	-0.15	0.14	0.14	-0.07	-0.06	0.19	-0.08	V8
V9	0.16	-0.08	-0.30	-0.10	-0.43	0.23	-0.05	-0.13	1.00	0.91	0.81	0.88	0.62	0.71	0.34	0.36	0.70	0.73	-0.69	0.62	-0.52	-0.67	-0.66	-0.73	-0.73	-0.80	-0.89	0.71	0.20	0.49	0.46	0.22	-0.01	0.76	0.47	0.65	-0.65	0.45	0.36	0.10	0.58	0.59	0.28	0.57	0.77	-0.67	0.12	0.65	0.42	V9
V10	0.33	0.06	-0.16	0.07	-0.38	0.15	-0.09	0.03	0.91	1.00	0.83	0.85	0.57	0.65	0.38	0.47	0.77	0.75	-0.71	0.74	-0.66	-0.74	-0.76	-0.76	-0.84	-0.89	-0.95	0.83	0.33	0.48	0.48	0.20	0.10	0.78	0.43	0.65	-0.73	0.41	0.34	0.05	0.56	0.58	0.23	0.60	0.80	-0.69	0.07	0.69	0.40	V10
V11	0.25	0.04	-0.11	0.06	-0.18	0.13	0.01	0.07	0.81	0.83	1.00	0.85	0.56	0.60	0.38	0.45	0.59	0.63	-0.45	0.62	-0.47	-0.62	-0.61	-0.61	-0.76	-0.63	-0.83	0.63	0.35	0.45	0.42	0.25	0.08	0.82	0.55	0.69	-0.55	0.54	0.42	0.23	0.59	0.58	0.34	0.61	0.72	-0.49	0.21	0.65	0.42	V11
V12	0.10	-0.19	-0.39	-0.19	-0.40	0.35	0.06	-0.18	0.88	0.85	0.85	1.00	0.59	0.70	0.49	0.48	0.71	0.72	-0.59	0.63	-0.46	-0.65	-0.62	-0.58	-0.73	-0.69	-0.87	0.63	0.19	0.41	0.41	0.28	0.06	0.86	0.54	0.68	-0.56	0.52	0.43	0.22	0.59	0.60	0.38	0.60	0.76	-0.60	0.16	0.66	0.45	V12
V13	0.11	-0.19	-0.27	-0.14	-0.15	0.31	0.17	-0.07	0.62	0.57	0.56	0.59	1.00	0.77	0.29	0.30	0.38	0.49	-0.48	0.43	-0.48	-0.56	-0.63	-0.52	-0.51	-0.51	-0.60	0.55	0.24	0.32	0.32	0.03	-0.06	0.46	0.47	0.62	-0.54	0.41	0.44	0.23	0.65	0.29	0.54	0.39	0.51	-0.42	0.09	0.46	0.17	V13
V14	0.14	-0.14	-0.29	-0.12	-0.35	0.24	0.00	-0.13	0.71	0.65	0.60	0.70	0.77	1.00	0.38	0.39	0.51	0.61	-0.55	0.51	-0.36	-0.54	-0.56	-0.57	-0.57	-0.58	-0.70	0.55	0.21	0.35	0.33	0.14	0.12	0.58	0.52	0.65	-0.50	0.50	0.40	0.30	0.60	0.51	0.44	0.47	0.62	-0.50	0.08	0.55	0.31	V14
V15	-0.22	-0.40	-0.47	-0.41	-0.17	0.49	0.31	-0.29	0.34	0.38	0.38	0.49	0.29	0.38	1.00	0.90	0.24	0.31	-0.06	0.04	0.10	-0.16	-0.11	-0.09	-0.30	-0.20	-0.40	0.27	-0.09	0.06	0.19	0.09	0.00	0.43	0.46	0.47	-0.12	0.42	0.40	0.38	0.47	0.45	0.39	0.16	0.22	-0.17	-0.01	0.21	0.18	V15
V16	-0.06	-0.26	-0.34	-0.25	-0.12	0.39	0.26	-0.14	0.36	0.47	0.45	0.48	0.30	0.39	0.90	1.00	0.36	0.37	-0.05	0.14	0.01	-0.22	-0.22	-0.16	-0.38	-0.27	-0.47	0.33	0.04	0.16	0.20	0.09	0.04	0.51	0.47	0.51	-0.21	0.44	0.39	0.35	0.47	0.50	0.34	0.20	0.28	-0.25	-0.01	0.24	0.18	V16
V17	0.28	0.03	-0.13	0.05	-0.34	0.13	-0.08	0.01	0.70	0.77	0.59	0.71	0.38	0.51	0.24	0.36	1.00	0.75	-0.56	0.63	-0.56	-0.59	-0.69	-0.50	-0.66	-0.65	-0.73	0.61	0.26	0.39	0.32	0.12	0.05	0.68	0.23	0.42	-0.64	0.25	0.14	-0.04	0.30	0.39	0.03	0.42	0.64	-0.69	0.00	0.49	0.25	V17
V18	0.27	0.04	-0.18	0.03	-0.25	0.23	0.05	0.06	0.73	0.75	0.63	0.72	0.49	0.61	0.31	0.37	0.75	1.00	-0.56	0.60	-0.61	-0.59	-0.70	-0.58	-0.74	-0.66	-0.77	0.69	0.22	0.45	0.36	-0.03	-0.07	0.68	0.34	0.52	-0.62	0.36	0.23	0.07	0.38	0.43	0.20	0.49	0.71	-0.70	-0.06	0.63	0.32	V18
V19	-0.31	-0.10	0.16	-0.07	0.54	-0.18	0.16	0.00	-0.69	-0.71	-0.45	-0.59	-0.48	-0.55	-0.06	-0.05	-0.56	-0.56	1.00	-0.68	0.72	0.75	0.67	0.81	0.62	0.80	0.76	-0.77	-0.24	-0.33	-0.40	-0.27	-0.04	-0.53	-0.26	-0.46	0.63	-0.24	-0.22	0.10	-0.50	-0.45	-0.18	-0.54	-0.72	0.61	-0.11	-0.61	-0.35	V19
V20	0.56	0.34	0.19	0.39	-0.23	-0.07	-0.19	0.33	0.62	0.74	0.62	0.63	0.43	0.51	0.04	0.14	0.63	0.60	-0.68	1.00	-0.77	-0.72	-0.76	-0.67	-0.79	-0.78	-0.78	0.71	0.58	0.42	0.40	0.24	0.15	0.63	0.22	0.42	-0.71	0.19	0.19	-0.16	0.43	0.32	0.14	0.66	0.78	-0.58	0.07	0.76	0.36	V20
V21	-0.61	-0.42	-0.31	-0.48	0.09	0.13	0.15	-0.43	-0.52	-0.66	-0.47	-0.46	-0.48	-0.36	0.10	0.01	-0.56	-0.61	0.72	-0.77	1.00	0.74	0.77	0.74	0.70	0.72	0.68	-0.78	-0.60	-0.35	-0.31	-0.04	-0.08	-0.44	-0.12	-0.37	0.72	-0.15	-0.04	0.29	-0.34	-0.30	0.08	-0.59	-0.70	0.59	-0.10	-0.66	-0.34	V21
V22	-0.50	-0.27	-0.11	-0.31	0.36	0.05	0.26	-0.20	-0.67	-0.74	-0.62	-0.65	-0.56	-0.54	-0.16	-0.22	-0.59	-0.59	0.75	-0.72	0.74	1.00	0.80	0.76	0.68	0.76	0.78	-0.78	-0.50	-0.49	-0.38	-0.18	-0.11	-0.61	-0.31	-0.51	0.68	-0.31	-0.23	0.07	-0.53	-0.59	-0.15	-0.62	-0.74	0.62	-0.17	-0.66	-0.45	V22
V23	-0.59	-0.32	-0.15	-0.37	0.22	0.03	0.16	-0.31	-0.66	-0.76	-0.61	-0.62	-0.63	-0.56	-0.11	-0.22	-0.69	-0.70	0.67	-0.76	0.77	0.80	1.00	0.71	0.75	0.75	0.77	-0.79	-0.48	-0.48	-0.42	-0.01	-0.10	-0.58	-0.25	-0.50	0.77	-0.25	-0.20	0.11	-0.47	-0.47	-0.19	-0.52	-0.68	0.68	-0.02	-0.61	-0.26	V23
V24	-0.44	-0.23	-0.05	-0.25	0.24	-0.06	0.09	-0.23	-0.73	-0.76	-0.61	-0.58	-0.52	-0.57	-0.09	-0.16	-0.50	-0.58	0.81	-0.67	0.74	0.76	0.71	1.00	0.74	0.86	0.83	-0.81	-0.43	-0.38	-0.47	-0.19	-0.04	-0.56	-0.33	-0.55	0.69	-0.34	-0.23	0.03	-0.56	-0.54	-0.12	-0.56	-0.73	0.58	-0.10	-0.64	-0.37	V24
V25	-0.46	-0.26	-0.06	-0.27	0.19	-0.08	0.04	-0.28	-0.73	-0.84	-0.76	-0.73	-0.51	-0.57	-0.30	-0.38	-0.66	-0.74	0.62	-0.79	0.70	0.68	0.75	0.74	1.00	0.83	0.89	-0.82	-0.45	-0.46	-0.40	-0.22	0.00	-0.76	-0.38	-0.60	0.72	-0.36	-0.30	-0.01	-0.51	-0.47	-0.30	-0.62	-0.79	0.63	-0.07	-0.71	-0.32	V25
V26	-0.44	-0.20	0.01	-0.21	0.44	0.01	0.26	-0.10	-0.80	-0.89	-0.63	-0.69	-0.51	-0.58	-0.20	-0.27	-0.65	-0.66	0.80	-0.78	0.72	0.76	0.75	0.86	0.83	1.00	0.91	-0.86	-0.44	-0.41	-0.47	-0.23	-0.10	-0.63	-0.31	-0.55	0.76	-0.29	-0.24	0.08	-0.51	-0.49	-0.13	-0.59	-0.79	0.68	-0.06	-0.69	-0.39	V26
V27	-0.33	-0.06	0.16	-0.07	0.40	-0.18	0.08	-0.04	-0.89	-0.95	-0.83	-0.87	-0.60	-0.70	-0.40	-0.47	-0.73	-0.77	0.76	-0.78	0.68	0.78	0.77	0.83	0.89	0.91	1.00	-0.85	-0.36	-0.46	-0.49	-0.27	-0.10	-0.81	-0.48	-0.69	0.74	-0.46	-0.38	-0.08	-0.65	-0.63	-0.30	-0.65	-0.85	0.69	-0.10	-0.75	-0.43	V27
V28	0.46	0.24	0.04	0.26	-0.25	0.04	-0.10	0.23	0.71	0.83	0.63	0.63	0.55	0.55	0.27	0.33	0.61	0.69	-0.77	0.71	-0.78	-0.78	-0.79	-0.81	-0.82	-0.86	-0.85	1.00	0.46	0.46	0.44	0.11	0.03	0.63	0.28	0.53	-0.73	0.29	0.19	-0.10	0.48	0.40	0.19	0.55	0.74	-0.61	0.00	0.67	0.27	V28
V29	0.65	0.57	0.48	0.61	0.15	-0.36	-0.22	0.57	0.20	0.33	0.35	0.19	0.24	0.21	-0.09	0.04	0.26	0.22	-0.24	0.58	-0.60	-0.50	-0.48	-0.43	-0.45	-0.44	-0.36	0.46	1.00	0.27	0.26	0.01	0.15	0.24	0.24	0.30	-0.28	0.25	0.14	0.02	0.26	0.13	0.09	0.54	0.47	-0.06	0.14	0.58	0.27	V29
V30	0.23	0.13	0.06	0.15	-0.07	0.01	-0.04	0.14	0.49	0.48	0.45	0.41	0.32	0.35	0.06	0.16	0.39	0.45	-0.33	0.42	-0.35	-0.49	-0.48	-0.38	-0.46	-0.41	-0.46	0.46	0.27	1.00	0.34	-0.01	-0.14	0.51	0.21	0.33	-0.40	0.19	0.21	-0.05	0.28	0.35	0.04	0.36	0.45	-0.34	0.09	0.40	0.19	V30
V31	0.16	0.06	-0.09	0.04	-0.19	0.15	0.01	0.05	0.46	0.48	0.42	0.41	0.32	0.33	0.19	0.20	0.32	0.36	-0.40	0.40	-0.31	-0.38	-0.42	-0.47	-0.40	-0.47	-0.49	0.44	0.26	0.34	1.00	-0.04	0.05	0.38	0.36	0.43	-0.24	0.37	0.26	0.10	0.40	0.38	0.14	0.46	0.51	-0.25	0.15	0.50	0.27	V31
V32	-0.01	-0.04	-0.15	-0.07	-0.30	-0.01	-0.17	-0.17	0.22	0.20	0.25	0.28	0.03	0.14	0.09	0.09	0.12	-0.03	-0.27	0.24	-0.04	-0.18	-0.01	-0.19	-0.22	-0.23	-0.27	0.11	0.01	-0.01	-0.04	1.00	0.33	0.26	0.20	0.21	-0.09	0.17	0.17	0.12	0.21	0.31	0.13	0.28	0.25	-0.06	0.19	0.24	0.28	V32
V33	-0.03	-0.03	0.02	-0.01	-0.07	-0.16	-0.17	-0.10	-0.01	0.10	0.08	0.06	-0.06	0.12	0.00	0.04	0.05	-0.07	-0.04	0.15	-0.08	-0.11	-0.10	-0.04	0.00	-0.10	-0.10	0.03	0.15	-0.14	0.05	0.33	1.00	0.00	0.13	0.08	0.09	0.13	0.08	0.16	0.03	0.08	-0.15	0.15	0.06	0.14	0.08	0.12	0.14	V33
V34	0.15	-0.05	-0.22	-0.05	-0.29	0.27	0.06	-0.03	0.76	0.78	0.82	0.86	0.46	0.58	0.43	0.51	0.68	0.68	-0.53	0.63	-0.44	-0.61	-0.58	-0.56	-0.76	-0.63	-0.81	0.63	0.24	0.51	0.38	0.26	0.00	1.00	0.51	0.65	-0.53	0.48	0.41	0.17	0.51	0.58	0.36	0.62	0.76	-0.54	0.22	0.66	0.41	V34
V35	-0.01	-0.22	-0.35	-0.22	-0.10	0.40	0.27	-0.10	0.47	0.43	0.55	0.54	0.47	0.52	0.46	0.47	0.23	0.34	-0.26	0.22	-0.12	-0.31	-0.25	-0.33	-0.38	-0.31	-0.48	0.28	0.24	0.21	0.36	0.20	0.13	0.51	1.00	0.94	-0.06	0.93	0.82	0.83	0.73	0.55	0.58	0.51	0.50	-0.11	0.33	0.49	0.40	V35
V36	0.15	-0.13	-0.28	-0.11	-0.17	0.39	0.23	0.00	0.65	0.65	0.69	0.68	0.62	0.65	0.47	0.51	0.42	0.52	-0.46	0.42	-0.37	-0.51	-0.50	-0.55	-0.60	-0.55	-0.69	0.53	0.30	0.33	0.43	0.21	0.08	0.65	0.94	1.00	-0.38	0.88	0.76	0.67	0.80	0.62	0.57	0.57	0.66	-0.37	0.25	0.59	0.38	V36
V37	-0.47	-0.18	-0.10	-0.26	0.21	-0.05	0.07	-0.25	-0.65	-0.73	-0.55	-0.56	-0.54	-0.50	-0.12	-0.21	-0.64	-0.62	0.63	-0.71	0.72	0.68	0.77	0.69	0.72	0.76	0.74	-0.73	-0.28	-0.40	-0.24	-0.09	0.09	-0.53	-0.06	-0.38	1.00	-0.07	-0.03	0.27	-0.39	-0.30	-0.06	-0.29	-0.57	0.83	0.17	-0.42	-0.09	V37
V38	0.01	-0.19	-0.31	-0.18	-0.08	0.33	0.23	-0.09	0.45	0.41	0.54	0.52	0.41	0.50	0.42	0.44	0.25	0.36	-0.24	0.19	-0.15	-0.31	-0.25	-0.34	-0.36	-0.29	-0.46	0.29	0.25	0.19	0.37	0.17	0.13	0.48	0.93	0.88	-0.07	1.00	0.56	0.82	0.65	0.53	0.47	0.45	0.47	-0.15	0.28	0.44	0.37	V38
V39	-0.06	-0.22	-0.33	-0.23	-0.11	0.41	0.27	-0.11	0.36	0.34	0.42	0.43	0.44	0.40	0.40	0.39	0.14	0.23	-0.22	0.19	-0.04	-0.23	-0.20	-0.23	-0.30	-0.24	-0.38	0.19	0.14	0.21	0.26	0.17	0.08	0.41	0.82	0.76	-0.03	0.56	1.00	0.61	0.65	0.42	0.59	0.46	0.41	-0.02	0.31	0.44	0.34	V39
V40	-0.14	-0.27	-0.35	-0.28	-0.02	0.30	0.24	-0.19	0.10	0.05	0.23	0.22	0.23	0.30	0.38	0.35	-0.04	0.07	0.10	-0.16	0.29	0.07	0.11	0.03	-0.01	0.08	-0.08	-0.10	0.02	-0.05	0.10	0.12	0.16	0.17	0.83	0.67	0.27	0.82	0.61	1.00	0.42	0.33	0.46	0.19	0.12	0.13	0.23	0.14	0.23	V40
V41	0.08	-0.13	-0.26	-0.12	-0.15	0.35	0.20	-0.03	0.58	0.56	0.59	0.59	0.65	0.60	0.47	0.47	0.30	0.38	-0.50	0.43	-0.34	-0.53	-0.47	-0.56	-0.51	-0.51	-0.65	0.48	0.26	0.28	0.40	0.21	0.03	0.51	0.73	0.80	-0.39	0.65	0.65	0.42	1.00	0.66	0.48	0.55	0.58	-0.26	0.31	0.55	0.39	V41
V42	-0.01	-0.09	-0.29	-0.15	-0.32	0.26	0.04	-0.14	0.59	0.58	0.58	0.60	0.29	0.51	0.45	0.50	0.39	0.43	-0.45	0.32	-0.30	-0.59	-0.47	-0.54	-0.47	-0.49	-0.63	0.40	0.13	0.35	0.38	0.31	0.08	0.58	0.55	0.62	-0.30	0.53	0.42	0.33	0.66	1.00	0.26	0.45	0.51	-0.28	0.26	0.42	0.42	V42
V43	-0.07	-0.19	-0.39	-0.25	-0.18	0.40	0.23	-0.15	0.28	0.23	0.34	0.38	0.54	0.44	0.39	0.34	0.03	0.20	-0.18	0.14	0.08	-0.15	-0.19	-0.12	-0.30	-0.13	-0.30	0.19	0.09	0.04	0.14	0.13	-0.15	0.36	0.58	0.57	-0.06	0.47	0.59	0.46	0.48	0.26	1.00	0.28	0.28	-0.04	0.11	0.32	0.09	V43
V44	0.33	0.22	0.03	0.20	-0.27	-0.02	-0.17	0.14	0.57	0.60	0.61	0.60	0.39	0.47	0.16	0.20	0.42	0.49	-0.54	0.66	-0.59	-0.62	-0.52	-0.56	-0.62	-0.59	-0.65	0.55	0.54	0.36	0.46	0.28	0.15	0.62	0.51	0.57	-0.29	0.45	0.46	0.19	0.55	0.45	0.28	1.00	0.91	-0.14	0.64	0.94	0.81	V44
V45	0.42	0.20	-0.03	0.20	-0.39	0.08	-0.15	0.14	0.77	0.80	0.72	0.76	0.51	0.62	0.22	0.28	0.64	0.71	-0.72	0.78	-0.70	-0.74	-0.68	-0.73	-0.79	-0.79	-0.85	0.74	0.47	0.45	0.51	0.25	0.06	0.76	0.50	0.66	-0.57	0.47	0.41	0.12	0.58	0.51	0.28	0.91	1.00	-0.53	0.43	0.92	0.70	V45
V46	-0.36	-0.03	0.11	-0.09	0.38	-0.20	0.04	-0.07	-0.67	-0.69	-0.49	-0.60	-0.42	-0.50	-0.17	-0.25	-0.69	-0.70	0.61	-0.58	0.59	0.62	0.68	0.58	0.63	0.68	0.69	-0.61	-0.06	-0.34	-0.25	-0.06	0.14	-0.54	-0.11	-0.37	0.83	-0.15	-0.02	0.13	-0.26	-0.28	-0.04	-0.14	-0.53	1.00	0.29	-0.30	-0.04	V46
V47	-0.04	0.03	0.02	0.01	-0.15	-0.06	-0.13	-0.06	0.12	0.07	0.21	0.16	0.09	0.08	-0.01	-0.01	0.00	-0.06	-0.11	0.07	-0.10	-0.17	-0.02	-0.10	-0.07	-0.06	-0.10	0.00	0.14	0.09	0.15	0.19	0.08	0.22	0.33	0.25	0.17	0.28	0.31	0.23	0.31	0.26	0.11	0.64	0.43	0.29	1.00	0.34	0.64	V47
V48	0.41	0.25	0.01	0.23	-0.25	0.02	-0.13	0.19	0.65	0.69	0.65	0.66	0.46	0.55	0.21	0.24	0.49	0.63	-0.61	0.76	-0.66	-0.66	-0.61	-0.64	-0.71	-0.69	-0.75	0.67	0.58	0.40	0.50	0.24	0.12	0.66	0.49	0.59	-0.42	0.44	0.44	0.14	0.55	0.42	0.32	0.94	0.92	-0.30	0.34	1.00	0.71	V48
V49	0.14	0.03	-0.15	0.00	-0.31	0.04	-0.14	-0.08	0.42	0.40	0.42	0.45	0.17	0.31	0.18	0.18	0.25	0.32	-0.35	0.36	-0.34	-0.45	-0.26	-0.37	-0.32	-0.39	-0.43	0.27	0.27	0.19	0.27	0.28	0.14	0.41	0.40	0.38	-0.09	0.37	0.34	0.23	0.39	0.42	0.09	0.81	0.70	-0.04	0.64	0.71	1.00	V49
V50	-0.01	0.06	-0.10	-0.02	-0.19	0.10	-0.02	-0.03	0.36	0.30	0.35	0.39	0.23	0.33	0.16	0.13	0.21	0.43	-0.29	0.28	-0.23	-0.27	-0.21	-0.25	-0.34	-0.24	-0.37	0.25	0.11	0.26	0.34	0.15	-0.01	0.47	0.38	0.39	-0.06	0.35	0.36	0.22	0.33	0.39	0.31	0.66	0.59	-0.02	0.48	0.60	0.48	V50
V51	0.23	0.10	-0.03	0.10	-0.10	0.00	-0.05	0.08	0.35	0.34	0.47	0.40	0.28	0.35	0.15	0.18	0.15	0.26	-0.28	0.37	-0.36	-0.43	-0.25	-0.38	-0.33	-0.32	-0.39	0.28	0.50	0.19	0.30	0.22	0.18	0.40	0.66	0.59	0.03	0.64	0.51	0.50	0.51	0.41	0.27	0.81	0.65	0.09	0.60	0.73	0.80	V51
V52	0.02	-0.03	-0.12	-0.05	-0.11	-0.02	-0.08	-0.09	0.14	0.09	0.24	0.20	0.08	0.17	0.15	0.12	-0.06	0.07	-0.02	0.04	-0.07	-0.14	0.06	-0.10	-0.02	-0.07	-0.12	-0.02	0.22	0.01	0.08	0.14	0.13	0.18	0.49	0.34	0.26	0.47	0.39	0.49	0.29	0.25	0.15	0.61	0.41	0.25	0.61	0.48	0.82	V52
V53	0.20	0.10	0.09	0.14	0.06	-0.02	0.02	0.16	0.13	0.17	0.26	0.20	0.16	0.21	0.06	0.04	0.04	0.01	-0.26	0.33	-0.22	-0.24	-0.20	-0.32	-0.26	-0.20	-0.26	0.20	0.29	-0.04	0.11	0.42	0.30	0.17	0.43	0.40	-0.07	0.43	0.29	0.30	0.58	0.36	0.17	0.42	0.31	0.05	0.33	0.36	0.32	V53
V54	-0.20	-0.02	0.06	-0.05	0.32	0.00	0.19	0.03	-0.38	-0.47	-0.25	-0.32	-0.35	-0.38	-0.14	-0.24	-0.55	-0.41	0.40	-0.35	0.28	0.30	0.39	0.34	0.42	0.45	0.45	-0.46	0.01	-0.23	-0.15	-0.09	0.07	-0.33	0.13	-0.12	0.65	0.12	0.09	0.31	-0.16	-0.21	-0.03	-0.14	-0.33	0.51	0.12	-0.20	-0.07	V54
V55	-0.05	-0.14	-0.35	-0.21	-0.38	0.33	0.06	-0.20	0.59	0.61	0.56	0.64	0.22	0.46	0.42	0.46	0.55	0.53	-0.50	0.42	-0.36	-0.43	-0.40	-0.42	-0.50	-0.48	-0.63	0.40	0.10	0.23	0.31	0.32	0.15	0.68	0.49	0.55	-0.28	0.48	0.37	0.23	0.46	0.69	0.33	0.54	0.62	-0.34	0.23	0.54	0.46	V55
V56	0.10	0.05	-0.09	0.02	-0.11	0.09	0.01	0.02	0.27	0.33	0.28	0.28	0.17	0.28	0.29	0.31	0.16	0.08	-0.34	0.31	-0.27	-0.37	-0.23	-0.36	-0.25	-0.34	-0.37	0.33	0.55	0.11	0.33	0.30	0.32	0.30	0.56	0.50	0.07	0.52	0.45	0.37	0.51	0.42	0.27	0.56	0.43	0.16	0.35	0.53	0.45	V56
V57	0.30	0.06	-0.09	0.09	-0.08	0.11	0.05	0.12	0.34	0.43	0.40	0.38	0.41	0.39	0.21	0.23	0.22	0.21	-0.37	0.48	-0.49	-0.50	-0.47	-0.41	-0.38	-0.42	-0.45	0.46	0.59	0.18	0.38	0.25	0.28	0.34	0.54	0.53	-0.10	0.48	0.48	0.33	0.51	0.24	0.33	0.64	0.53	0.03	0.30	0.66	0.48	V57
V58	0.55	0.54	0.41	0.54	-0.04	-0.37	-0.33	0.43	0.25	0.37	0.34	0.23	0.14	0.20	-0.09	0.02	0.22	0.22	-0.35	0.61	-0.61	-0.52	-0.49	-0.41	-0.45	-0.46	-0.40	0.48	0.76	0.31	0.33	0.20	0.23	0.33	0.24	0.29	-0.16	0.21	0.22	0.01	0.22	0.20	0.11	0.73	0.60	0.08	0.37	0.73	0.46	V58
V59	0.12	-0.10	-0.22	-0.08	-0.23	0.29	0.11	-0.03	0.68	0.69	0.76	0.79	0.48	0.58	0.45	0.48	0.56	0.62	-0.47	0.61	-0.37	-0.49	-0.50	-0.49	-0.71	-0.55	-0.73	0.58	0.20	0.46	0.38	0.18	-0.04	0.89	0.53	0.65	-0.48	0.50	0.43	0.18	0.58	0.47	0.44	0.60	0.72	-0.50	0.21	0.64	0.34	V59
V60	0.24	0.08	0.02	0.11	-0.10	0.05	-0.02	0.12	0.57	0.60	0.70	0.55	0.40	0.42	0.43	0.55	0.44	0.51	-0.28	0.42	-0.41	-0.46	-0.42	-0.49	-0.56	-0.49	-0.65	0.52	0.36	0.25	0.31	0.14	-0.07	0.61	0.34	0.46	-0.43	0.35	0.23	0.10	0.39	0.42	0.20	0.46	0.55	-0.37	0.11	0.51	0.32	V60
V61	0.13	-0.01	-0.16	-0.02	-0.32	0.01	-0.17	-0.11	0.64	0.60	0.57	0.56	0.28	0.45	0.06	0.14	0.44	0.43	-0.50	0.44	-0.43	-0.51	-0.46	-0.57	-0.45	-0.57	-0.60	0.49	0.19	0.25	0.29	0.22	0.20	0.57	0.31	0.40	-0.30	0.32	0.21	0.04	0.30	0.37	0.04	0.57	0.63	-0.33	0.23	0.58	0.52	V61
V62	-0.12	0.02	-0.21	-0.12	-0.13	0.23	0.12	-0.07	0.25	0.13	0.11	0.17	0.06	0.22	0.17	0.10	0.10	0.25	-0.22	0.02	0.29	0.31	0.27	-0.29	-0.20	-0.19	-0.20	0.13	0.16	0.07	0.40	-0.18	-0.33	0.15	0.32	0.29	0.10	0.31	0.25	0.20	0.22	0.45	0.30	0.29	0.25	0.08	0.15	0.29	0.22	V62
	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47	V48	V49	

Figures highlighted thus [light grey] indicate correlations of meaningful significance between the appropriate variables in the matrix; those highlighted thus [dark grey] indicate correlations of substantial significance

Note: See over for variable names

Table 6.1: Correlation matrix for postcode areas in Adelaide...*cont*

	V50	V51	V52	V53	V54	V55	V56	V57	V58	V59	V60	V61	V62				
V1	-0.01	0.23	0.02	0.20	-0.20	-0.05	0.10	0.30	0.55	0.12	0.24	0.13	-0.12	**V1**	Age distribution	**V1**	Children aged 0 to 4 years
V2	0.06	0.10	-0.03	0.10	-0.02	-0.14	0.05	0.06	0.54	-0.10	0.08	-0.01	0.02	**V2**		**V2**	Children aged 5 to 9 years
V3	-0.10	-0.03	-0.12	0.09	0.06	-0.35	-0.09	-0.09	0.41	-0.22	0.02	-0.16	-0.21	**V3**		**V3**	Children aged 10 to 14 years
V4	-0.02	0.10	-0.05	0.14	-0.05	-0.21	0.02	0.09	0.54	-0.08	0.11	-0.02	-0.12	**V4**		**V4**	Children aged 0 to 14 years
V5	-0.19	-0.10	-0.11	0.06	0.32	-0.38	-0.11	-0.08	-0.04	-0.23	-0.10	-0.32	-0.13	**V5**		**V5**	Children aged 15 to 19 years
V6	0.10	0.00	-0.02	-0.02	0.00	0.33	0.09	0.11	-0.37	0.29	0.05	0.01	0.23	**V6**		**V6**	Children aged 20 to 24 years
V7	-0.02	-0.05	-0.08	0.02	0.19	0.06	0.01	0.05	-0.33	0.11	-0.02	-0.17	0.12	**V7**		**V7**	Children aged 15 to 24 years
V8	-0.03	0.08	-0.09	0.16	0.03	-0.20	0.02	0.12	0.43	-0.03	0.12	-0.11	-0.07	**V8**		**V8**	Children aged 0 to 24 years
V9	0.36	0.35	0.14	0.13	-0.38	0.59	0.27	0.34	0.25	0.68	0.57	0.64	0.25	**V9**	Families	**V9**	Children aged 0 to 14 years living in single parent families
V10	0.30	0.34	0.09	0.17	-0.47	0.61	0.33	0.43	0.37	0.69	0.60	0.60	0.13	**V10**		**V10**	Children aged 0 to 14 years living in low income families
V11	0.35	0.47	0.24	0.26	-0.25	0.56	0.28	0.40	0.34	0.76	0.70	0.57	0.11	**V11**	Housing	**V11**	Children aged 0 to 14 years living in dwellings rented from the SA Housing Trust
V12	0.39	0.40	0.20	0.20	-0.32	0.64	0.28	0.38	0.23	0.79	0.55	0.56	0.17	**V12**		**V12**	Children aged 0 to 14 years living in dwellings with no motor vehicle
V13	0.23	0.28	0.08	0.16	-0.35	0.22	0.17	0.41	0.14	0.48	0.40	0.28	0.06	**V13**	Aboriginal and Torres Strait Islander people	**V13**	Children aged 0 to 14 years identified as Aboriginal and Torres Strait Islanders
V14	0.33	0.35	0.17	0.21	-0.38	0.46	0.28	0.39	0.20	0.58	0.42	0.45	0.22	**V14**		**V14**	People aged 15 to 24 years identified as Aboriginal and Torres Strait Islanders
V15	0.16	0.15	0.15	0.06	-0.14	0.42	0.29	0.21	-0.09	0.45	0.43	0.06	0.17	**V15**	People born in predominantly non-English speaking countries	**V15**	Children aged 0 to 14 born in predominantly non-English speaking countries
V16	0.13	0.18	0.12	0.04	-0.24	0.46	0.31	0.23	0.02	0.48	0.55	0.14	0.10	**V16**		**V16**	People aged 15 to 24 born in predominantly non-English speaking countries
V17	0.21	0.15	-0.06	0.04	-0.55	0.55	0.16	0.22	0.22	0.56	0.44	0.44	0.10	**V17**	Labour force	**V17**	Unemployed males aged 15 to 24 years
V18	0.43	0.26	0.07	0.01	-0.41	0.53	0.08	0.21	0.22	0.62	0.51	0.43	0.25	**V18**		**V18**	Unemployed females aged 15 to 24 years
V19	-0.29	-0.28	-0.02	-0.26	0.40	-0.50	-0.34	-0.37	-0.35	-0.47	-0.28	-0.50	-0.22	**V19**	Education	**V19**	People aged 15 to 24 years who are full-time students
V20	0.28	0.37	0.04	0.33	-0.35	0.42	0.31	0.48	0.61	0.61	0.42	0.44	0.02	**V20**		**V20**	People aged 15 to 24 years who left school at age 15 or less
V21	-0.23	-0.36	-0.07	-0.22	0.28	-0.36	-0.27	-0.49	-0.61	-0.37	-0.41	-0.43	0.29	**V21**		**V21**	Average publicly examined subject achievement scores
V22	-0.27	-0.43	-0.14	-0.24	0.30	-0.43	-0.37	-0.50	-0.52	-0.49	-0.46	-0.51	0.31	**V22**		**V22**	Average publicly assessed subject achievement scores
V23	-0.21	-0.25	0.06	-0.20	0.39	-0.40	-0.23	-0.47	-0.49	-0.50	-0.42	-0.46	0.27	**V23**		**V23**	Average school assessed subject achievement scores
V24	-0.25	-0.38	-0.10	-0.32	0.34	-0.42	-0.36	-0.41	-0.41	-0.49	-0.49	-0.57	-0.29	**V24**	High socioeconomic status variables	**V24**	Mangers and administrators, and professionals
V25	-0.34	-0.33	-0.02	-0.26	0.42	-0.50	-0.25	-0.38	-0.45	-0.71	-0.56	-0.45	-0.20	**V25**		**V25**	Female labour force participation
V26	-0.24	-0.32	-0.07	-0.20	0.45	-0.48	-0.34	-0.42	-0.46	-0.55	-0.49	-0.57	-0.19	**V26**		**V26**	High income families
V27	-0.37	-0.39	-0.12	-0.26	0.45	-0.63	-0.37	-0.45	-0.40	-0.73	-0.65	-0.60	-0.20	**V27**	ABS SEIFA	**V27**	Index of Relative Socioeconomic Disadvantage
V28	0.25	0.28	-0.02	0.20	-0.46	0.40	0.33	0.46	0.48	0.58	0.52	0.49	0.13	**V28**	Income support payments	**V28**	Dependent children of selected pensioners and beneficiaries
V29	0.11	0.50	0.22	0.29	0.01	0.10	0.55	0.59	0.76	0.20	0.36	0.19	0.16	**V29**	Total Fertility Rate	**V29**	Total Fertility Rate
V30	0.26	0.19	0.01	-0.04	-0.23	0.23	0.11	0.18	0.31	0.46	0.25	0.25	0.07	**V30**	Health status	**V30**	Perinatal risk factors
V31	0.34	0.30	0.08	0.11	-0.15	0.31	0.33	0.38	0.33	0.38	0.31	0.29	0.40	**V31**		**V31**	Low birthweight babies
V32	0.15	0.22	0.14	0.42	-0.09	0.32	0.30	0.25	0.20	0.18	0.14	0.22	-0.18	**V32**		**V32**	Overweight and obese 4 year old males
V33	-0.01	0.18	0.13	0.30	0.07	0.15	0.32	0.28	0.23	-0.04	-0.07	0.20	-0.33	**V33**		**V33**	Overweight and obese 4 year old females
V34	0.47	0.40	0.18	0.17	-0.33	0.68	0.30	0.34	0.33	0.89	0.61	0.57	0.15	**V34**		**V34**	Substantiated reports of child abuse and neglect
V35	0.38	0.66	0.49	0.43	0.13	0.49	0.56	0.54	0.24	0.53	0.34	0.31	0.32	**V35**	Hospital admissions - 0 to 14 years	**V35**	Public acute hospitals and private hospitals
V36	0.39	0.59	0.34	0.40	-0.12	0.55	0.50	0.53	0.29	0.65	0.46	0.40	0.29	**V36**		**V36**	Public acute hospitals
V37	-0.06	0.03	0.26	-0.07	0.65	-0.28	0.07	-0.10	-0.16	-0.48	-0.43	-0.30	0.10	**V37**		**V37**	Private hospitals
V38	0.35	0.64	0.47	0.43	0.12	0.48	0.52	0.48	0.21	0.50	0.35	0.32	0.31	**V38**		**V38**	Males
V39	0.36	0.51	0.39	0.29	0.09	0.37	0.45	0.48	0.22	0.43	0.23	0.21	0.25	**V39**		**V39**	Females
V40	0.22	0.50	0.49	0.30	0.31	0.23	0.37	0.33	0.01	0.18	0.10	0.04	0.20	**V40**		**V40**	Same day admissions
V41	0.33	0.51	0.29	0.58	-0.16	0.46	0.51	0.51	0.22	0.58	0.39	0.30	0.22	**V41**		**V41**	Respiratory system diseases
V42	0.39	0.41	0.25	0.36	-0.21	0.69	0.42	0.24	0.20	0.47	0.42	0.37	0.45	**V42**		**V42**	Bronchitis, emphysema and asthma
V43	0.31	0.27	0.15	0.17	-0.03	0.33	0.27	0.33	0.11	0.44	0.20	0.04	0.30	**V43**		**V43**	Injury and poisoning
V44	0.66	0.81	0.61	0.42	-0.14	0.54	0.56	0.64	0.73	0.60	0.46	0.57	0.29	**V44**	Hospital admissions - 15 to 24 years	**V44**	Public acute hospitals and private hospitals
V45	0.59	0.65	0.41	0.31	-0.33	0.62	0.43	0.53	0.60	0.72	0.55	0.63	0.25	**V45**		**V45**	Public acute hospitals
V46	-0.02	0.09	0.25	0.05	0.51	-0.34	0.16	0.03	0.08	-0.50	-0.37	-0.33	0.08	**V46**		**V46**	Private hospitals
V47	0.48	0.60	0.61	0.33	0.12	0.23	0.35	0.30	0.37	0.21	0.11	0.23	0.15	**V47**		**V47**	Males
V48	0.60	0.73	0.48	0.36	-0.20	0.54	0.53	0.66	0.73	0.64	0.51	0.58	0.29	**V48**		**V48**	Females
V49	0.48	0.80	0.82	0.32	-0.07	0.46	0.45	0.48	0.46	0.34	0.32	0.52	0.22	**V49**		**V49**	Same day admissions
V50	1.00	0.47	0.38	0.26	-0.06	0.51	0.20	0.21	0.39	0.45	0.30	0.32	0.41	**V50**		**V50**	Injury and poisoning
V51	0.47	1.00	0.86	0.54	0.19	0.40	0.63	0.68	0.62	0.40	0.34	0.45	0.27	**V51**	Hospital admissions for a surgical procedure - 0 to 24 years	**V51**	All procedures
V52	0.38	0.86	1.00	0.29	0.26	0.28	0.43	0.43	0.35	0.18	0.20	0.33	0.18	**V52**		**V52**	Same day procedures
V53	0.26	0.54	0.29	1.00	0.15	0.21	0.53	0.55	0.35	0.23	0.04	0.22	0.00	**V53**		**V53**	Tonsillectomy and/or adenoidectomy
V54	-0.06	0.19	0.26	0.15	1.00	-0.29	0.10	-0.05	-0.04	-0.26	-0.33	-0.26	0.13	**V54**		**V54**	Myringotomy
V55	0.51	0.40	0.28	0.21	-0.29	1.00	0.41	0.26	0.25	0.57	0.46	0.47	0.41	**V55**	Termination of pregnancy	**V55**	Termination of pregnancy
V56	0.20	0.63	0.43	0.53	0.10	0.41	1.00	0.79	0.62	0.26	0.31	0.35	0.39	**V56**	General medical practitioner services	**V56**	0 to 4 year olds
V57	0.21	0.68	0.43	0.55	-0.05	0.26	0.79	1.00	0.69	0.35	0.34	0.40	0.15	**V57**		**V57**	5 to 14 year olds
V58	0.39	0.62	0.35	0.35	-0.04	0.25	0.62	0.69	1.00	0.26	0.35	0.37	0.20	**V58**		**V58**	15 to 24 year olds
V59	0.45	0.40	0.18	0.23	-0.26	0.57	0.26	0.35	0.26	1.00	0.50	0.52	0.13	**V59**	Service use	**V59**	Family and Youth Services
V60	0.30	0.34	0.20	0.04	-0.33	0.46	0.31	0.34	0.35	0.50	1.00	0.43	0.12	**V60**		**V60**	Community based health services
V61	0.32	0.45	0.33	0.22	-0.26	0.47	0.35	0.40	0.37	0.52	0.43	1.00	0.15	**V61**		**V61**	Child and Adolescent Mental Health services
V62	0.41	0.27	0.18	0.00	0.13	0.41	0.39	0.15	0.20	0.13	0.12	0.15	1.00	**V62**	Immunisation	**V62**	Immunisation
	V50	**V51**	**V52**	**V53**	**V54**	**V55**	**V56**	**V57**	**V58**	**V59**	**V60**	**V61**	**V62**				

Figures highlighted thus [light grey] indicate correlations of meaningful significance between the appropriate variables in the matrix;
those highlighted thus [dark grey] indicate correlations of substantial significance

Table 6.2: Correlation matrix for Statistical Local Areas in Adelaide

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47	V48	V49	
V1	1.00	0.91	0.83	0.94	0.17	-0.54	-0.41	0.89	0.44	0.58	0.51	0.31	0.34	0.39	-0.28	-0.13	0.48	0.54	-0.54	0.78	-0.78	-0.71	-0.81	-0.70	-0.65	-0.63	-0.53	0.77	0.94	0.57	0.46	0.44	-0.10	0.28	0.38	0.05	0.24	-0.70	0.10	-0.04	-0.37	0.28	0.21	-0.21	0.56	0.63	-0.53	-0.01	0.65	V1
V2	0.91	1.00	0.96	0.99	0.25	-0.76	-0.58	0.87	0.17	0.30	0.25	-0.01	0.04	0.08	-0.50	-0.37	0.20	0.26	-0.34	0.56	-0.61	-0.51	-0.61	-0.52	-0.39	-0.42	-0.25	0.54	0.90	0.47	0.33	0.29	-0.25	0.16	0.05	-0.22	-0.07	-0.44	-0.15	-0.30	-0.52	0.03	-0.03	-0.41	0.41	0.42	-0.24	0.03	0.47	V2
V3	0.83	0.96	1.00	0.97	0.43	-0.79	-0.52	0.87	0.01	0.15	0.13	-0.17	-0.09	-0.07	-0.52	-0.36	0.03	0.10	-0.15	0.43	-0.49	-0.41	-0.50	-0.41	-0.29	-0.27	-0.10	0.42	0.83	0.42	0.25	0.23	-0.32	0.04	-0.07	-0.28	-0.16	-0.29	-0.20	-0.35	-0.53	-0.07	-0.16	-0.43	0.33	0.29	-0.07	0.08	0.36	V3
V4	0.94	0.99	0.97	1.00	0.30	-0.73	-0.52	0.90	0.20	0.34	0.30	0.03	0.09	0.12	-0.45	-0.30	0.23	0.30	-0.35	0.60	-0.64	-0.55	-0.65	-0.55	-0.45	-0.45	-0.29	0.59	0.92	0.50	0.35	0.32	-0.24	0.16	0.11	-0.17	-0.01	-0.48	-0.10	-0.25	-0.49	0.07	0.00	-0.37	0.44	0.45	-0.28	0.04	0.50	V4
V5	0.17	0.25	0.43	0.30	1.00	-0.03	0.42	0.56	-0.49	-0.39	-0.19	-0.39	-0.29	-0.36	-0.20	-0.06	-0.34	-0.28	0.53	-0.15	0.12	0.18	0.07	0.23	0.04	0.40	0.38	-0.22	0.12	-0.07	0.19	0.18	-0.40	-0.51	-0.21	-0.02	-0.09	0.23	-0.01	-0.01	0.08	-0.10	-0.29	0.15	-0.13	-0.20	0.26	-0.06	-0.14	V5
V6	-0.54	-0.76	-0.79	-0.73	-0.03	1.00	0.89	-0.40	-0.01	-0.09	-0.07	0.25	0.13	0.10	0.50	0.41	0.08	0.03	0.14	-0.27	0.32	0.33	0.29	0.35	0.10	0.29	0.05	-0.31	-0.68	-0.31	-0.09	-0.01	0.06	-0.20	0.20	0.42	0.32	0.16	0.31	0.53	0.55	0.14	0.13	0.56	-0.31	-0.20	-0.17	-0.27	-0.28	V6
V7	-0.41	-0.58	-0.52	-0.52	0.42	0.89	1.00	-0.11	-0.23	-0.26	-0.15	0.05	-0.01	-0.07	0.36	0.34	-0.08	-0.09	0.36	-0.31	0.34	0.38	0.30	0.42	0.11	0.44	0.21	-0.38	-0.57	-0.31	0.00	0.07	-0.13	-0.41	0.09	0.38	0.25	0.25	0.27	0.48	0.53	0.09	-0.01	0.58	-0.34	-0.27	-0.04	-0.27	-0.31	V7
V8	0.89	0.87	0.87	0.90	0.56	-0.40	-0.11	1.00	0.12	0.27	0.28	0.06	0.10	0.11	-0.35	-0.18	0.23	0.30	-0.22	0.54	-0.58	-0.45	-0.61	-0.43	-0.47	-0.30	-0.23	0.49	0.78	0.43	0.41	0.42	-0.35	-0.02	0.17	-0.01	0.12	-0.44	0.02	-0.05	-0.31	0.13	-0.01	-0.14	0.34	0.39	-0.34	-0.09	0.43	V8
V9	0.44	0.17	0.01	0.20	-0.49	-0.01	-0.23	0.12	1.00	0.96	0.88	0.90	0.84	0.88	0.38	0.39	0.83	0.81	-0.78	0.75	-0.67	-0.80	-0.71	-0.77	-0.77	-0.88	-0.94	0.86	0.45	0.41	0.46	0.36	0.38	0.50	0.86	0.46	0.61	-0.76	0.47	0.37	0.00	0.61	0.72	0.12	0.67	0.80	-0.74	0.17	0.75	V9
V10	0.58	0.30	0.15	0.34	-0.39	-0.09	-0.26	0.27	0.96	1.00	0.90	0.89	0.85	0.86	0.38	0.42	0.88	0.87	-0.77	0.84	-0.75	-0.84	-0.81	-0.83	-0.87	-0.92	-0.97	0.94	0.58	0.47	0.48	0.38	0.36	0.49	0.87	0.45	0.63	-0.85	0.45	0.37	-0.06	0.62	0.67	0.09	0.71	0.84	-0.78	0.15	0.80	V10
V11	0.51	0.25	0.13	0.30	-0.19	-0.07	-0.15	0.28	0.88	0.90	1.00	0.89	0.85	0.88	0.43	0.54	0.78	0.81	-0.58	0.77	-0.65	-0.80	-0.71	-0.72	-0.87	-0.78	-0.92	0.83	0.57	0.38	0.60	0.42	0.40	0.33	0.92	0.53	0.67	-0.75	0.57	0.41	0.11	0.68	0.69	0.24	0.69	0.79	-0.69	0.14	0.77	V11
V12	0.31	-0.01	-0.17	0.03	-0.39	0.25	0.05	0.06	0.90	0.89	0.89	1.00	0.89	0.91	0.50	0.50	0.88	0.85	-0.65	0.71	-0.58	-0.70	-0.64	-0.62	-0.80	-0.72	-0.90	0.73	0.31	0.24	0.47	0.43	0.43	0.39	0.93	0.62	0.72	-0.67	0.58	0.58	0.20	0.71	0.70	0.35	0.63	0.76	-0.71	0.14	0.71	V12
V13	0.34	0.04	-0.09	0.09	-0.29	0.13	-0.01	0.10	0.84	0.85	0.85	0.89	1.00	0.96	0.42	0.47	0.79	0.79	-0.62	0.71	-0.58	-0.70	-0.64	-0.63	-0.81	-0.69	-0.84	0.74	0.36	0.26	0.53	0.47	0.55	0.46	0.92	0.67	0.78	-0.70	0.64	0.61	0.30	0.75	0.73	0.44	0.61	0.72	-0.67	0.18	0.66	V13
V14	0.39	0.08	-0.07	0.12	-0.36	0.10	-0.07	0.11	0.88	0.86	0.88	0.91	0.96	1.00	0.42	0.47	0.78	0.78	-0.64	0.71	-0.59	-0.74	-0.66	-0.64	-0.78	-0.71	-0.86	0.75	0.41	0.28	0.58	0.51	0.52	0.51	0.89	0.61	0.74	-0.73	0.61	0.52	0.29	0.73	0.78	0.38	0.59	0.71	-0.68	0.11	0.67	V14
V15	-0.28	-0.50	-0.52	-0.45	-0.20	0.50	0.36	-0.35	0.38	0.38	0.43	0.50	0.42	0.42	1.00	0.94	0.32	0.27	0.09	-0.06	0.15	-0.10	-0.03	-0.04	-0.22	-0.14	-0.37	0.15	-0.27	-0.04	0.03	-0.11	0.15	0.02	0.46	0.26	0.29	-0.22	0.26	0.24	0.32	0.18	0.35	0.21	-0.08	0.02	-0.28	-0.18	-0.03	V15
V16	-0.13	-0.37	-0.36	-0.30	-0.06	0.41	0.34	-0.18	0.39	0.42	0.54	0.50	0.47	0.47	0.94	1.00	0.34	0.33	0.10	0.05	0.06	-0.17	-0.12	-0.10	-0.35	-0.19	-0.43	0.22	-0.12	0.07	0.15	-0.04	0.20	-0.02	0.54	0.35	0.39	-0.30	0.36	0.30	0.35	0.25	0.34	0.26	0.01	0.12	-0.36	-0.19	0.07	V16
V17	0.48	0.20	0.03	0.23	-0.34	0.08	-0.08	0.23	0.83	0.88	0.78	0.88	0.79	0.78	0.32	0.34	1.00	0.96	-0.68	0.79	-0.67	-0.67	-0.76	-0.62	-0.84	-0.77	-0.88	0.78	0.45	0.34	0.44	0.37	0.28	0.31	0.84	0.50	0.65	-0.76	0.44	0.52	-0.02	0.60	0.55	0.26	0.64	0.79	-0.81	0.07	0.74	V17
V18	0.54	0.26	0.10	0.30	-0.28	0.03	-0.09	0.30	0.81	0.87	0.81	0.85	0.79	0.78	0.27	0.33	0.96	1.00	-0.68	0.83	-0.76	-0.71	-0.79	-0.66	-0.90	-0.78	-0.88	0.81	0.53	0.44	0.52	0.42	0.24	0.28	0.87	0.58	0.72	-0.76	0.53	0.56	0.03	0.62	0.53	0.25	0.72	0.86	-0.80	0.15	0.81	V18
V19	-0.54	-0.34	-0.15	-0.35	0.53	0.14	0.36	-0.22	-0.78	-0.77	-0.58	-0.65	-0.62	-0.64	0.09	0.10	-0.68	-0.68	1.00	-0.83	0.79	0.72	0.71	0.85	0.63	0.85	0.79	-0.80	-0.53	-0.40	-0.38	-0.42	-0.42	-0.58	-0.60	-0.37	-0.53	0.71	-0.36	-0.33	0.15	-0.59	-0.58	0.02	-0.69	-0.79	0.65	-0.24	-0.74	V19
V20	0.78	0.56	0.43	0.60	-0.15	-0.27	-0.31	0.54	0.75	0.84	0.77	0.71	0.71	0.71	-0.06	0.05	0.79	0.83	-0.83	1.00	-0.88	-0.84	-0.90	-0.84	-0.90	-0.86	-0.85	0.91	0.78	0.52	0.59	0.59	0.37	0.40	0.74	0.48	0.64	-0.79	0.47	0.43	-0.12	0.69	0.52	0.14	0.84	0.92	-0.70	0.26	0.91	V20
V21	-0.78	-0.61	-0.49	-0.64	0.12	0.32	0.34	-0.58	-0.67	-0.75	-0.65	-0.58	-0.58	-0.59	0.15	0.06	-0.67	-0.76	0.79	-0.88	1.00	0.86	0.89	0.85	0.78	0.81	0.75	-0.86	-0.78	-0.45	-0.63	-0.53	-0.11	-0.44	-0.62	-0.36	-0.51	0.71	-0.38	-0.29	0.23	-0.53	-0.47	0.07	-0.81	-0.88	0.63	-0.32	-0.86	V21
V22	-0.71	-0.51	-0.41	-0.55	0.18	0.33	0.38	-0.45	-0.80	-0.84	-0.80	-0.70	-0.70	-0.74	-0.10	-0.17	-0.67	-0.71	0.72	-0.84	0.86	1.00	0.91	0.84	0.78	0.84	0.82	-0.90	-0.76	-0.48	-0.65	-0.55	-0.26	-0.60	-0.70	-0.34	-0.50	0.73	-0.39	-0.21	0.13	-0.57	-0.60	0.03	-0.79	-0.83	0.56	-0.32	-0.83	V22
V23	-0.81	-0.61	-0.50	-0.65	0.07	0.29	0.30	-0.61	-0.71	-0.81	-0.71	-0.64	-0.64	-0.66	-0.03	-0.12	-0.76	-0.79	0.71	-0.90	0.89	0.91	1.00	0.81	0.82	0.82	0.80	-0.90	-0.79	-0.50	-0.65	-0.55	-0.14	-0.50	-0.67	-0.37	-0.55	0.81	-0.37	-0.30	0.17	-0.56	-0.52	-0.01	-0.76	-0.85	0.69	-0.18	-0.84	V23
V24	-0.70	-0.52	-0.41	-0.55	0.23	0.35	0.42	-0.43	-0.77	-0.83	-0.72	-0.62	-0.63	-0.64	-0.04	-0.10	-0.62	-0.66	0.85	-0.84	0.85	0.84	0.81	1.00	0.75	0.94	0.86	-0.93	-0.75	-0.49	-0.53	-0.46	-0.33	-0.53	-0.63	-0.34	-0.53	0.80	-0.39	-0.23	0.19	-0.61	-0.62	0.14	-0.77	-0.84	0.62	-0.28	-0.82	V24
V25	-0.65	-0.39	-0.29	-0.45	0.04	0.10	0.11	-0.47	-0.77	-0.87	-0.87	-0.80	-0.81	-0.78	-0.22	-0.35	-0.84	-0.90	0.63	-0.90	0.78	0.78	0.82	0.75	1.00	0.79	0.89	-0.87	-0.66	-0.51	-0.62	-0.57	-0.32	-0.23	-0.87	-0.62	-0.75	0.77	-0.59	-0.57	-0.05	-0.74	-0.55	-0.31	-0.81	-0.90	0.71	-0.26	-0.88	V25
V26	-0.63	-0.42	-0.27	-0.45	0.40	0.29	0.44	-0.30	-0.88	-0.92	-0.78	-0.72	-0.69	-0.71	-0.14	-0.19	-0.77	-0.78	0.85	-0.86	0.81	0.84	0.82	0.94	0.79	1.00	0.93	-0.95	-0.67	-0.50	-0.49	-0.36	-0.39	-0.55	-0.71	-0.38	-0.57	0.85	-0.41	-0.28	0.17	-0.61	-0.66	0.06	-0.77	-0.87	0.71	-0.23	-0.84	V26
V27	-0.53	-0.25	-0.10	-0.29	0.38	0.05	0.21	-0.23	-0.94	-0.97	-0.92	-0.90	-0.84	-0.86	-0.37	-0.43	-0.88	-0.88	0.79	-0.85	0.75	0.82	0.80	0.86	0.89	0.93	1.00	-0.91	-0.56	-0.43	-0.54	-0.42	-0.44	-0.45	-0.88	-0.54	-0.71	0.84	-0.54	-0.46	0.01	-0.73	-0.73	-0.16	-0.75	-0.87	0.79	-0.18	-0.83	V27
V28	0.77	0.54	0.42	0.59	-0.22	-0.31	-0.38	0.49	0.86	0.94	0.83	0.73	0.74	0.75	0.15	0.22	0.78	0.81	-0.80	0.91	-0.86	-0.90	-0.90	-0.93	-0.87	-0.95	-0.91	1.00	0.78	0.56	0.54	0.46	0.28	0.51	0.76	0.38	0.58	-0.89	0.41	0.28	-0.17	0.59	0.59	-0.04	0.77	0.87	-0.72	0.20	0.85	V28
V29	0.94	0.90	0.83	0.92	0.12	-0.68	-0.57	0.78	0.45	0.58	0.57	0.31	0.36	0.41	-0.27	-0.12	0.45	0.53	-0.53	0.78	-0.78	-0.76	-0.79	-0.75	-0.66	-0.67	-0.56	0.78	1.00	0.57	0.52	0.46	0.03	0.35	0.38	0.07	0.25	-0.67	0.16	-0.06	-0.33	0.33	0.25	-0.23	0.64	0.66	-0.43	0.14	0.71	V29
V30	0.57	0.47	0.42	0.50	-0.07	-0.31	-0.31	0.43	0.41	0.47	0.38	0.24	0.26	0.28	-0.04	0.07	0.34	0.44	-0.40	0.52	-0.45	-0.48	-0.50	-0.49	-0.51	-0.50	-0.43	0.56	0.57	1.00	0.26	0.41	0.03	0.15	0.38	0.21	0.33	-0.52	0.25	0.12	-0.10	0.22	0.17	-0.06	0.46	0.52	-0.43	0.07	0.52	V30
V31	0.46	0.33	0.25	0.35	0.19	-0.09	0.00	0.41	0.46	0.48	0.60	0.47	0.53	0.58	0.03	0.15	0.44	0.52	-0.38	0.59	-0.63	-0.65	-0.65	-0.53	-0.62	-0.49	-0.54	0.54	0.52	0.26	1.00	0.67	0.18	0.32	0.55	0.56	0.62	-0.49	0.62	0.39	0.30	0.68	0.63	0.32	0.63	0.66	-0.40	0.30	0.66	V31
V32	0.44	0.29	0.23	0.32	0.18	-0.01	0.07	0.42	0.36	0.38	0.42	0.43	0.47	0.51	-0.11	-0.04	0.37	0.42	-0.42	0.59	-0.53	-0.55	-0.55	-0.46	-0.57	-0.36	-0.42	0.46	0.46	0.41	0.67	1.00	0.20	0.18	0.45	0.43	0.49	-0.41	0.37	0.44	0.14	0.59	0.42	0.29	0.59	0.58	-0.26	0.25	0.62	V32
V33	-0.10	-0.25	-0.32	-0.24	-0.40	0.06	-0.13	-0.35	0.38	0.36	0.40	0.43	0.55	0.52	0.15	0.20	0.28	0.24	-0.42	0.37	-0.11	-0.26	-0.14	-0.33	-0.32	-0.39	-0.44	0.28	0.03	0.03	0.18	0.20	1.00	0.41	0.44	0.55	0.56	-0.28	0.53	0.49	0.40	0.62	0.49	0.46	0.33	0.34	-0.21	0.20	0.33	V33
V34	0.28	0.16	0.04	0.16	-0.51	-0.20	-0.41	-0.02	0.50	0.49	0.33	0.39	0.46	0.51	0.02	-0.02	0.31	0.28	-0.58	0.40	-0.44	-0.60	-0.50	-0.53	-0.23	-0.55	-0.45	0.51	0.35	0.15	0.32	0.18	0.41	1.00	0.30	0.16	0.28	-0.50	0.26	0.00	0.08	0.31	0.50	-0.10	0.33	0.38	-0.33	0.09	0.36	V34
V35	0.38	0.05	-0.07	0.11	-0.21	0.20	0.09	0.17	0.86	0.87	0.92	0.93	0.92	0.89	0.46	0.54	0.84	0.87	-0.60	0.74	-0.62	-0.70	-0.67	-0.63	-0.87	-0.71	-0.88	0.76	0.38	0.38	0.55	0.45	0.44	0.30	1.00	0.74	0.85	-0.72	0.72	0.68	0.31	0.73	0.67	0.45	0.65	0.79	-0.77	0.12	0.74	V35
V36	0.05	-0.22	-0.28	-0.17	-0.02	0.42	0.38	-0.01	0.46	0.45	0.53	0.62	0.67	0.61	0.26	0.35	0.50	0.58	-0.37	0.48	-0.36	-0.34	-0.37	-0.34	-0.62	-0.38	-0.54	0.38	0.07	0.21	0.56	0.43	0.55	0.16	0.74	1.00	0.96	-0.35	0.96	0.93	0.72	0.83	0.59	0.79	0.52	0.59	-0.49	0.26	0.54	V36
V37	0.24	-0.07	-0.16	-0.01	-0.09	0.32	0.25	0.12	0.61	0.63	0.67	0.72	0.78	0.74	0.29	0.39	0.65	0.72	-0.53	0.64	-0.51	-0.50	-0.55	-0.53	-0.75	-0.57	-0.71	0.58	0.25	0.33	0.62	0.49	0.56	0.28	0.85	0.96	1.00	-0.59	0.93	0.88	0.60	0.86	0.68	0.69	0.59	0.71	-0.67	0.16	0.65	V37
V38	-0.70	-0.44	-0.29	-0.48	0.23	0.16	0.25	-0.44	-0.76	-0.85	-0.75	-0.67	-0.70	-0.73	-0.22	-0.30	-0.76	-0.76	0.71	-0.79	0.71	0.73	0.81	0.80	0.77	0.85	0.84	-0.89	-0.67	-0.52	-0.49	-0.41	-0.28	-0.50	-0.72	-0.35	-0.59	1.00	-0.37	-0.27	0.06	-0.53	-0.61	-0.04	-0.51	-0.69	0.85	0.18	-0.66	V38
V39	0.10	-0.15	-0.20	-0.10	-0.01	0.31	0.27	0.02	0.47	0.45	0.57	0.58	0.64	0.61	0.26	0.36	0.44	0.53	-0.36	0.47	-0.38	-0.39	-0.37	-0.39	-0.59	-0.41	-0.54	0.41	0.16	0.25	0.62	0.37	0.53	0.26	0.72	0.96	0.93	-0.37	1.00	0.79	0.75	0.80	0.62	0.71	0.53	0.59	-0.46	0.28	0.55	V39
V40	-0.04	-0.30	-0.35	-0.25	-0.01	0.53	0.48	-0.05	0.37	0.37	0.41	0.58	0.61	0.52	0.24	0.30	0.52	0.56	-0.33	0.43	-0.29	-0.21	-0.30	-0.23	-0.57	-0.28	-0.46	0.28	-0.06	0.12	0.39	0.44	0.49	0.00	0.68	0.93	0.88	-0.27	0.79	1.00	0.59	0.75	0.45	0.78	0.44	0.51	-0.46	0.20	0.46	V40
V41	-0.37	-0.52	-0.53	-0.49	0.08	0.55	0.53	-0.31	0.00	-0.06	0.11	0.20	0.30	0.29	0.32	0.35	-0.02	0.03	0.15	-0.12	0.23	0.13	0.17	0.19	-0.05	0.17	-0.01	-0.17	-0.33	-0.10	0.30	0.14	0.40	0.08	0.31	0.72	0.60	0.06	0.75	0.59	1.00	0.43	0.31	0.74	-0.03	-0.01	-0.04	0.02	-0.04	V41
V42	0.28	0.03	-0.07	0.07	-0.10	0.14	0.09	0.13	0.61	0.62	0.68	0.71	0.75	0.73	0.18	0.25	0.60	0.62	-0.59	0.69	-0.53	-0.57	-0.56	-0.61	-0.74	-0.61	-0.73	0.59	0.33	0.22	0.68	0.59	0.62	0.31	0.73	0.83	0.86	-0.53	0.80	0.75	0.43	1.00	0.82	0.60	0.71	0.75	-0.48	0.37	0.73	V42
V43	0.21	-0.03	-0.16	0.00	-0.29	0.13	-0.01	-0.01	0.72	0.67	0.69	0.70	0.73	0.78	0.35	0.34	0.55	0.53	-0.58	0.52	-0.47	-0.60	-0.52	-0.62	-0.55	-0.66	-0.73	0.59	0.25	0.17	0.63	0.42	0.49	0.50	0.67	0.59	0.68	-0.61	0.62	0.45	0.31	0.82	1.00	0.39	0.52	0.60	-0.52	0.17	0.56	V43
V44	-0.21	-0.41	-0.43	-0.37	0.15	0.56	0.58	-0.14	0.12	0.09	0.24	0.35	0.44	0.38	0.21	0.26	0.26	0.25	0.02	0.14	0.07	0.03	-0.01	0.14	-0.31	0.06	-0.16	-0.04	-0.23	-0.06	0.32	0.29	0.46	-0.10	0.45	0.79	0.69	-0.04	0.71	0.78	0.74	0.60	0.39	1.00	0.11	0.17	-0.23	0.04	0.13	V44
V45	0.56	0.41	0.33	0.44	-0.13	-0.31	-0.34	0.34	0.67	0.71	0.69	0.63	0.61	0.59	-0.08	0.01	0.64	0.72	-0.69	0.84	-0.81	-0.79	-0.76	-0.77	-0.81	-0.77	-0.75	0.77	0.64	0.46	0.63	0.59	0.33	0.33	0.65	0.52	0.59	-0.51	0.53	0.44	-0.03	0.71	0.52	0.11	1.00	0.96	-0.37	0.68	0.97	V45
V46	0.63	0.42	0.29	0.45	-0.20	-0.20	-0.27	0.39	0.80	0.84	0.79	0.76	0.72	0.71	0.02	0.12	0.79	0.86	-0.79	0.92	-0.88	-0.83	-0.85	-0.84	-0.90	-0.87	-0.87	0.87	0.66	0.52	0.66	0.58	0.34	0.38	0.79	0.59	0.71	-0.69	0.59	0.51	-0.01	0.75	0.60	0.17	0.96	1.00	-0.63	0.47	0.99	V46
V47	-0.53	-0.24	-0.07	-0.28	0.26	-0.17	-0.04	-0.34	-0.74	-0.78	-0.69	-0.71	-0.67	-0.68	-0.28	-0.36	-0.81	-0.80	0.65	-0.70	0.63	0.56	0.69	0.62	0.71	0.71	0.79	-0.72	-0.43	-0.43	-0.40	-0.26	-0.21	-0.33	-0.77	-0.49	-0.67	0.85	-0.46	-0.46	-0.04	-0.48	-0.52	-0.23	-0.37	-0.63	1.00	0.31	-0.54	V47
V48	-0.01	0.03	0.08	0.04	-0.06	-0.27	-0.27	-0.09	0.17	0.15	0.14	0.14	0.18	0.11	-0.18	-0.19	0.07	0.15	-0.24	0.26	-0.32	-0.32	-0.18	-0.28	-0.26	-0.23	-0.18	0.20	0.14	0.07	0.30	0.25	0.20	0.09	0.12	0.26	0.16	0.18	0.28	0.20	0.02	0.37	0.17	0.04	0.68	0.47	0.31	1.00	0.49	V48
V49	0.65	0.47	0.36	0.50	-0.14	-0.28	-0.31	0.43	0.75	0.80	0.77	0.71	0.66	0.67	-0.03	0.07	0.74	0.81	-0.74	0.91	-0.86	-0.83	-0.84	-0.82	-0.88	-0.84	-0.83	0.85	0.71	0.52	0.66	0.62	0.33	0.36	0.74	0.54	0.65	-0.66	0.55	0.46	-0.04	0.73	0.56	0.13	0.97	0.99	-0.54	0.49	1.00	V49
V50	0.26	0.16	0.11	0.18	-0.23	-0.25	-0.33	0.04	0.54	0.53	0.48	0.48	0.42	0.41	0.03	0.04	0.40	0.47	-0.53	0.51	-0.59	-0.62	-0.50	-0.62	-0.51	-0.61	-0.56	0.56	0.36	0.28	0.43	0.41	0.27	0.32	0.44	0.33	0.36	-0.26	0.36	0.26	-0.05	0.49	0.43	-0.11	0.85	0.74	-0.08	0.77	0.77	V50
V51	0.21	0.08	0.01	0.10	-0.08	0.00	-0.03	0.09	0.47	0.45	0.49	0.52	0.53	0.48	-0.10	-0.04	0.53	0.61	-0.50	0.59	-0.61	-0.48	-0.51	-0.43	-0.62	-0.47	-0.53	0.44	0.27	0.13	0.63	0.40	0.32	0.19	0.57	0.70	0.67	-0.25	0.69	0.63	0.27	0.74	0.53	0.46	0.80	0.77	-0.30	0.66	0.75	V51
V52	0.35	0.28	0.25	0.30	-0.08	-0.36	-0.37	0.17	0.50	0.50	0.54	0.44	0.48	0.46	-0.12	-0.05	0.32	0.43	-0.53	0.59	-0.62	-0.65	-0.50	-0.66	-0.57	-0.60	-0.54	0.58	0.49	0.27	0.56	0.48	0.37	0.31	0.47	0.43	0.44	-0.27	0.49	0.30	0.06	0.62	0.48	0.04	0.89	0.76	-0.04	0.82	0.79	V52
V53	-0.08	-0.05	-0.03	-0.05	-0.15	-0.26	-0.30	-0.21	0.22	0.16	0.20	0.16	0.16	0.14	-0.02	-0.04	-0.02	0.06	-0.19	0.10	-0.24	-0.31	-0.08	-0.31	-0.12	-0.25	-0.18	0.18	0.09	-0.01	0.22	0.12	0.22	0.17	0.13	0.13	0.07	0.13	0.20	0.03	0.03	0.23	0.23	-0.17	0.55	0.36	0.33	0.82	0.40	V53
V54	0.36	0.27	0.24	0.30	0.17	-0.15	-0.06	0.32	0.32	0.34	0.36	0.34	0.40	0.38	-0.25	-0.18	0.32	0.36	-0.44	0.59	-0.52	-0.49	-0.52	-0.52	-0.53	-0.47	-0.42	0.46	0.41	0.11	0.71	0.63	0.37	0.29	0.35	0.55	0.54	-0.27	0.54	0.48	0.22	0.75	0.52	0.34	0.75	0.66	-0.11	0.61	0.70	V54
V55	-0.23	-0.06	0.02	-0.08	0.23	0.07	0.17	-0.01	-0.28	-0.37	-0.33	-0.24	-0.32	-0.36	-0.31	-0.39	-0.32	-0.25	0.14	-0.20	0.09	0.19	0.22	0.19	0.24	0.30	0.32	-0.33	-0.18	-0.07	0.03	0.04	-0.25	-0.26	-0.27	0.07	-0.11	0.58	0.05	0.11	0.08	-0.03	-0.23	0.02	0.06	-0.06	0.37	0.45	-0.06	V55
V56	0.26	0.04	0.02	0.10	-0.15	-0.04	-0.10	0.07	0.67	0.64	0.67	0.66	0.60	0.57	0.18	0.25	0.57	0.60	-0.45	0.55	-0.55	-0.64	-0.50	-0.52	-0.65	-0.59	-0.64	0.62	0.34	0.13	0.33	0.27	0.35	0.15	0.68	0.41	0.47	-0.41	0.42	0.37	-0.02	0.47	0.43	0.18	0.66	0.65	-0.32	0.39	0.66	V56
V57	0.39	0.22	0.09	0.23	-0.40	-0.15	-0.32	0.11	0.70	0.69	0.64	0.58	0.55	0.67	0.33	0.35	0.44	0.42	-0.62	0.52	-0.48	-0.65	-0.49	-0.72	-0.47	-0.69	-0.70	0.66	0.46	0.28	0.40	0.36	0.34	0.54	0.48	0.15	0.30	-0.60	0.22	0.01	-0.02	0.41	0.54	-0.22	0.44	0.50	-0.42	0.09	0.50	V57
V58	0.49	0.20	0.05	0.24	-0.30	0.03	-0.11	0.23	0.84	0.86	0.79	0.83	0.84	0.89	0.36	0.38	0.71	0.69	-0.70	0.72	-0.66	-0.80	-0.70	-0.76	-0.73	-0.76	-0.84	0.81	0.49	0.26	0.53	0.57	0.39	0.57	0.77	0.42	0.58	-0.75	0.42	0.34	0.09	0.61	0.65	0.09	0.62	0.70	-0.59	0.15	0.68	V58
V59	0.87	0.76	0.65	0.78	-0.07	-0.54	-0.52	0.65	0.66	0.75	0.70	0.53	0.58	0.62	-0.16	-0.03	0.62	0.68	-0.71	0.88	-0.88	-0.85	-0.85	-0.85	-0.78	-0.80	-0.74	0.89	0.91	0.50	0.57	0.55	0.15	0.42	0.56	0.20	0.38	-0.74	0.24	0.10	-0.28	0.45	0.38	-0.18	0.78	0.82	-0.52	0.27	0.84	V59
V60	0.38	0.10	-0.01	0.15	-0.04	0.19	0.16	0.26	0.71	0.76	0.86	0.83	0.83	0.77	0.36	0.49	0.79	0.84	-0.50	0.73	-0.61	-0.61	-0.65	-0.57	-0.89	-0.64	-0.81	0.68	0.38	0.28	0.61	0.43	0.42	0.17	0.94	0.78	0.86	-0.65	0.73	0.75	0.32	0.76	0.58	0.52	0.65	0.78	-0.75	0.14	0.73	V60
V61	0.33	0.16	0.14	0.21	-0.11	-0.12	-0.15	0.17	0.61	0.67	0.75	0.54	0.55	0.56	0.60	0.72	0.51	0.56	-0.27	0.42	-0.42	-0.52	-0.46	-0.54	-0.59	-0.55	-0.68	0.61	0.40	0.31	0.30	0.03	0.14	0.13	0.62	0.22	0.35	-0.55	0.29	0.10	-0.06	0.25	0.35	-0.09	0.36	0.46	-0.53	0.00	0.43	V61
V62	0.39	0.28	0.24	0.31	-0.24	-0.35	-0.42	0.15	0.65	0.64	0.61	0.49	0.53	0.52	-0.01	0.09	0.46	0.53	-0.64	0.63	-0.71	-0.70	-0.61	-0.77	-0.59	-0.74	-0.68	0.70	0.51	0.35	0.40	0.37	0.37	0.38	0.55	0.31	0.41	-0.50	0.33	0.25	-0.22	0.44	0.44	-0.12	0.73	0.74	-0.40	0.44	0.73	V62
V63	-0.44	-0.23	-0.16	-0.28	0.09	0.05	0.08	-0.29	-0.51	-0.63	-0.55	-0.61	-0.64	-0.57	-0.17	-0.22	-0.75	-0.71	0.42	-0.68	0.51	0.60	0.69	0.41	0.71	0.53	0.60	-0.62	-0.46	-0.32	-0.45	-0.34	-0.37	-0.42	-0.63	-0.50	-0.59	0.56	-0.47	-0.47	-0.16	-0.52	-0.32	-0.37	-0.56	-0.63	0.55	-0.16	-0.60	V63
	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47	V48	V49	

Figures highlighted thus [light grey] indicate correlations of meaningful significance between the appropriate variables in the matrix; those highlighted thus [dark grey] indicate correlations of substantial significance

Note: See over for variable names

Table 6.2: Correlation matrix for Statistical Local Areas in Adelaide...*cont*

	V50	V51	V52	V53	V54	V55	V56	V57	V58	V59	V60	V61	V62	V63				
V1	0.26	0.21	0.35	-0.08	0.36	-0.23	0.26	0.39	0.49	0.87	0.38	0.33	0.39	-0.44	**V1**	Age distribution	**V1**	Children aged 0 to 4 years
V2	0.16	0.08	0.28	-0.05	0.27	-0.06	0.04	0.22	0.20	0.76	0.10	0.16	0.28	-0.23	**V2**		**V2**	Children aged 5 to 9 years
V3	0.11	0.01	0.25	-0.03	0.24	0.02	0.02	0.09	0.05	0.65	-0.01	0.14	0.24	-0.16	**V3**		**V3**	Children aged 10 to 14 years
V4	0.18	0.10	0.30	-0.05	0.30	-0.08	0.10	0.23	0.24	0.78	0.15	0.21	0.31	-0.28	**V4**		**V4**	Children aged 0 to 14 years
V5	-0.23	-0.08	-0.08	-0.15	0.17	0.23	-0.15	-0.40	-0.30	-0.07	-0.04	-0.11	-0.24	0.09	**V5**		**V5**	Children aged 15 to 19 years
V6	-0.25	0.00	-0.36	-0.26	-0.15	0.07	-0.04	-0.15	0.03	-0.54	0.19	-0.12	-0.35	0.05	**V6**		**V6**	Children aged 20 to 24 years
V7	-0.33	-0.03	-0.37	-0.30	-0.06	0.17	-0.10	-0.32	-0.11	-0.52	0.16	-0.15	-0.42	0.08	**V7**		**V7**	Children aged 15 to 24 years
V8	0.04	0.09	0.17	-0.21	0.32	-0.01	0.07	0.11	0.23	0.65	0.26	0.17	0.15	-0.29	**V8**		**V8**	Children aged 0 to 24 years
V9	0.54	0.47	0.50	0.22	0.32	-0.28	0.67	0.70	0.84	0.66	0.71	0.61	0.65	-0.51	**V9**	Families	**V9**	Children aged 0 to 14 years living in single parent families
V10	0.53	0.45	0.50	0.16	0.34	-0.37	0.64	0.69	0.86	0.75	0.76	0.67	0.64	-0.63	**V10**		**V10**	Children aged 0 to 14 years living in low income families
V11	0.48	0.49	0.54	0.20	0.36	-0.33	0.67	0.64	0.79	0.70	0.86	0.75	0.61	-0.55	**V11**	Housing	**V11**	Children aged 0 to 14 years living in dwellings rented from the SA Housing Trust
V12	0.48	0.52	0.44	0.16	0.34	-0.24	0.66	0.58	0.83	0.53	0.83	0.54	0.49	-0.61	**V12**		**V12**	Children aged 0 to 14 years living in dwellings with no motor vehicle
V13	0.42	0.53	0.48	0.16	0.40	-0.32	0.60	0.55	0.84	0.58	0.83	0.55	0.53	-0.64	**V13**	Aboriginal and Torres Strait Islander people	**V13**	Children aged 0 to 14 years identified as Aboriginal and Torres Strait Islanders
V14	0.41	0.48	0.46	0.14	0.38	-0.36	0.57	0.67	0.89	0.62	0.77	0.56	0.52	-0.57	**V14**		**V14**	People aged 15 to 24 years identified as Aboriginal and Torres Strait Islanders
V15	0.03	-0.10	-0.12	-0.02	-0.25	-0.31	0.18	0.33	0.36	-0.16	0.36	0.60	-0.01	-0.17	**V15**	People born in predominantly non-English speaking countries	**V15**	Children aged 0 to 14 born in predominantly non-English speaking countries
V16	0.04	-0.04	-0.05	-0.04	-0.18	-0.39	0.25	0.35	0.38	-0.03	0.49	0.72	0.09	-0.22	**V16**		**V16**	People aged 15 to 24 born in predominantly non-English speaking countries
V17	0.40	0.53	0.32	-0.02	0.32	-0.32	0.57	0.44	0.71	0.62	0.79	0.51	0.46	-0.75	**V17**	Labour force	**V17**	Unemployed males aged 15 to 24 years
V18	0.47	0.61	0.43	0.06	0.36	-0.25	0.60	0.42	0.69	0.68	0.84	0.56	0.53	-0.71	**V18**		**V18**	Unemployed females aged 15 to 24 years
V19	-0.53	-0.50	-0.53	-0.19	-0.44	0.14	-0.45	-0.62	-0.70	-0.71	-0.50	-0.27	-0.64	0.42	**V19**	Education	**V19**	People aged 15 to 24 years who are full-time students
V20	0.51	0.59	0.59	0.10	0.59	-0.20	0.55	0.52	0.72	0.88	0.73	0.42	0.63	-0.68	**V20**		**V20**	People aged 15 to 24 years who left school at age 15 or less
V21	-0.59	-0.61	-0.62	-0.24	-0.52	0.09	-0.55	-0.48	-0.66	-0.88	-0.61	-0.42	-0.71	0.51	**V21**		**V21**	Average publicly examined subject achievement scores
V22	-0.62	-0.48	-0.65	-0.31	-0.49	0.19	-0.64	-0.65	-0.80	-0.85	-0.61	-0.52	-0.70	0.60	**V22**		**V22**	Average publicly assessed subject achievement scores
V23	-0.50	-0.51	-0.50	-0.08	-0.52	0.22	-0.50	-0.49	-0.70	-0.85	-0.65	-0.46	-0.61	0.69	**V23**		**V23**	Average school assessed subject achievement scores
V24	-0.62	-0.43	-0.66	-0.31	-0.52	0.19	-0.52	-0.72	-0.76	-0.85	-0.57	-0.54	-0.77	0.41	**V24**	High socioeconomic status variables	**V24**	Mangers and administrators, and professionals
V25	-0.51	-0.62	-0.57	-0.12	-0.53	0.24	-0.65	-0.47	-0.73	-0.78	-0.89	-0.59	-0.59	0.71	**V25**		**V25**	Female labour force participation
V26	-0.61	-0.47	-0.60	-0.25	-0.47	0.30	-0.59	-0.69	-0.76	-0.80	-0.64	-0.55	-0.74	0.53	**V26**		**V26**	High income families
V27	-0.56	-0.53	-0.54	-0.18	-0.42	0.32	-0.64	-0.70	-0.84	-0.74	-0.81	-0.68	-0.68	0.60	**V27**	ABS SEIFA	**V27**	Index of Relative Socioeconomic Disadvantage
V28	0.56	0.44	0.58	0.18	0.46	-0.33	0.62	0.66	0.81	0.89	0.68	0.61	0.70	-0.62	**V28**	Income support payments	**V28**	Dependent children of selected pensioners and beneficiaries
V29	0.36	0.27	0.49	0.09	0.41	-0.18	0.34	0.46	0.49	0.91	0.38	0.40	0.51	-0.46	**V29**	Total Fertility Rate	**V29**	Total Fertility Rate
V30	0.28	0.13	0.27	-0.01	0.11	-0.07	0.13	0.28	0.26	0.50	0.28	0.31	0.35	-0.32	**V30**	Health status	**V30**	Infant deaths
V31	0.43	0.63	0.56	0.22	0.71	0.03	0.33	0.40	0.53	0.57	0.61	0.30	0.40	-0.45	**V31**		**V31**	Deaths from all causes, 15-24 yrs
V32	0.41	0.40	0.48	0.12	0.63	0.04	0.27	0.36	0.57	0.55	0.43	0.03	0.37	-0.34	**V32**		**V32**	Deaths from injury and poisoning, 15-24 yrs
V33	0.27	0.32	0.37	0.22	0.37	-0.25	0.35	0.34	0.39	0.15	0.42	0.14	0.37	-0.37	**V33**		**V33**	Overweight and obese 4 year old males
V34	0.32	0.19	0.31	0.17	0.29	-0.26	0.15	0.54	0.57	0.42	0.17	0.13	0.38	-0.42	**V34**		**V34**	Overweight and obese 4 year old females
V35	0.44	0.57	0.47	0.13	0.35	-0.27	0.68	0.48	0.77	0.56	0.94	0.62	0.55	-0.63	**V35**		**V35**	Substantiated reports of child abuse and neglect
V36	0.33	0.70	0.43	0.13	0.55	0.07	0.41	0.15	0.42	0.20	0.78	0.22	0.31	-0.50	**V36**	Hospital admissions - 0 to 14 years	**V36**	Public acute hospitals and private hospitals
V37	0.36	0.67	0.44	0.07	0.54	-0.11	0.47	0.30	0.58	0.38	0.86	0.35	0.41	-0.59	**V37**		**V37**	Public acute hospitals
V38	-0.26	-0.25	-0.27	0.13	-0.27	0.58	-0.41	-0.60	-0.75	-0.74	-0.65	-0.55	-0.50	0.56	**V38**		**V38**	Private hospitals
V39	0.36	0.69	0.49	0.20	0.54	0.05	0.42	0.22	0.42	0.24	0.73	0.29	0.33	-0.47	**V39**		**V39**	Males
V40	0.26	0.63	0.30	0.03	0.48	0.11	0.37	0.01	0.34	0.10	0.75	0.10	0.25	-0.47	**V40**		**V40**	Females
V41	-0.05	0.27	0.06	0.03	0.22	0.08	-0.02	-0.02	0.09	-0.28	0.32	-0.06	-0.22	-0.16	**V41**		**V41**	Same day admissions
V42	0.49	0.74	0.62	0.23	0.75	-0.03	0.47	0.41	0.61	0.45	0.76	0.25	0.44	-0.52	**V42**		**V42**	Respiratory system diseases
V43	0.43	0.53	0.48	0.23	0.52	-0.23	0.43	0.54	0.65	0.38	0.58	0.35	0.44	-0.32	**V43**		**V43**	Bronchitis, emphysema and asthma
V44	-0.11	0.46	0.04	-0.17	0.34	0.02	0.18	-0.22	0.09	-0.18	0.52	-0.09	-0.12	-0.37	**V44**		**V44**	Injury and poisoning
V45	0.85	0.80	0.89	0.55	0.75	0.06	0.66	0.44	0.62	0.78	0.65	0.36	0.73	-0.56	**V45**	Hospital admissions - 15 to 24 years	**V45**	Public acute hospitals and private hospitals
V46	0.74	0.77	0.76	0.36	0.66	-0.06	0.65	0.50	0.70	0.82	0.78	0.46	0.74	-0.63	**V46**		**V46**	Public acute hospitals
V47	-0.08	-0.30	-0.04	0.33	-0.11	0.37	-0.32	-0.42	-0.59	-0.52	-0.75	-0.53	-0.40	0.55	**V47**		**V47**	Private hospitals
V48	0.77	0.66	0.82	0.82	0.61	0.45	0.39	0.09	0.15	0.27	0.14	0.00	0.44	-0.16	**V48**		**V48**	Males
V49	0.77	0.75	0.79	0.40	0.70	-0.06	0.66	0.50	0.68	0.84	0.73	0.43	0.73	-0.60	**V49**		**V49**	Females
V50	1.00	0.63	0.90	0.85	0.61	0.11	0.61	0.44	0.51	0.55	0.37	0.30	0.72	-0.27	**V50**		**V50**	Same day admissions
V51	0.63	1.00	0.70	0.44	0.70	0.19	0.56	0.08	0.33	0.43	0.63	0.18	0.52	-0.47	**V51**		**V51**	Injury and poisoning
V52	0.90	0.70	1.00	0.82	0.74	0.19	0.62	0.43	0.51	0.63	0.44	0.26	0.70	-0.27	**V52**	Hospital admissions for a surgical procedure - 0 to 24 years	**V52**	All procedures
V53	0.85	0.44	0.82	1.00	0.42	0.24	0.41	0.25	0.22	0.24	0.06	0.15	0.52	0.08	**V53**		**V53**	Same day procedures
V54	0.61	0.70	0.74	0.42	1.00	0.21	0.38	0.26	0.43	0.50	0.43	-0.07	0.40	-0.40	**V54**		**V54**	Tonsillectomy and/or adenoidectomy
V55	0.11	0.19	0.19	0.24	0.21	1.00	-0.27	-0.25	-0.35	-0.23	-0.17	-0.42	-0.13	0.19	**V55**		**V55**	Myringotomy
V56	0.61	0.56	0.62	0.41	0.38	-0.27	1.00	0.31	0.57	0.54	0.59	0.48	0.73	-0.36	**V56**	Hospital inpatient bookings lists	**V56**	Hospital inpatient bookings lists for elective surgical procedures
V57	0.44	0.08	0.43	0.25	0.26	-0.25	0.31	1.00	0.83	0.62	0.34	0.54	0.49	-0.20	**V57**	General medical practitioner services	**V57**	0 to 4 year olds
V58	0.51	0.33	0.51	0.22	0.43	-0.35	0.57	0.83	1.00	0.72	0.63	0.52	0.55	-0.51	**V58**		**V58**	5 to 14 year olds
V59	0.55	0.43	0.63	0.24	0.50	-0.23	0.54	0.62	0.72	1.00	0.53	0.49	0.68	-0.49	**V59**		**V59**	15 to 24 year olds
V60	0.37	0.63	0.44	0.06	0.43	-0.17	0.59	0.34	0.63	0.53	1.00	0.55	0.49	-0.66	**V60**	Service use	**V60**	Family and Youth Services
V61	0.30	0.18	0.26	0.15	-0.07	-0.42	0.48	0.54	0.52	0.49	0.55	1.00	0.57	-0.27	**V61**		**V61**	Community based health services
V62	0.72	0.52	0.70	0.52	0.40	-0.13	0.73	0.49	0.55	0.68	0.49	0.57	1.00	-0.23	**V62**		**V62**	Child and Adolescent Mental Health services
V63	-0.27	-0.47	-0.27	0.08	-0.40	0.19	-0.36	-0.20	-0.51	-0.49	-0.66	-0.27	-0.23	1.00	**V63**	Immunisation	**V63**	Immunisation
	V50	**V51**	**V52**	**V53**	**V54**	**V55**	**V56**	**V57**	**V58**	**V59**	**V60**	**V61**	**V62**	**V63**				

Figures highlighted thus [light grey] indicate correlations of meaningful significance between the appropriate variables in the matrix;
those highlighted thus [dark grey] indicate correlations of substantial significance

Table 6.3: Correlation matrix for Statistical Local Areas in the non-metropolitan areas of South Australia

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	
V1	1.00	0.66	0.21	0.94	0.36	0.67	0.43	0.08	0.01	-0.08	0.36	0.39	0.55	0.51	0.11	0.16	-0.10	-0.16	-0.47	0.33	-0.35	-0.09	0.00	-0.34	-0.40	0.19	-0.30	-0.02	0.17	-0.16	-0.10	0.47	0.07	0.11	-0.11	0.07	0.07	-0.11	0.12	-0.04	0.09	0.09	0.13	-0.18	-0.06	V1
V2	0.66	1.00	0.57	0.68	0.32	0.25	0.30	-0.01	-0.30	-0.19	-0.03	0.10	0.51	0.49	0.29	0.25	-0.17	-0.18	-0.09	0.14	-0.28	0.00	0.12	-0.01	-0.32	0.28	0.07	-0.24	-0.08	-0.20	-0.24	0.11	-0.24	-0.24	-0.04	-0.26	-0.20	-0.26	-0.20	-0.17	-0.22	-0.23	-0.21	-0.06	-0.26	V2
V3	0.21	0.57	1.00	0.25	0.56	-0.08	0.47	-0.16	-0.41	-0.44	-0.13	-0.29	0.01	0.00	0.21	0.20	-0.11	-0.09	0.46	-0.29	-0.11	-0.12	0.15	-0.01	0.10	0.55	0.44	-0.48	-0.19	0.08	0.01	-0.21	-0.40	-0.37	-0.12	-0.38	-0.37	-0.19	-0.39	-0.23	-0.25	-0.37	-0.34	-0.03	-0.25	V3
V4	0.94	0.68	0.25	1.00	0.31	0.57	0.34	0.00	-0.14	-0.17	0.18	0.27	0.54	0.52	0.04	0.12	-0.22	-0.28	-0.43	0.30	-0.24	-0.11	0.08	-0.24	-0.37	0.18	-0.20	-0.11	0.16	-0.16	-0.13	0.32	0.07	0.07	0.00	0.07	0.06	-0.07	0.10	-0.05	0.13	0.05	0.07	-0.09	-0.07	V4
V5	0.36	0.32	0.56	0.31	1.00	0.49	0.96	-0.22	-0.20	-0.47	0.25	-0.09	-0.02	-0.06	0.14	0.05	-0.19	-0.20	0.22	-0.35	-0.02	-0.18	0.14	-0.25	0.31	0.76	0.24	-0.62	-0.08	0.05	0.10	-0.01	-0.31	-0.20	-0.42	-0.33	-0.25	-0.30	-0.22	-0.20	-0.17	-0.26	-0.16	-0.30	-0.15	V5
V6	0.67	0.25	-0.08	0.57	0.49	1.00	0.57	-0.05	0.15	-0.18	0.38	0.41	0.49	0.46	0.12	0.06	-0.10	-0.06	-0.55	0.21	-0.29	-0.19	0.06	-0.49	-0.15	0.35	-0.31	-0.22	-0.12	-0.12	0.03	0.52	-0.07	0.02	-0.31	-0.09	-0.06	-0.16	0.00	-0.17	-0.07	0.01	0.10	-0.31	-0.09	V6
V7	0.43	0.30	0.47	0.34	0.96	0.57	1.00	-0.23	-0.05	-0.36	0.38	0.06	0.04	0.00	0.10	0.04	-0.12	-0.14	0.09	-0.27	-0.09	-0.22	0.07	-0.38	0.21	0.70	0.08	-0.51	-0.10	0.08	0.16	0.17	-0.30	-0.17	-0.51	-0.33	-0.24	-0.31	-0.22	-0.20	-0.21	-0.20	-0.08	-0.42	-0.15	V7
V8	0.08	-0.01	-0.16	0.00	-0.22	-0.05	-0.23	1.00	0.14	0.17	0.13	0.01	-0.11	-0.12	0.08	0.16	0.16	0.07	-0.03	0.11	-0.04	0.07	-0.16	0.19	0.07	-0.31	0.01	0.38	0.28	-0.26	-0.17	0.11	0.22	0.14	0.31	0.21	0.22	0.13	0.09	-0.28	0.10	0.22	0.13	0.27	0.21	V8
V9	0.01	-0.30	-0.41	-0.14	-0.20	0.15	-0.05	0.14	1.00	0.78	0.72	0.72	-0.01	-0.06	0.07	0.06	0.67	0.67	-0.30	0.20	-0.42	-0.20	-0.57	-0.56	-0.36	-0.46	-0.73	0.65	0.20	0.34	0.40	0.56	0.48	0.60	-0.35	0.49	0.41	0.23	0.42	0.37	0.23	0.64	0.69	-0.30	0.48	V9
V10	-0.08	-0.19	-0.44	-0.17	-0.47	-0.18	-0.36	0.17	0.78	1.00	0.44	0.56	-0.04	-0.08	0.07	0.15	0.69	0.66	-0.22	0.38	-0.38	-0.11	-0.55	-0.26	-0.48	-0.75	-0.75	0.82	0.36	0.28	0.28	0.45	0.40	0.46	-0.15	0.42	0.33	0.23	0.29	0.35	0.16	0.61	0.62	-0.14	0.42	V10
V11	0.36	-0.03	-0.13	0.18	0.25	0.38	0.38	0.13	0.72	0.44	1.00	0.76	0.09	0.01	0.11	0.08	0.40	0.41	-0.33	0.14	-0.40	-0.07	-0.31	-0.54	-0.20	-0.08	-0.64	0.33	0.24	0.21	0.30	0.62	0.47	0.63	-0.48	0.43	0.47	0.17	0.43	0.37	0.28	0.67	0.78	-0.53	0.53	V11
V12	0.39	0.10	-0.29	0.27	-0.09	0.41	0.06	0.01	0.72	0.56	0.76	1.00	0.55	0.49	0.13	-0.04	0.53	0.48	-0.59	0.44	-0.64	-0.16	-0.46	-0.59	-0.62	-0.31	-0.84	0.38	0.04	0.26	0.26	0.78	0.41	0.53	-0.37	0.37	0.40	-0.04	0.43	0.38	0.21	0.62	0.72	-0.49	0.43	V12
V13	0.55	0.51	0.01	0.54	-0.02	0.49	0.04	-0.11	-0.01	-0.04	0.09	0.55	1.00	0.99	0.17	-0.07	-0.03	-0.11	-0.64	0.48	-0.43	-0.13	-0.13	-0.28	-0.61	-0.02	-0.39	-0.13	-0.38	-0.03	-0.14	0.54	-0.15	-0.13	-0.10	-0.19	-0.10	-0.33	-0.10	-0.15	-0.13	-0.06	0.03	-0.30	-0.15	V13
V14	0.51	0.49	0.00	0.52	-0.06	0.46	0.00	-0.12	-0.06	-0.08	0.01	0.49	0.99	1.00	0.18	-0.07	-0.09	-0.15	-0.63	0.47	-0.37	-0.13	-0.12	-0.23	-0.59	-0.02	-0.35	-0.16	-0.41	-0.05	-0.19	0.49	-0.19	-0.18	-0.06	-0.22	-0.13	-0.31	-0.14	-0.19	-0.14	-0.11	-0.04	-0.26	-0.21	V14
V15	0.11	0.29	0.21	0.04	0.14	0.12	0.10	0.08	0.07	0.07	0.11	0.13	0.17	0.18	1.00	0.67	0.20	0.24	-0.06	0.10	-0.41	-0.53	-0.20	-0.03	-0.05	0.07	-0.15	0.00	-0.23	-0.02	-0.39	0.20	-0.22	-0.15	-0.27	-0.22	-0.19	0.12	-0.27	-0.11	-0.21	0.00	0.06	-0.22	-0.07	V15
V16	0.16	0.25	0.20	0.12	0.05	0.06	0.04	0.16	0.06	0.15	0.08	-0.04	-0.07	-0.07	0.67	1.00	0.18	0.20	0.01	0.18	-0.29	-0.39	-0.16	-0.01	-0.05	0.00	-0.11	0.22	-0.11	-0.11	-0.29	0.07	0.02	0.01	0.04	0.02	0.02	0.43	-0.14	-0.10	-0.06	0.14	0.12	0.07	-0.05	V16
V17	-0.10	-0.17	-0.11	-0.22	-0.19	-0.10	-0.12	0.16	0.67	0.69	0.40	0.53	-0.03	-0.09	0.20	0.18	1.00	0.85	0.05	0.09	-0.67	-0.39	-0.68	-0.40	-0.43	-0.34	-0.51	0.57	0.10	0.25	0.37	0.44	0.20	0.27	-0.22	0.18	0.21	-0.16	0.23	0.33	0.02	0.42	0.44	-0.18	0.31	V17
V18	-0.16	-0.18	-0.09	-0.28	-0.20	-0.06	-0.14	0.07	0.67	0.66	0.41	0.48	-0.11	-0.15	0.24	0.20	0.85	1.00	0.03	0.05	-0.61	-0.24	-0.52	-0.36	-0.43	-0.33	-0.52	0.54	0.11	0.24	0.32	0.35	0.18	0.27	-0.26	0.18	0.17	-0.02	0.20	0.31	0.02	0.35	0.40	-0.26	0.21	V18
V19	-0.47	-0.09	0.46	-0.43	0.22	-0.55	0.09	-0.03	-0.30	-0.22	-0.33	-0.59	-0.64	-0.63	-0.06	0.01	0.05	0.03	1.00	-0.75	0.24	0.07	0.10	0.47	0.41	0.35	0.66	-0.25	0.07	0.02	0.03	-0.64	-0.20	-0.28	0.23	-0.23	-0.13	-0.07	-0.17	0.05	-0.11	-0.33	-0.41	0.33	-0.14	V19
V20	0.33	0.14	-0.29	0.30	-0.35	0.21	-0.27	0.11	0.20	0.38	0.14	0.44	0.48	0.47	0.10	0.18	0.09	0.05	-0.75	1.00	-0.32	-0.06	-0.21	-0.34	-0.49	-0.54	-0.65	0.42	-0.01	0.11	0.05	0.50	0.16	0.20	-0.11	0.19	0.09	0.07	0.13	-0.04	0.06	0.31	0.35	-0.18	0.07	V20
V21	-0.35	-0.28	-0.11	-0.24	-0.02	-0.29	-0.09	-0.04	-0.42	-0.38	-0.40	-0.64	-0.43	-0.37	-0.41	-0.29	-0.67	-0.61	0.24	-0.32	1.00	0.31	0.52	0.37	0.56	0.10	0.56	-0.25	0.08	-0.26	-0.27	-0.65	-0.08	-0.17	0.27	-0.05	-0.13	0.18	-0.13	-0.15	0.04	-0.24	-0.33	0.38	-0.03	V21
V22	-0.09	0.00	-0.12	-0.11	-0.18	-0.19	-0.22	0.07	-0.20	-0.11	-0.07	-0.16	-0.13	-0.13	-0.53	-0.39	-0.39	-0.24	0.07	-0.06	0.31	1.00	0.54	0.40	0.25	-0.06	0.26	-0.04	0.29	-0.26	0.06	-0.20	0.21	0.12	0.31	0.23	0.15	0.05	0.20	0.14	0.14	0.02	-0.05	0.24	0.10	V22
V23	0.00	0.12	0.15	0.08	0.14	0.06	0.07	-0.16	-0.57	-0.55	-0.31	-0.46	-0.13	-0.12	-0.20	-0.16	-0.68	-0.52	0.10	-0.21	0.52	0.54	1.00	0.28	0.50	0.33	0.54	-0.44	-0.03	-0.45	-0.27	-0.32	-0.26	-0.29	0.04	-0.23	-0.29	0.08	-0.25	-0.19	-0.21	-0.26	-0.29	0.17	-0.05	V23
V24	-0.34	-0.01	-0.01	-0.24	-0.25	-0.49	-0.38	0.19	-0.56	-0.26	-0.54	-0.59	-0.28	-0.23	-0.03	-0.01	-0.40	-0.36	0.47	-0.34	0.37	0.40	0.28	1.00	0.38	0.01	0.54	-0.18	0.25	-0.31	-0.45	-0.53	-0.01	-0.20	0.66	-0.05	0.06	0.20	-0.11	-0.03	0.16	-0.26	-0.38	0.49	-0.22	V24
V25	-0.40	-0.32	0.10	-0.37	0.31	-0.15	0.21	0.07	-0.36	-0.48	-0.20	-0.62	-0.61	-0.59	-0.05	-0.05	-0.43	-0.43	0.41	-0.49	0.56	0.25	0.50	0.38	1.00	0.38	0.66	-0.41	0.05	-0.25	-0.19	-0.47	-0.13	-0.14	0.05	-0.08	-0.18	0.23	-0.21	-0.22	-0.07	-0.17	-0.22	0.21	0.06	V25
V26	0.19	0.28	0.55	0.18	0.76	0.35	0.70	-0.31	-0.46	-0.75	-0.08	-0.31	-0.02	-0.02	0.07	0.00	-0.34	-0.33	0.35	-0.54	0.10	-0.06	0.33	0.01	0.38	1.00	0.56	-0.81	-0.29	-0.13	-0.04	-0.26	-0.38	-0.38	-0.05	-0.43	-0.28	-0.27	-0.26	-0.18	-0.26	-0.46	-0.45	0.05	-0.31	V26
V27	-0.30	0.07	0.44	-0.20	0.24	-0.31	0.08	0.01	-0.73	-0.75	-0.64	-0.84	-0.39	-0.35	-0.15	-0.11	-0.51	-0.52	0.66	-0.65	0.56	0.26	0.54	0.54	0.66	0.56	1.00	-0.58	-0.14	-0.36	-0.26	-0.72	-0.38	-0.50	0.38	-0.38	-0.33	-0.14	-0.33	-0.30	-0.23	-0.59	-0.70	0.51	-0.30	V27
V28	-0.02	-0.24	-0.48	-0.11	-0.62	-0.22	-0.51	0.38	0.65	0.82	0.33	0.38	-0.13	-0.16	0.00	0.22	0.57	0.54	-0.25	0.42	-0.25	-0.04	-0.44	-0.18	-0.41	-0.81	-0.58	1.00	0.39	-0.05	0.04	0.38	0.45	0.47	0.01	0.48	0.38	0.30	0.35	0.27	0.24	0.58	0.54	0.03	0.41	V28
V29	0.17	-0.08	-0.19	0.16	-0.08	-0.12	-0.10	0.28	0.20	0.36	0.24	0.04	-0.38	-0.41	-0.23	-0.11	0.10	0.11	0.07	-0.01	0.08	0.29	-0.03	0.25	0.05	-0.29	-0.14	0.39	1.00	-0.09	0.02	0.00	0.55	0.52	0.17	0.56	0.49	0.30	0.44	0.38	0.62	0.47	0.39	0.21	0.41	V29
V30	-0.16	-0.20	0.08	-0.16	0.05	-0.12	0.08	-0.26	0.34	0.28	0.21	0.26	-0.03	-0.05	-0.02	-0.11	0.25	0.24	0.02	0.11	-0.26	-0.26	-0.45	-0.31	-0.25	-0.13	-0.36	-0.05	-0.09	1.00	0.70	0.07	0.23	0.30	-0.23	0.23	0.20	0.05	0.22	0.27	0.19	0.19	0.25	-0.30	0.09	V30
V31	-0.10	-0.24	0.01	-0.13	0.10	0.03	0.16	-0.17	0.40	0.28	0.30	0.26	-0.14	-0.19	-0.39	-0.29	0.37	0.32	0.03	0.05	-0.27	0.06	-0.27	-0.45	-0.19	-0.04	-0.26	0.04	0.02	0.70	1.00	0.18	0.23	0.29	-0.17	0.23	0.20	-0.22	0.34	0.34	0.08	0.21	0.24	-0.17	0.15	V31
V32	0.47	0.11	-0.21	0.32	-0.01	0.52	0.17	0.11	0.56	0.45	0.62	0.78	0.54	0.49	0.20	0.07	0.44	0.35	-0.64	0.50	-0.65	-0.20	-0.32	-0.53	-0.47	-0.26	-0.72	0.38	0.00	0.07	0.18	1.00	0.13	0.24	-0.36	0.09	0.17	-0.13	0.14	0.05	0.00	0.45	0.55	-0.47	0.26	V32
V33	0.07	-0.24	-0.40	0.07	-0.31	-0.07	-0.30	0.22	0.48	0.40	0.47	0.41	-0.15	-0.19	-0.22	0.02	0.20	0.18	-0.20	0.16	-0.08	0.21	-0.26	-0.01	-0.13	-0.38	-0.38	0.45	0.55	0.23	0.23	0.13	1.00	0.96	0.28	0.97	0.95	0.50	0.90	0.71	0.87	0.82	0.74	0.14	0.67	V33
V34	0.11	-0.24	-0.37	0.07	-0.20	0.02	-0.17	0.14	0.60	0.46	0.63	0.53	-0.13	-0.18	-0.15	0.01	0.27	0.27	-0.28	0.20	-0.17	0.12	-0.29	-0.20	-0.14	-0.38	-0.50	0.47	0.52	0.30	0.29	0.24	0.96	1.00	0.00	0.95	0.89	0.48	0.87	0.71	0.82	0.87	0.85	-0.09	0.73	V34
V35	-0.11	-0.04	-0.12	0.00	-0.42	-0.31	-0.51	0.31	-0.35	-0.15	-0.48	-0.37	-0.10	-0.06	-0.27	0.04	-0.22	-0.26	0.23	-0.11	0.27	0.31	0.04	0.66	0.05	-0.05	0.38	0.01	0.17	-0.23	-0.17	-0.36	0.28	0.00	1.00	0.23	0.33	0.16	0.26	0.11	0.32	-0.05	-0.26	0.81	-0.10	V35
V36	0.07	-0.26	-0.38	0.07	-0.33	-0.09	-0.33	0.21	0.49	0.42	0.43	0.37	-0.19	-0.22	-0.22	0.02	0.18	0.18	-0.23	0.19	-0.05	0.23	-0.23	-0.05	-0.08	-0.43	-0.38	0.48	0.56	0.23	0.23	0.09	0.97	0.95	0.23	1.00	0.85	0.56	0.86	0.67	0.84	0.81	0.72	0.16	0.67	V36
V37	0.07	-0.20	-0.37	0.06	-0.25	-0.06	-0.24	0.22	0.41	0.33	0.47	0.40	-0.10	-0.13	-0.19	0.02	0.21	0.17	-0.13	0.09	-0.13	0.15	-0.29	0.06	-0.18	-0.28	-0.33	0.38	0.49	0.20	0.20	0.17	0.95	0.89	0.33	0.85	1.00	0.39	0.88	0.70	0.84	0.77	0.70	0.11	0.60	V37
V38	-0.11	-0.26	-0.19	-0.07	-0.30	-0.16	-0.31	0.13	0.23	0.23	0.17	-0.04	-0.33	-0.31	0.12	0.43	-0.16	-0.02	-0.07	0.07	0.18	0.05	0.08	0.20	0.23	-0.27	-0.14	0.30	0.30	0.05	-0.22	-0.13	0.50	0.48	0.16	0.56	0.39	1.00	0.16	0.14	0.43	0.49	0.42	0.14	0.35	V38
V39	0.12	-0.20	-0.39	0.10	-0.22	0.00	-0.22	0.09	0.42	0.29	0.43	0.43	-0.10	-0.14	-0.27	-0.14	0.23	0.20	-0.17	0.13	-0.13	0.20	-0.25	-0.11	-0.21	-0.26	-0.33	0.35	0.44	0.22	0.34	0.14	0.90	0.87	0.26	0.86	0.88	0.16	1.00	0.81	0.78	0.68	0.61	0.12	0.55	V39
V40	-0.04	-0.17	-0.23	-0.05	-0.20	-0.17	-0.20	-0.28	0.37	0.35	0.37	0.38	-0.15	-0.19	-0.11	-0.10	0.33	0.31	0.05	-0.04	-0.15	0.14	-0.19	-0.03	-0.22	-0.18	-0.30	0.27	0.38	0.27	0.34	0.05	0.71	0.71	0.11	0.67	0.70	0.14	0.81	1.00	0.64	0.57	0.53	0.00	0.45	V40
V41	0.09	-0.22	-0.25	0.13	-0.17	-0.07	-0.21	0.10	0.23	0.16	0.28	0.21	-0.13	-0.14	-0.21	-0.06	0.02	0.02	-0.11	0.06	0.04	0.14	-0.21	0.16	-0.07	-0.26	-0.23	0.24	0.62	0.19	0.08	0.00	0.87	0.82	0.32	0.84	0.84	0.43	0.78	0.64	1.00	0.63	0.56	0.13	0.50	V41
V42	0.09	-0.23	-0.37	0.05	-0.26	0.01	-0.20	0.22	0.64	0.61	0.67	0.62	-0.06	-0.11	0.00	0.14	0.42	0.35	-0.33	0.31	-0.24	0.02	-0.26	-0.26	-0.17	-0.46	-0.59	0.58	0.47	0.19	0.21	0.45	0.82	0.87	-0.05	0.81	0.77	0.49	0.68	0.57	0.63	1.00	0.96	-0.06	0.89	V42
V43	0.13	-0.21	-0.34	0.07	-0.16	0.10	-0.08	0.13	0.69	0.62	0.78	0.72	0.03	-0.04	0.06	0.12	0.44	0.40	-0.41	0.35	-0.33	-0.05	-0.29	-0.38	-0.22	-0.45	-0.70	0.54	0.39	0.25	0.24	0.55	0.74	0.85	-0.26	0.72	0.70	0.42	0.61	0.53	0.56	0.96	1.00	-0.32	0.83	V43
V44	-0.18	-0.06	-0.03	-0.09	-0.30	-0.31	-0.42	0.27	-0.30	-0.14	-0.53	-0.49	-0.30	-0.26	-0.22	0.07	-0.18	-0.26	0.33	-0.18	0.38	0.24	0.17	0.49	0.21	0.05	0.51	0.03	0.21	-0.30	-0.17	-0.47	0.14	-0.09	0.81	0.16	0.11	0.14	0.12	0.00	0.13	-0.06	-0.32	1.00	0.04	V44
V45	-0.06	-0.26	-0.25	-0.07	-0.15	-0.09	-0.15	0.21	0.48	0.42	0.53	0.43	-0.15	-0.21	-0.07	-0.05	0.31	0.21	-0.14	0.07	-0.03	0.10	-0.05	-0.22	0.06	-0.31	-0.30	0.41	0.41	0.09	0.15	0.26	0.67	0.73	-0.10	0.67	0.60	0.35	0.55	0.45	0.50	0.89	0.83	0.04	1.00	V45
V46	0.17	-0.13	-0.38	0.11	-0.29	0.06	-0.19	0.17	0.59	0.68	0.62	0.62	0.05	0.00	0.12	0.35	0.50	0.47	-0.34	0.33	-0.43	-0.05	-0.39	-0.16	-0.35	-0.45	-0.69	0.59	0.38	0.17	0.20	0.53	0.68	0.69	0.07	0.62	0.69	0.43	0.54	0.51	0.48	0.83	0.82	-0.13	0.57	V46
V47	0.06	-0.23	-0.24	0.02	-0.11	0.04	-0.06	0.17	0.61	0.52	0.70	0.58	-0.07	-0.14	0.00	0.16	0.40	0.34	-0.28	0.25	-0.20	-0.07	-0.20	-0.39	-0.13	-0.35	-0.53	0.49	0.37	0.21	0.22	0.41	0.73	0.82	-0.20	0.70	0.69	0.43	0.59	0.48	0.56	0.95	0.94	-0.15	0.90	V47
V48	0.11	-0.22	-0.24	0.14	-0.18	0.01	-0.20	0.13	0.30	0.24	0.36	0.27	-0.10	-0.14	-0.11	-0.04	0.02	-0.04	-0.27	0.19	0.09	0.06	-0.05	-0.09	0.10	-0.27	-0.25	0.32	0.50	0.14	0.08	0.13	0.76	0.76	0.10	0.79	0.65	0.55	0.58	0.48	0.70	0.77	0.68	0.16	0.76	V48
V49	0.13	-0.25	-0.32	0.12	-0.22	0.05	-0.17	0.18	0.61	0.52	0.63	0.49	-0.14	-0.19	-0.13	0.14	0.26	0.24	-0.31	0.27	-0.09	0.06	-0.10	-0.27	-0.10	-0.39	-0.51	0.54	0.49	0.14	0.18	0.34	0.80	0.84	-0.04	0.80	0.72	0.63	0.62	0.49	0.63	0.93	0.89	-0.02	0.80	V49
V50	0.10	-0.26	-0.25	0.07	-0.13	0.08	-0.07	0.20	0.54	0.41	0.65	0.41	-0.19	-0.24	-0.02	0.24	0.16	0.20	-0.27	0.20	-0.04	0.04	0.01	-0.24	0.04	-0.29	-0.44	0.45	0.41	0.07	0.07	0.28	0.67	0.74	-0.15	0.67	0.60	0.74	0.43	0.33	0.51	0.83	0.83	-0.14	0.72	V50
V51	-0.07	-0.29	-0.37	-0.10	-0.31	-0.09	-0.30	0.22	0.53	0.37	0.30	0.30	-0.18	-0.20	-0.25	0.00	0.28	0.31	-0.09	0.09	-0.01	0.19	-0.17	-0.20	-0.14	-0.33	-0.23	0.44	0.23	0.16	0.27	0.10	0.72	0.66	0.29	0.71	0.66	0.28	0.73	0.47	0.50	0.60	0.49	0.28	0.55	V51
V52	0.16	-0.05	-0.06	0.23	-0.12	0.00	-0.10	0.29	0.01	0.06	0.15	-0.09	-0.20	-0.21	-0.19	0.22	-0.25	-0.24	-0.13	0.05	0.27	0.17	0.34	0.00	0.20	-0.17	0.00	0.20	0.23	-0.14	-0.12	-0.12	0.27	0.27	0.03	0.33	0.16	0.65	0.00	-0.15	0.13	0.31	0.28	0.05	0.30	V52
V53	-0.32	-0.47	-0.41	-0.39	-0.33	-0.25	-0.30	0.38	0.50	0.46	0.12	-0.06	-0.55	-0.55	-0.24	0.11	0.36	0.32	0.20	-0.13	0.12	0.13	-0.27	0.00	0.10	-0.33	-0.03	0.62	0.33	-0.14	0.15	-0.09	0.37	0.31	0.26	0.38	0.31	0.27	0.30	0.13	0.16	0.33	0.19	0.45	0.33	V53
V54	-0.33	-0.35	-0.37	-0.39	-0.46	-0.36	-0.42	0.32	0.56	0.60	0.14	0.07	-0.44	-0.46	-0.23	0.06	0.46	0.43	0.19	-0.07	0.06	0.11	-0.31	-0.07	-0.10	-0.47	-0.12	0.72	0.28	-0.07	0.18	-0.07	0.37	0.33	0.18	0.39	0.30	0.20	0.32	0.25	0.12	0.38	0.25	0.39	0.39	V54
V55	-0.45	-0.42	-0.30	-0.48	-0.52	-0.57	-0.47	0.27	0.48	0.61	0.07	-0.02	-0.44	-0.45	-0.30	0.02	0.38	0.31	0.22	-0.06	0.19	0.16	-0.34	0.05	-0.04	-0.58	-0.09	0.69	0.28	0.03	0.17	-0.11	0.35	0.30	0.21	0.38	0.28	0.27	0.22	0.20	0.19	0.35	0.25	0.30	0.36	V55
V56	0.44	0.15	-0.09	0.31	0.03	0.43	0.18	0.18	0.58	0.45	0.73	0.83	0.51	0.42	0.20	0.10	0.49	0.36	-0.52	0.46	-0.67	-0.21	-0.39	-0.52	-0.43	-0.26	-0.70	0.40	0.03	0.10	0.20	0.88	0.26	0.39	-0.40	0.21	0.29	-0.03	0.20	0.14	0.11	0.57	0.67	-0.50	0.41	V56
V57	0.21	-0.22	-0.22	0.03	0.09	0.28	0.23	0.12	0.64	0.52	0.69	0.53	-0.06	-0.13	0.10	0.14	0.50	0.42	-0.30	0.30	-0.49	-0.14	-0.36	-0.49	-0.10	-0.32	-0.59	0.55	0.30	0.18	0.32	0.67	0.30	0.47	-0.51	0.31	0.26	0.12	0.23	0.19	0.16	0.55	0.65	-0.47	0.42	V57
V58	-0.02	-0.03	0.14	0.04	0.38	0.08	0.35	-0.17	-0.27	-0.32	-0.24	-0.45	-0.31	-0.30	-0.55	-0.36	-0.34	-0.38	0.21	-0.26	0.44	0.20	0.30	-0.11	0.31	0.33	0.42	-0.32	-0.05	-0.03	0.32	-0.36	-0.32	-0.32	-0.06	-0.27	-0.37	-0.35	-0.18	-0.28	-0.33	-0.46	-0.48	0.16	-0.32	V58
	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	

Figures highlighted thus [light grey] indicate correlations of meaningful significance between the appropriate variables in the matrix; those highlighted thus [dark grey] indicate correlations of substantial significance

Note: See over for variable names

Table 6.3: Correlation matrix for Statistical Local Areas in the non-metropolitan areas of South Australia..*cont*

	V46	V47	V48	V49	V50	V51	V52	V53	V54	V55	V56	V57	V58				
V1	0.17	0.06	0.11	0.13	0.10	-0.07	0.16	-0.32	-0.33	-0.45	0.44	0.21	-0.02	**V1**	Age distribution	**V1**	Children aged 0 to 4 years
V2	-0.13	-0.23	-0.22	-0.25	-0.26	-0.29	-0.05	-0.47	-0.35	-0.42	0.15	-0.22	-0.03	**V2**		**V2**	Children aged 5 to 9 years
V3	-0.38	-0.24	-0.24	-0.32	-0.25	-0.37	-0.06	-0.41	-0.37	-0.30	-0.09	-0.22	0.14	**V3**		**V3**	Children aged 10 to 14 years
V4	0.11	0.02	0.14	0.12	0.07	-0.10	0.23	-0.39	-0.39	-0.48	0.31	0.03	0.04	**V4**		**V4**	Children aged 0 to 14 years
V5	-0.29	-0.11	-0.18	-0.22	-0.13	-0.31	-0.12	-0.33	-0.46	-0.52	0.03	0.09	0.38	**V5**		**V5**	Children aged 15 to 19 years
V6	0.06	0.04	0.01	0.05	0.08	-0.09	0.00	-0.25	-0.36	-0.57	0.43	0.28	0.08	**V6**		**V6**	Children aged 20 to 24 years
V7	-0.19	-0.06	-0.20	-0.17	-0.07	-0.30	-0.10	-0.30	-0.42	-0.47	0.18	0.23	0.35	**V7**		**V7**	Children aged 15 to 24 years
V8	0.17	0.17	0.13	0.18	0.20	0.22	0.29	0.38	0.32	0.27	0.18	0.12	-0.17	**V8**		**V8**	Children aged 0 to 24 years
V9	0.59	0.61	0.30	0.61	0.54	0.53	0.01	0.50	0.56	0.48	0.58	0.64	-0.27	**V9**	Families	**V9**	Children aged 0 to 14 years living in single parent families
V10	0.68	0.52	0.24	0.52	0.41	0.37	0.06	0.46	0.60	0.61	0.45	0.52	-0.32	**V10**		**V10**	Children aged 0 to 14 years living in low income families
V11	0.62	0.70	0.36	0.63	0.65	0.30	0.15	0.12	0.14	0.07	0.73	0.69	-0.24	**V11**	Housing	**V11**	Children aged 0 to 14 years living in dwellings rented from the SA Housing Trust
V12	0.62	0.58	0.27	0.49	0.41	0.30	-0.09	-0.06	0.07	-0.02	0.83	0.53	-0.45	**V12**		**V12**	Children aged 0 to 14 years living in dwellings with no motor vehicle
V13	0.05	-0.07	-0.10	-0.14	-0.19	-0.18	-0.20	-0.55	-0.44	-0.44	0.51	-0.06	-0.31	**V13**	Aboriginal and Torres Strait Islander people	**V13**	Children aged 0 to 14 years identified as Aboriginal and Torres Strait Islanders
V14	0.00	-0.14	-0.14	-0.19	-0.24	-0.20	-0.21	-0.55	-0.46	-0.45	0.42	-0.13	-0.30	**V14**		**V14**	People aged 15 to 24 years identified as Aboriginal and Torres Strait Islanders
V15	0.12	0.00	-0.11	-0.13	-0.02	-0.25	-0.19	-0.24	-0.23	-0.30	0.20	0.10	-0.55	**V15**	People born in predominantly non-English speaking countries	**V15**	Children aged 0 to 14 born in predominantly non-English speaking countries
V16	0.35	0.16	-0.04	0.14	0.24	0.00	0.22	0.11	0.06	0.02	0.10	0.14	-0.36	**V16**		**V16**	People aged 15 to 24 born in predominantly non-English speaking countries
V17	0.50	0.40	0.02	0.26	0.16	0.28	-0.25	0.36	0.46	0.38	0.49	0.50	-0.34	**V17**	Labour force	**V17**	Unemployed males aged 15 to 24 years
V18	0.47	0.34	-0.04	0.24	0.20	0.31	-0.24	0.32	0.43	0.31	0.36	0.42	-0.38	**V18**		**V18**	Unemployed females aged 15 to 24 years
V19	-0.34	-0.28	-0.27	-0.31	-0.27	-0.09	-0.13	0.20	0.19	0.22	-0.52	-0.30	0.21	**V19**	Education	**V19**	People aged 15 to 24 years who are full-time students
V20	0.33	0.25	0.19	0.27	0.20	0.09	0.05	-0.13	-0.07	-0.06	0.46	0.30	-0.26	**V20**		**V20**	People aged 15 to 24 years who left school at age 15 or less
V21	-0.43	-0.20	0.09	-0.09	-0.04	-0.01	0.27	0.12	0.06	0.19	-0.67	-0.49	0.44	**V21**		**V21**	Average publicly examined subject achievement scores
V22	-0.05	-0.07	0.06	0.06	0.04	0.19	0.17	0.13	0.11	0.16	-0.21	-0.14	0.20	**V22**		**V22**	Average publicly assessed subject achievement scores
V23	-0.39	-0.20	-0.05	-0.10	0.01	-0.17	0.34	-0.27	-0.31	-0.34	-0.39	-0.36	0.30	**V23**		**V23**	Average school assessed subject achievement scores
V24	-0.16	-0.39	-0.09	-0.27	-0.24	-0.20	0.00	0.00	-0.07	0.05	-0.52	-0.49	-0.11	**V24**	High socioeconoic status variables	**V24**	Mangers and administrators, and professionals
V25	-0.35	-0.13	0.10	-0.10	0.04	-0.14	0.20	0.10	-0.10	-0.04	-0.43	-0.10	0.31	**V25**		**V25**	Female labour force participation
V26	-0.45	-0.35	-0.27	-0.39	-0.29	-0.33	-0.17	-0.33	-0.47	-0.58	-0.26	-0.32	0.33	**V26**		**V26**	High income families
V27	-0.69	-0.53	-0.25	-0.51	-0.44	-0.23	0.00	-0.03	-0.12	-0.09	-0.70	-0.59	0.42	**V27**	ABS SEIFA	**V27**	Index of Relative Socioeconomic Disadvantage
V28	0.59	0.49	0.32	0.54	0.45	0.44	0.20	0.62	0.72	0.69	0.40	0.55	-0.32	**V28**	Income support payments	**V28**	Dependent children of selected pensioners and beneficiaries
V29	0.38	0.37	0.50	0.49	0.41	0.23	0.23	0.33	0.28	0.28	0.03	0.30	-0.05	**V29**	Total Fertility Rate	**V29**	Total Fertility Rate
V30	0.17	0.21	0.14	0.14	0.07	0.16	-0.14	-0.14	-0.07	0.03	0.10	0.18	-0.03	**V30**	Health status	**V30**	Overweight and obese 4 year old males
V31	0.20	0.22	0.08	0.18	0.07	0.27	-0.12	0.15	0.18	0.17	0.20	0.32	0.32	**V31**		**V31**	Overweight and obese 4 year old females
V32	0.53	0.41	0.13	0.34	0.28	0.10	-0.12	-0.09	-0.07	-0.11	0.88	0.67	-0.36	**V32**		**V32**	Substantiated reports of child abuse and neglect
V33	0.68	0.73	0.76	0.80	0.67	0.72	0.27	0.37	0.37	0.35	0.26	0.30	-0.32	**V33**	Hospital admissions - 0 to 14 years	**V33**	Public acute hospitals and private hospitals
V34	0.69	0.82	0.76	0.84	0.74	0.66	0.27	0.31	0.33	0.30	0.39	0.47	-0.32	**V34**		**V34**	Public acute hospitals
V35	0.07	-0.20	0.10	-0.04	-0.15	0.29	0.03	0.26	0.18	0.21	-0.40	-0.51	-0.06	**V35**		**V35**	Private hospitals
V36	0.62	0.70	0.79	0.80	0.67	0.71	0.33	0.38	0.39	0.38	0.21	0.31	-0.27	**V36**		**V36**	Males
V37	0.69	0.69	0.65	0.72	0.60	0.66	0.16	0.31	0.30	0.28	0.29	0.26	-0.37	**V37**		**V37**	Females
V38	0.43	0.43	0.55	0.63	0.74	0.28	0.65	0.27	0.20	0.27	-0.03	0.12	-0.35	**V38**		**V38**	Same day admissions
V39	0.54	0.59	0.58	0.62	0.43	0.73	0.00	0.30	0.32	0.22	0.20	0.23	-0.18	**V39**		**V39**	Respiratory system diseases
V40	0.51	0.48	0.48	0.49	0.33	0.47	-0.15	0.13	0.25	0.20	0.14	0.19	-0.28	**V40**		**V40**	Bronchitis, emphysema and asthma
V41	0.48	0.56	0.70	0.63	0.51	0.50	0.13	0.16	0.12	0.19	0.11	0.16	-0.33	**V41**		**V41**	Injury and poisoning
V42	0.83	0.95	0.77	0.92	0.83	0.60	0.31	0.33	0.38	0.35	0.57	0.55	-0.46	**V42**	Hospital admissions - 15 to 24 years	**V42**	Public acute hospitals and private hospitals
V43	0.82	0.94	0.68	0.89	0.83	0.49	0.28	0.19	0.25	0.25	0.67	0.65	-0.48	**V43**		**V43**	Public acute hospitals
V44	-0.13	-0.15	0.16	-0.02	-0.14	0.28	0.05	0.45	0.39	0.30	-0.50	-0.47	0.16	**V44**		**V44**	Private hospitals
V45	0.57	0.90	0.76	0.80	0.72	0.55	0.30	0.33	0.39	0.36	0.41	0.42	-0.32	**V45**		**V45**	Males
V46	1.00	0.72	0.48	0.73	0.66	0.43	0.23	0.25	0.29	0.27	0.57	0.53	-0.57	**V46**		**V46**	Females
V47	0.72	1.00	0.71	0.91	0.85	0.57	0.33	0.28	0.33	0.31	0.56	0.54	-0.38	**V47**		**V47**	Same day admissions
V48	0.48	0.71	1.00	0.76	0.67	0.42	0.36	0.16	0.19	0.18	0.30	0.34	-0.28	**V48**		**V48**	Injury and poisoning
V49	0.73	0.91	0.76	1.00	0.94	0.63	0.48	0.36	0.36	0.34	0.46	0.47	-0.31	**V49**	Hospital admissions for a surgical procedure - 0 to 24 years	**V49**	All procedures
V50	0.66	0.85	0.67	0.94	1.00	0.46	0.62	0.29	0.27	0.25	0.43	0.47	-0.33	**V50**		**V50**	Same day procedures
V51	0.43	0.57	0.42	0.63	0.46	1.00	0.08	0.57	0.55	0.45	0.07	0.11	-0.14	**V51**		**V51**	Tonsillectomy and/or adenoidectomy
V52	0.23	0.33	0.36	0.48	0.62	0.08	1.00	0.16	0.13	0.19	0.01	0.12	0.10	**V52**		**V52**	Myringotomy
V53	0.25	0.28	0.16	0.36	0.29	0.57	0.16	1.00	0.92	0.82	-0.07	0.26	0.14	**V53**	General medical practitioner services	**V53**	0 to 4 year olds
V54	0.29	0.33	0.19	0.36	0.27	0.55	0.13	0.92	1.00	0.88	0.01	0.23	0.05	**V54**		**V54**	5 to 14 year olds
V55	0.27	0.31	0.18	0.34	0.25	0.45	0.19	0.82	0.88	1.00	-0.03	0.21	0.03	**V55**		**V55**	15 to 24 year olds
V56	0.57	0.56	0.30	0.46	0.43	0.07	0.01	-0.07	0.01	-0.03	1.00	0.72	-0.42	**V56**	Service use	**V56**	Family and Youth Services
V57	0.53	0.54	0.34	0.47	0.47	0.11	0.12	0.26	0.23	0.21	0.72	1.00	-0.17	**V57**		**V57**	Child and Adolescent Mental Health services
V58	-0.57	-0.38	-0.28	-0.31	-0.33	-0.14	0.10	0.14	0.05	0.03	-0.42	-0.17	1.00	**V58**	Immunisation	**V58**	Immunisation
	V46	**V47**	**V48**	**V49**	**V50**	**V51**	**V52**	**V53**	**V54**	**V55**	**V56**	**V57**	**V58**				

Figures highlighted thus [light grey] indicate correlations of meaningful significance between the appropriate variables in the matrix;
those highlighted thus [dark grey] indicate correlations of substantial significance

Cluster analysis

Description

The intention of the cluster analysis is to identify areas of similar socioeconomic status or with similar health service use profiles. The results of the analysis can be useful in identifying areas requiring additional resources, or for targeting programs. The analysis has been undertaken at the postcode level in Adelaide and at the SLA level in the non-metropolitan areas of the State.

It should be noted that the cluster analysis is an exploratory technique and, as with all such techniques, the real test of a solution is whether it makes any sense. Decisions as to the variables to be used, or the number of clusters in a solution, all impact on the final result.

The results of the cluster analysis, therefore, represent indicative groupings of areas with broadly similar characteristics among the variables analysed in each set. They will be a useful tool for some purposes: on other occasions, however, the individual variables on which they are based may also be relevant.

Methods

Cluster analysis (using the squared Euclidean measure) was undertaken by the Ward's method. This (hierarchic) clustering method seems to partition a set of objects (eg. postcode or SLA) into a set of non-overlapping groups so as to maximise some external criterion of 'goodness of clustering', typically the extent to which the within-cluster inter-object similarities are maximised and the between-cluster similarities are minimised.

In cluster analysis, ten records (ie. postcodes) per variable is considered desirable, with an absolute minimum of five. Had all variables been used in the analysis there would have been many fewer than this. A variety of techniques were used to overcome this problem, including applying a factor analysis and undertaking an experimental fit of the full data set, and using the results to reduce the number of variables included in the final analysis.

Table 6.4 lists the variables considered for inclusion in the analysis. The analysis was undertaken separately for Adelaide and the rest of the State.

Table 6.4: Variables considered for inclusion in the cluster analysis

Demography and socioeconomic status	to public acute and private hospitals
% children aged 0-4 yrs	total admissions
% children aged 5-9 yrs	of males
% children aged 10-14 yrs	of females
% children aged 0-14 yrs	same day
% children aged 15-19 yrs	for respiratory system diseases
% children aged 20-24 yrs	for bronchitis, emphysema, and asthma
% children aged 15-24 yrs	for injury and violence
% children aged 0-24 yrs	***Hospital admissions (Standardised Ratio) – 15-24 yrs***
% children aged 0-14 yrs living in single parent families	to public acute hospitals
% children aged 0-14 yrs living in low income families	to private hospitals
% children aged 0-14 yrs living in Housing Trust dwellings	to public acute and private hospitals
% children aged 0-14 yrs living in dwellings with no car	total admissions
% Indigenous children aged 0-14 yrs	of males
% children aged 0-14 yrs born in NESB countries	of females
% unemployed males aged 15-24 yrs	same day
% unemployed females aged 15-24 yrs	for injury and violence
% full-time students aged 15-24 yrs	***Hospital admissions (Standardised Ratio) – 0-24 yrs***
Standardised ratio for early school leavers	for all surgical procedures
% Indigenous people aged 15-24 yrs	for all same day surgical procedures
% people aged 15-24 yrs born in NESB countries	for a tonsillectomy and/or adenoidectomy
Total Fertility Rate	for a myringotomy
Publicly examined achievement score	***General medical practitioner services (Standardised Ratio)***
Publicly assessed achievement score	for people aged 0-4 yrs
School assessed achievement score	for people aged 5-14 yrs
% dependent children	for people aged 15-24 yrs
Utilisation of health services	***Community services (Standardised Ratio)***
Hospital admissions (Standardised Ratio) – 0-14 yrs	Family and Youth Services
to public acute hospitals	Community based health services
to private hospitals	Child and Adolescent Mental Health Services
	Children fully immunised at 12 months

Results

Socioeconomic clusters in Adelaide

Variables considered for inclusion in this part of the cluster analysis are those listed in **Table 6.4** under the heading *Demography and socioeconomic status*. The ABS Index of Relative Socio-Economic Disadvantage (IRSD) from the 1996 Census was used as an independent check on the solution.

There were 122 postcodes in Adelaide. The factor analysis was initially run on 25 variables and thus was not supported by enough data. The first factor showed potential as a factor concerning socioeconomic status. However, small postcodes were suspected to be affecting the solution. The following postcodes, all with populations of less than 1,000, were subsequently dropped from the analysis: 5020, 5040, 5094, 5117, 5120, 5121, 5134, 5136, 5137, 5138, 5140, 5141, 5142, 5144, 5151, 5156, 5157, 5166, 5170, and 5174.

The following variables were entered into a reliability analysis to ascertain whether they were all likely to be contributing to a measure of socio-economic status: full-time students aged 15-24 years, publicly examined achievement score, publicly assessed achievement score, school assessed achievement score, dependent children, children aged 0-14 yrs living in low income families, children aged 0-14 yrs living in single parent families, children aged 0-14 yrs living in dwellings with no car, children aged 0-14 years living in dwellings rented from the SA Housing Trust, unemployed males aged 15-24 yrs, unemployed females aged 15-24 yrs, Indigenous people aged 0-14 years, Indigenous people aged 15-24 years and early school leavers. The reliability analysis indicated that a scale constructed from these variables would be more reliable if the variable for people who left school at 15 years or earlier, was removed from the scale. This variable was therefore removed from the variable set, and another cluster analysis was performed. This analysis resulted in a very clean three-factor solution as set out below (**Table 6.5** and **Map 6.1**). The three clusters have been labelled as High (50 postcodes), Medium (42 postcodes) and Low (10 postcodes) socioeconomic status clusters.

A check with the IRSD found that, of the top 50 postcodes, 46 (92.0%) were grouped into the high socioeconomic cluster. Of the ten lowest postcodes rated by the IRSD, nine (80.0%) were classified to the Low cluster.

Health service utilisation clusters in Adelaide

Variables considered for inclusion in this part of the cluster analysis are those listed in **Table 6.4** under the heading *Utilisation of health services*. The ABS Index of Relative Socio-Economic Disadvantage (IRSD) from the 1996 Census was used as an independent check on the solution.

The data set had 26 variables and 122 observations, almost enough to support an analysis including all input variables. The correlation matrix suggested that the direction of the variables concerning private hospital admission should be reversed, and this was done by subtracting the standardised ratio from 200. The variables were examined in a reliability analysis, which suggested they all had a contribution to make, with the possible exception of the Community Health Centre data. A cluster analysis was run including all input variables in the hope of generating a sensible solution that could be accepted.

The result of this analysis was not particularly satisfactory, resulting in a somewhat fuzzy solution of three or four clusters. The variables which did not seem to cluster the same as the rest were; admissions of people aged 0-14 years and 15-24 years to a private hospital, surgical procedure for a myringotomy, and immunisation.

Closer examination of the input variables revealed that smaller postcodes were affecting the solution. The following postcodes, all with populations of less than 1,000, were subsequently dropped from the analysis: 5020, 5040, 5094, 5117, 5120, 5121, 5134, 5136, 5137, 5138, 5140, 5141, 5142, 5144, 5151, 5156, 5157, 5166, 5170, and 5174.

These 22 variables were entered into the cluster analysis on the remaining 102 postcodes. The analysis resulted in a very clean three-factor solution as set out in **Table 6.5** and **Map 6.2**.

A check with the IRSD showed that, of the bottom 18 postcodes for Adelaide as classified by the IRSD, 12 (66.7%) were classified to the High health service use group in this analysis. Further, of the top 51 postcodes under the IRSD, 39 (76.5%) were classified to the Low health service use group.

Table 6.5: Composition of postcode clusters in Adelaide

Postcode	Socioeconomic status	Health service utilisation
5000 - Adelaide (City)	High	High
5006 - North Adelaide	High	Low
5007 - Hindmarsh	Medium	Medium
5008 - Croydon	Medium	Medium
5009 - Kilkenny	Medium	Medium
5010 - Ferryden Park	Low	High
5011 - Woodville	Medium	High
5012 - Woodville North	Low	High
5013 - Rosewater East	Low	High
5014 - Alberton	Medium	Medium
5015 - Port Adelaide	Medium	High
5016 - Largs Bay	Medium	High
5017 - Osborne	Low	High
5018 - Outer Harbor	High	Medium
5019 - Semaphore	Medium	High
5020 - West Lakes Shore	Not grouped	Not grouped
5021 - West Lakes	High	Low
5022 - Henley Beach	High	Low
5023 - Seaton	Medium	Medium
5024 - Fulham	High	Low
5025 - Flinders Park	High	Medium
5031 - Thebarton	Medium	Medium
5032 - Brooklyn Park	High	Medium
5033 - Cowandilla	Medium	Medium
5034 - Goodwood	High	Low
5035 - Keswick	Medium	Low
5037 - Netley	High	Medium
5038 - Plympton	Medium	Low
5039 - Edwardstown	Medium	Medium
5040 - Novar Gardens	Not grouped	Not grouped
5041 - Daw Park	High	Low
5042 - St Marys	Medium	Low
5043 - Park Holme	Medium	Medium
5044 - Somerton Park	High	Low
5045 - Glenelg	High	Low
5046 - Oaklands Park	Medium	Low
5047 - Darlington	Medium	Medium
5048 - Brighton	High	Medium
5049 - Seacliff	High	Low
5050 - Eden Hills	High	Low
5051 - Blackwood	High	Low
5052 - Belair	High	Low
5061 - Unley	High	Low
5062 - Kingswood	High	Low
5063 - Eastwood	High	Low
5064 - Glen Osmond	High	Low
5065 - Glenside	High	Low
5066 - Burnside	High	Low
5067 - Norwood	High	Low
5068 - Kensington Park	High	Low
5069 - St Peters	High	Low
5070 - Marden	High	Low
5072 - Magill	High	Low
5073 - Rostrevor	Medium	Medium
5074 - Campbelltown	Medium	Low
5075 - Paradise	High	Medium
5076 - Athelstone	High	Low

Table 6.5: Composition of postcode clusters in Adelaide ...*cont*

Postcode	Socioeconomic status	Health service utilisation
5081 - Walkerville	High	Low
5082 - Prospect	High	High
5083 - Nailsworth	High	Medium
5084 - Blair Athol	Low	High
5085 - Enfield	Low	High
5086 - Greenacres	Medium	Medium
5087 - Klemzig	Medium	Medium
5088 - Holden Hill	Medium	Low
5089 - Highbury	High	Low
5090 - Hope Valley	High	Low
5091 - Tea Tree Gully	High	Low
5092 - Modbury North	High	Low
5093 - Para Vista	Medium	Medium
5094 - Gepps Cross	Not grouped	Not grouped
5095 - Pooraka	Medium	Medium
5096 - Para Hills	Medium	Low
5097 - St Agnes	High	Low
5098 - Ingle Farm	Medium	Medium
5107 - Parafield Gardens	Medium	High
5108 - Salisbury	Medium	High
5109 - Salisbury East	Medium	Low
5110 - Burton	Medium	Low
5112 - Elizabeth	Low	High
5113 - Elizabeth North	Low	High
5114 - Smithfield	Medium	High
5115 - Munno Para	Medium	Low
5116 - Evanston	Medium	Medium
5117 - Angle Vale	Not grouped	Not grouped
5118 - Gawler	Medium	Medium
5120 - Virginia	Not grouped	Not grouped
5121 - MacDonald Park	Not grouped	Not grouped
5125 - Golden Grove	High	Medium
5126 - Fairview Park	High	Medium
5127 - Wynn Vale	High	Medium
5134 - Montacute	Not grouped	Not grouped
5136 - Norton Summit	Not grouped	Not grouped
5137 - Ashton	Not grouped	Not grouped
5138 - Basket Range	Not grouped	Not grouped
5140 - Greenhill	Not grouped	Not grouped
5141 - Summertown	Not grouped	Not grouped
5142 - Uraidla	Not grouped	Not grouped
5144 - Carey Gully	Not grouped	Not grouped
5151 - Piccadilly	Not grouped	Not grouped
5152 - Stirling	High	Low
5153 - Stirling Forward	High	Low
5154 - Aldgate	High	Low
5155 - Bridgewater	High	Low
5156 - Upper Sturt	Not grouped	Not grouped
5157 - Blackwood Forward	Not grouped	Not grouped
5158 - O'Halloran Hill	High	Low
5159 - Happy Valley	High	Low
5161 - Reynella	Medium	Low
5162 - Morphett Vale	Medium	Medium
5163 - Hackham	Medium	Medium
5164 - Christie Downs	Low	Medium
5165 - Christies Beach	Low	Low
5166 - O'Sullivan Beach	Not grouped	Not grouped
5167 - Port Noarlunga	Medium	Medium

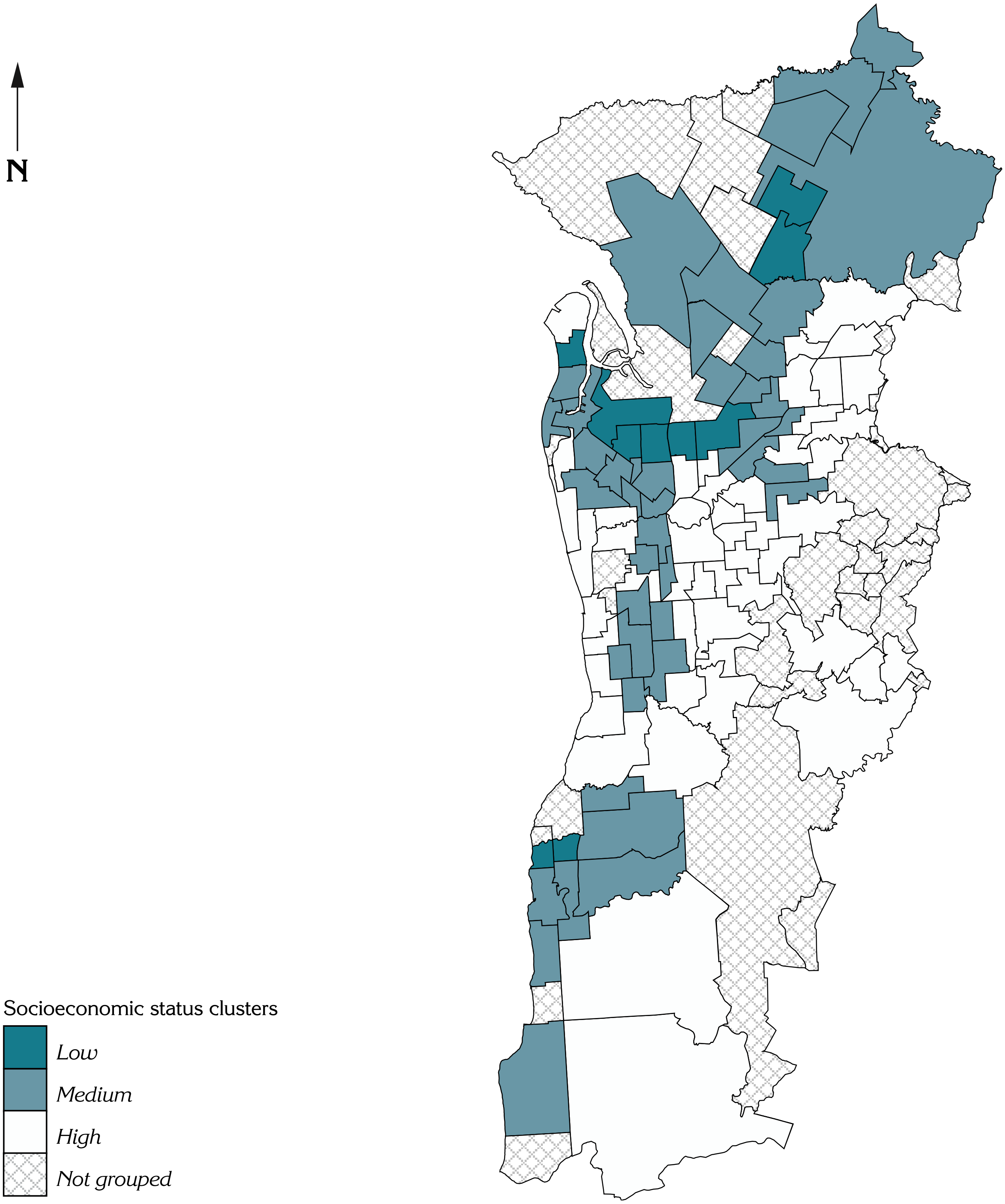
Table 6.5: Composition of postcode clusters in Adelaide …*cont*

5168 - Old Noarlunga	Medium	High
5169 - Moana	Medium	Medium
5170 - Maslin Beach	Not grouped	Not grouped
5171 - McLaren Vale	High	Low
5172 - Willunga	High	Low
5173 - Aldinga	Medium	Low
5174 - Sellicks Beach	Not grouped	Not grouped

Source: Produced from project sources

Map 6.1
Socioeconomic status clusters based on postcodes, Adelaide

clusters of postcodes with generally similar socioeconomic characteristics

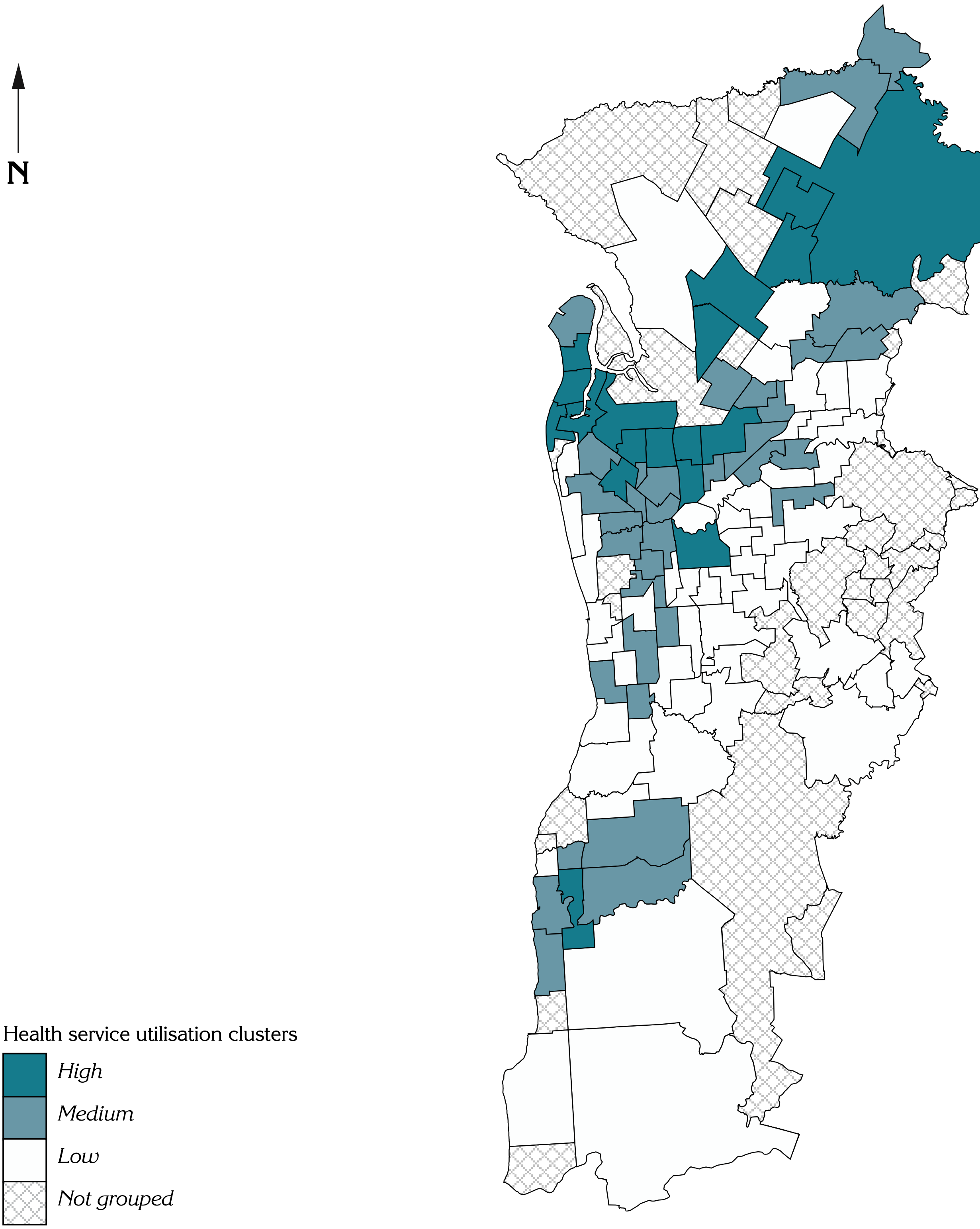


Areas were not grouped because either the postcode has a population of less than 1,000, or only a small part of the postcode is located in Adelaide.

Source: Compiled from project sources ***Details of map boundaries are in Appendix 1.2***

Map 6.2
Health service utilisation clusters based on postcodes, Adelaide

clusters of postcodes with generally similar health service use characteristics



Areas were not grouped because either the postcode has a population of less than 1,000, or only a small part of the postcode is located in Adelaide.

Source: Compiled from project sources ***Details of map boundaries are in Appendix 1.2***

Socioeconomic clusters in the non-metropolitan areas

The production of clusters at the SLA level in the non-metropolitan areas is even more problematic (than for Adelaide), with SLAs varying enormously in size and composition. For example, large urban centre SLAs such as Whyalla and Mount Gambier (population 23,980 and 23,055 respectively) stand in contrast to rural SLAs such as Unincorporated Riverland (population 164) and Orroroo/Carrieton (1,115). Unincorporated Far North, the SLA with the largest land area, occupies just over two thirds of South Australia's land mass yet has a population of only 5,322. Aboriginal people, generally the most disadvantaged population group, are unevenly distributed throughout these SLAs, from as high as 68.4% in the Unincorporated Far North and 34.4% in the Unincorporated West Coast to less than 1% in over half (58.8%) of the State's non-metropolitan SLAs.

All variables except the IRSD score were entered into an exploratory factor analysis, in a bid to provide some insight into which variables may be most useful as input into the cluster analysis. There were 96 records for SLAs in the non-metropolitan areas of the state. The factor analysis was run on 25 variables, and thus was not supported by enough data. The first factor showed potential as a factor concerning socioeconomic status. The variables involved included: Indigenous people aged 0-14 years and 15-24 years, people who left school at 15 years or younger, children aged 0-14 years living in dwellings with no vehicles and full-time students aged 15-24 years.

These variables were entered into a reliability analysis to ascertain whether they were all likely to be contributing to a measure of socioeconomic status. The variable for full-time students aged 15-24 years had a negative correlation with the other variables and so was reversed in direction by subtracting it from 100 for input into the reliability analysis. However, the analysis indicated that a scale constructed from these variables could be more reliable if full-time students were removed from the scale, although this was marginal.

The variables listed above were entered into a cluster analysis, which resulted in a poor quality four-cluster solution.

The full list of input variables (**Table 6.4**) were included in a cluster analysis in an attempt to find variables which grouped in a similar way. Unfortunately, this was unsuccessful.

The last factor also consisted of variables which could be expected to be related to socioeconomic status. These variables were entered into a cluster analysis, which again provided a solution of unacceptable quality. A cluster analysis was also tried on the variables comprising both the first and last factors. This was again unsuccessful.

In the face of mounting problems with variable selection, it was decided to attempt a cluster analysis with those variables known through experience to be related to socioeconomic status. The variables selected were: children aged 0-14 years living in single parent families, low income families, dwellings rented for the SA Housing Trust, and dwellings with no vehicles; Aboriginal people aged 0-14 years and 15-24 years; unemployed males and females aged 15-24 years; full-time students aged 15-24 years; and people who left school at 15 years or younger.

Thus there were ten input variables for the analysis on 96 records, so the data supported the analysis. The analysis produced a four-cluster solution of acceptable, rather than exceptional, quality (**Table 6.6** and **Map 6.3**).

Of the 15 SLAs with the lowest scores for the IRSD, ten (75.0%) were classified to either the Low or Very Low cluster; and of the top 49 SLAs for the IRSD, 34 (69.4%) were classified to the High socioeconomic status cluster.

Health service utilisation clusters in the non-metropolitan areas

The dataset had 26 variables and 96 observations, not quite enough to support an analysis including all input variables. The variables were examined in a reliability analysis, which suggested they all had a contribution to make. A cluster analysis was run including all input variables in the hope of generating a sensible solution which could be accepted.

This analysis resulted in a very clean three-factor solution, with Unincorporated West Coast not grouped. Alternatives, removing variables which had not grouped in the same way as the majority, were examined but no other solutions were superior to the original one (**Table 6.6** and **Map 6.4**).

Of the 22 lowest SLAs for the IRSD, eleven (50.0%) were classified to the High hospital use cluster; and of the top eight SLAs, two (25.0%) were classified to the Low hospital use cluster.

Table 6.6: Composition of SLA clusters in the non-metropolitan areas of South Australia
Areas mapped as towns have been highlighted in the table (in bold type)

SLA	Socioeconomic status	Health service utilisation
Angaston (DC)	High	Medium
Barmera (DC)	Medium	High
Barossa (DC)	High	Medium
Beachport (DC)	High	Medium
Berri (DC)	Low	Medium
Blyth-Snowtown (DC)	Medium	Medium
Browns Well (DC)	High	Low
Burra Burra (DC)	High	High
Bute (DC)	High	Medium
Carrieton (DC)	High	Low
Ceduna (DC)	Low	High
Central Yorke Peninsula	High	High
Clare (DC)	High	Medium
Cleve (DC)	High	Medium
Coonalpyn Downs (DC)	High	Medium
Coober Pedy (DC)	**Low**	**High**
Crystal Brook/Red Hill	High	High
Dudley (DC)	Medium	High
Elliston (DC)	High	Medium
Eudunda (DC)	Medium	High
Franklin Harbour (DC)	High	Medium
Gumeracha (DC)	High	Medium
Hallett (DC)	Medium	Medium
Hawker (DC)	High	Low
Jamestown (DC)	Medium	Medium
Kanyaka–Quorn (DC)	High	High
Kapunda (DC)	Medium	Medium
Karoonda–East Murray (DC)	Medium	Medium
Kimba (DC)	High	Medium
Kingscote (DC)	Medium	Medium
Lacepede (DC)	High	Medium
Lameroo (DC)	High	High
Le Hunte (DC)	Medium	Medium
Light (DC)	High	Medium
Lower Eyre Peninsula (DC)	High	Medium
Loxton	High	Medium
Lucindale (DC)	Medium	Medium
Mallala (DC)	High	Medium
Mannum (DC)	Medium	Medium
Meningie (DC)	Medium	High
Millicent (DC)	High	High
Minlaton (DC)	Medium	Medium
Morgan (DC)	High	Medium
Mount Barker (DC)	High	Medium
Mount Gambier (C)	**Low**	**Medium**
Mount Gambier (DC)	High	Medium
Mount Pleasant (DC)	High	Medium
Mount Remarkable (DC)	High	Medium
Murray Bridge (DC)	**Low**	**Medium**
Naracoorte (M)	**High**	**High**
Naracoorte (DC)	High	Medium
Northern Yorke Peninsula (DC)	Medium	Medium
Onkaparinga (DC)	High	Medium
Orroroo (DC)	High	Medium
Paringa (DC)	High	Medium
Peake (DC)	Medium	Medium
Penola (DC)	High	High

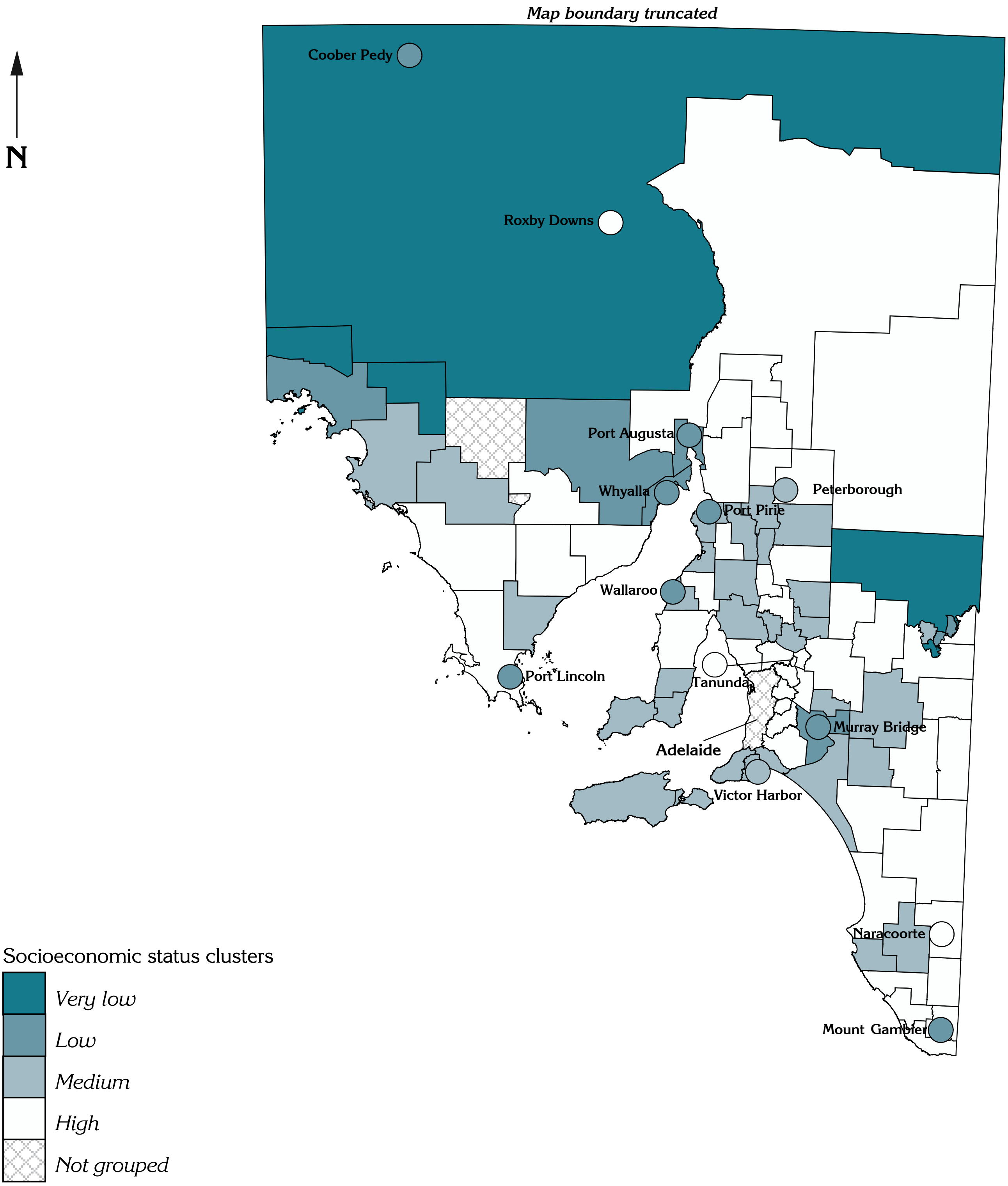
Table 6.6: Composition of SLA clusters in the non-metropolitan areas of South Australia ***…cont***

SLA	Socioeconomic status	Health service utilisation
Peterborough (M)	**Medium**	**Medium**
Peterborough (DC)	High	Low
Pinnaroo (DC)	High	Medium
Pirie (DC)	Medium	Medium
Port Augusta (C)	**Low**	**High**
Port Broughton (DC)	Medium	High
Port Elliot & Goolwa (DC)	Medium	Medium
Port Lincoln (C)	**Low**	**High**
Port MacDonnell (DC)	High	Medium
Port Pirie (C)	**Low**	**Medium**
Renmark (M)	Low	High
Ridley-Truro (DC)	High	Medium
Riverton (DC)	Medium	Medium
Robe (DC)	Medium	Medium
Robertstown (DC)	Medium	Medium
Rocky River (DC)	Medium	Medium
Roxby Downs (M)	**High**	**Medium**
Saddleworth & Auburn (DC)	High	Medium
Spalding (DC)	Medium	Medium
Strathalbyn (DC)	High	Medium
Streaky Bay (DC)	Medium	Medium
Tanunda (DC)	**High**	**Medium**
Tatiara (DC)	High	High
Tumby Bay (DC)	Medium	Medium
Victor Harbor (DC)	**Medium**	**Medium**
Waikerie (DC)	High	Medium
Wakefield Plains (DC)	Medium	Medium
Wallaroo (M)	**Low**	**High**
Warooka (DC)	Medium	High
Whyalla (C)	**Low**	**High**
Yankalilla (DC)	Medium	Medium
Yorketown (DC)	Medium	Medium
Unincorporated Riverland	Very Low	Low
Unincorporated Lincoln	High	Low
Unincorporated West Coast	Very Low	Not grouped
Unincorporated Whyalla	Low	Low
Unincorporated Pirie	High	Low
Unincorporated Flinders Ranges	High	Medium
Unincorporated Far North	Very Low	Medium

Source: Produced from project sources

Map 6.3
Socioeconomic status clusters based on Statistical Local Areas, South Australia

clusters of SLAs with generally similar socioeconomic characteristics

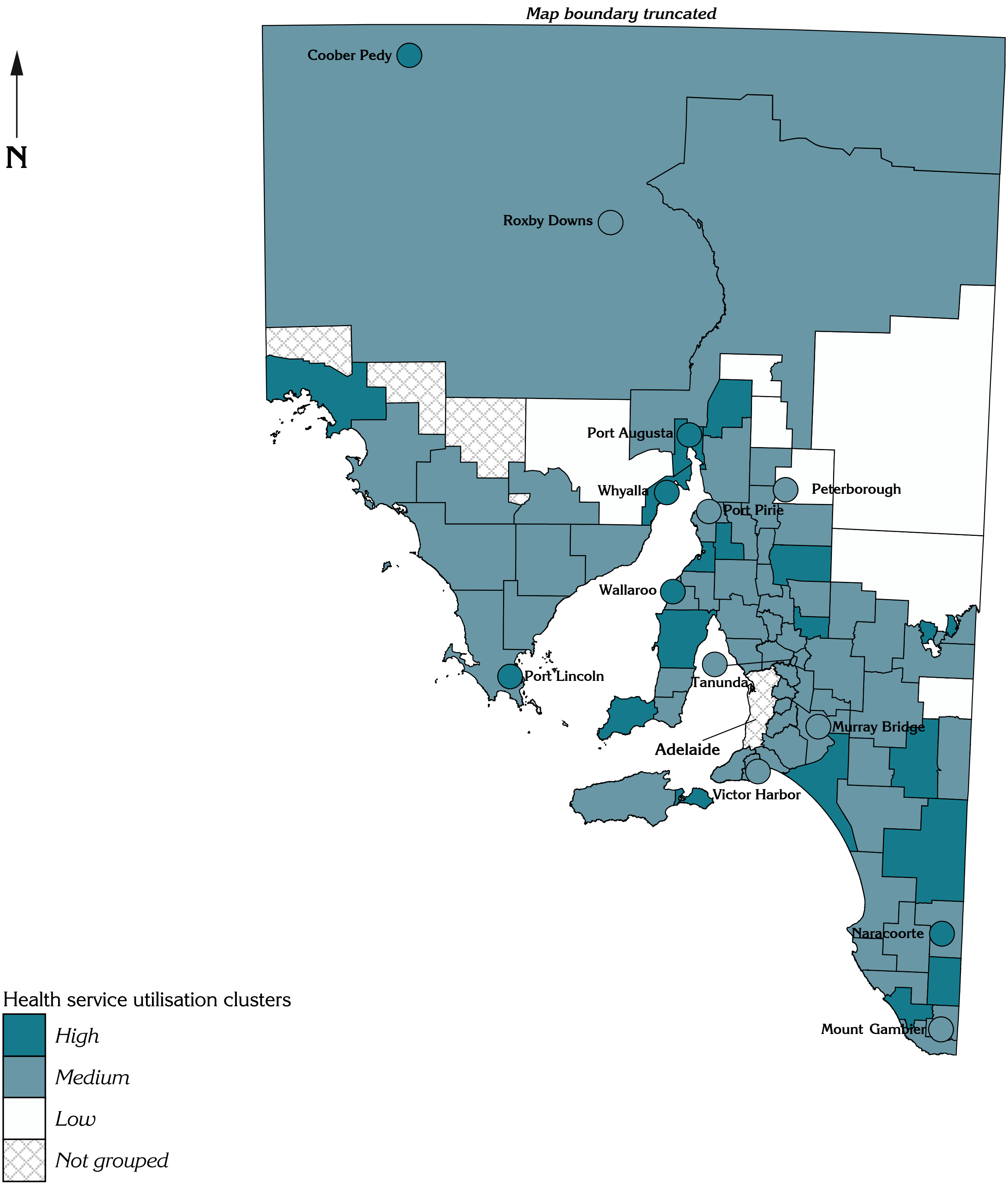


*Areas not grouped include SLAs with a population of less than 100, and Adelaide, which was analysed separately.

Source: Compiled from project sources *Details of map boundaries are in Appendix 1.2*

Map 6.4
Health service utilisation clusters based on Statistical Local Areas, South Australia

clusters of SLAs with generally similar health service use characteristics



*Areas not grouped include SLAs with a population of less than 100, Unincorporated West Coast (which was not allocated in the cluster analysis) and Adelaide, which was analysed separately.

Source: Compiled from project sources *Details of map boundaries are in Appendix 1.2*

7 Summary

Introduction

This chapter presents details of the major changes that have occurred between this and the first edition in the demographic and socioeconomic status indicators, as well as a number of the summary measures of health status and health service utilisation.

Change in rates between editions

The reference period for the data in the first and second edition varies. In general, the population data in this edition are seven years on from the first edition (1991 Census and 1998 ERP); the Census data are five years on (1991 Census and 1996 Census); the death data are seven years on (1989-93 and 1996-99); the perinatal risk factor data are five years on (1990-92 and 1995-97); and the data for hospital admissions are, on average, five years on from the first edition (1992 and 1996/97-98/99).

Change in demographic and socioeconomic status indicators

Demographic indicators

Over the period from 1991 to 1998, the South Australian population aged from 0 to 24 years decreased in each five-year age group (**Table 7.1**). The largest decrease was recorded for people aged 20 to 24 years (down by 12.9%), while the smallest was recorded at ages 10 to 14 years (down by 2.2%). Similar decreases were recorded in Adelaide and in the non-metropolitan areas, however there was a slight increase in non-metropolitan residents aged from 10 to 14 years (an increase of 0.4%).

Socioeconomic status indicators

Marked variations were recorded between 1991 and 1996 for a majority of the socioeconomic status indicators mapped for South Australia (**Table 7.1**).

Table 7.1: Change in demographic and socioeconomic status indicators, by Section of State, South Australia

Per cent change

Variable	Adelaide	Rest of State	South Australia	Annual average (SA)
1991 to 1998				
Children aged 0 to 4 years	-9.0	-10.9	-9.1	-1.1
Children aged 5 to 9 years	-7.2	-7.3	-7.2	-0.9
Children aged 10 to 14 years	-3.4	0.4	-2.2	-0.3
Children aged 0 to 14 years	-6.3	-6.1	-6.2	-0.8
People aged 15 to 19 years	-12.1	-5.6	-10.5	-1.3
People aged 20 to 24 years	-10.8	-20.2	-12.9	-1.6
People aged 15 to 24 years	-11.4	-12.7	-11.8	-1.5
People aged 0 to 24 years	-8.6	-8.4	-8.5	-1.1
1991 to 1996				
Children (0-14 yrs) living in single parent families	16.3	9.7	14.6	2.4
Children (0-14 yrs) living in low income families[1]	28.4	-3.0	16.6	2.8
Children (0-14 yrs) living in rented dwellings	-16.3	-29.8	-20.8	-3.5
Children (0-14 yrs) living in dwellings with no vehicles	-6.7	-13.3	-8.5	-1.4
Aboriginal people & Torres Strait Islanders (0-14 yrs)	37.8	22.2	28.4	4.7
Children (0-14 yrs) born in predominantly NESB countries	-18.1	-29.4	-18.9	-3.2
Unemployed males (15-19 yrs)	0.7	-8.3	-1.6	-0.3
Unemployed females (15-19 yrs)	-3.8	-12.8	-6.2	-1.0
Full-time students (15-19 yrs)	6.2	0.3	4.9	0.8
Early school leavers (15-19 yrs)	-9.5	-11.7	-10.0	-1.7
Aboriginal people & Torres Strait Islanders (15-19 yrs)	30.8	25.1	29.7	5.0
People (15-19 yrs) born in predominantly NESB countries	15.8	-13.4	12.9	2.2
Unemployed males (15-24 yrs)	-3.4	-17.2	-6.8	-1.1
Unemployed females (15-24 yrs)	-7.2	-17.0	-9.7	-1.6
Aboriginal people and Torres Strait Islanders (15-24 yrs)	34.6	26.6	29.9	5.0
1990-92 to 1996-99				
Total Fertility Rate	-4.2	-3.8	-4.1	-4.1

[1] See footnote to Table 1.3 in the Appendix re comparisons over time for this variable.

Source: Compiled from project sources

For Adelaide, the largest increases were for the population of Aboriginal people and Torres Strait Islanders; an increase of 37.8% at ages 10 to 14 years, 30.8% at ages 15 to 19 years and 34.6% at ages 15 to 24 years (see discussion on page 23).

Large increases were also recorded for the variables for children aged 0 to 14 years living in low income families (36.3%); children aged 0 to 14 years living in single parent families (16.3%); and young people aged 15 to 19 years who were born in predominantly non-English speaking countries (15.8%). The largest decreases recorded over this five year period were for the variables for children at ages 0 to 14 years who were born in predominantly non-English speaking countries (down by 18.1%) and children at these same ages living in rented dwellings (down by 16.3%).

Variations of this order were also recorded in the non-metropolitan areas of South Australia. The major differences from the changes recorded in Adelaide were the larger decreases recorded for children living in rented dwellings, children born in predominantly non-English speaking countries and unemployed males aged 15 to 24 years; and the smaller increases for the Indigenous population across all age groups in the analysis. While large increases were recorded for children living in low income families and young people (15 to 19 years) born in predominantly non-English speaking countries in Adelaide, the reverse was the case in the non-metropolitan areas, with decreases of 3.0 and 13.4% for these variables, respectively.

Change in health status indicators

As noted in Chapter 4 (see *Background*), death rates in South Australia have declined for the majority of causes. Percentage changes between the two periods mapped in the atlas (from 1989 to 1993 and 1996 to 1999) are shown in **Table 7.2**.

In Adelaide, the largest decreases were recorded in the infant death rate (down by 33.2%) and for deaths of children aged from 0 to 14 years from all causes (down by 29.3%). All cause mortality for people aged 15 to 24 years was 14.6% lower over this period, with the largest reduction being for deaths from injury and poisoning (20.6%).

Reductions in the death rates for children and young people in the non-metropolitan areas of South Australia were greater for most age groups and for all causes of death analysed than in Adelaide, but smaller for infant deaths (down by 20.4%) and deaths at ages 0 to 14 years (down by 28.3%). The largest reductions were recorded for deaths at ages 20 to 24 years (down by 38.5%) and for deaths of 15 to 24 year olds from suicide and injury and poisoning (down by 41.5% and 37.8%, respectively).

Over the period from 1981-86 to 1995-97, increases were recorded in the proportion of low birthweight babies in both Adelaide (12.2%) and the non-metropolitan areas of the State (21.8%).

The proportion of overweight and obese children aged 4 years has increased dramatically in Adelaide over the period from 1995-96 to 2000-01 (an increase of 44.5% for males and 40.2% for females). An even larger increase was recorded in the non-metropolitan areas (up by 73.3% for males and 103.1% for females).

The total number of notifications of child abuse and neglect increased substantially in both the Adelaide and the non-metropolitan areas of the State over the period from 1992-95 to 1996-99, up by 51.4% and 65.1%, respectively. Substantiated cases of child abuse and neglect for children and young people living in Adelaide increased by a much lower 3.8%, while there was a decrease of 3.9% in such cases for those living in non-metropolitan areas.

Change in health service utilisation indicators

<u>Admissions at ages 0 to 14 years</u>

From 1992 to 1996/97-98/99, admission rates of South Australian children aged from 0 to 14 years to public acute and private hospitals increased slightly (up by 2.0%): this was comprised of an increase of 6.0% in Adelaide and a decrease of a similar level (down by 5.9%) for children in the non-metropolitan areas (**Table 7.3**). There were substantial reductions in admission rates for bronchitis, emphysema and asthma, down by 23.0% in Adelaide and by 35.3% in non-metropolitan areas (**Table 7.3**). There were substantial reductions in admission rates for the combined conditions of bronchitis, emphysema and asthma, down by 23.0% in Adelaide and by 35.3% in the non-metropolitan areas.

Admission rates to private hospitals for children aged 0 to 14 years decreased over this period (down by 10.9%), as did admissions for the combined causes of injury and poisoning (down by 10.9%) and respiratory system diseases (down by 16.2%).

<u>Admissions at ages 15 to 24 years</u>

Public acute and private hospital admission rates for young people aged 15 to 24 years increased by 6.0% in Adelaide and decreased by 4.7% in the non-metropolitan areas, an overall increase of 2.6% in South Australia over the period from 1992 to

1996/97-98/99. Decreases of approximately 20% were recorded for both private hospital admissions and admissions for the external causes of injury and poisoning.

Terminations of pregnancy among woman aged 15 to 24 years in both Adelaide and the non-metropolitan areas increased notably over the period from 1990-92 to 1997-99.

Table 7.2: Change in selected health status variables, by Section of State, South Australia

Per cent change[1]

Variable	Adelaide	Rest of State	South Australia
1990-93 to 1996-99			
Infant deaths	-33.2	-20.4	-31.4
Deaths of children aged 0 to 14 years	-29.3	-28.3	-29.1
Deaths of people aged 15 to 19 years	-15.7	-25.4	-18.6
Deaths of people aged 20 to 24 years	-14.2	-38.5	-22.4
Deaths of people aged 0 to 24 years	-23.2	-29.8	-25.4
Deaths of people aged 15 to 24 years			
All causes	-14.6	-33.4	-20.9
Injury and poisoning	-20.6	-37.8	-26.8
Suicide	-3.2	-41.5	-15.9
1981-86 to 1995-97			
Low birthweight babies	12.2	21.8	15.0
1995-96 to 2000-01			
Overweight and obese 4 year old males	44.5	73.3	53.5
Overweight and obese 4 year old females	40.2	103.1	56.1
1992-1995 to 1996-1999			
Total notifications of child abuse and neglect (0 to 19 yrs)	51.4	65.1	57.5
Substantiated cases of child abuse and neglect (0 to 19 yrs)	3.8	-3.9	2.3

[1]Per cent change represents the difference (between the reference periods): for infants, it is the infant death rate (infant deaths per 1,000 live births); for deaths of people aged 15 to 24 years and child abuse it is the annual rate per 100,000 population, produced by indirect age-sex standardisation; and for low birthweight babies and overweight and obese children, it is the proportion.

Note: Details of numbers and rates are in Tables A17 and A18 in Appendix 1.7

Source: Compiled from project sources

Table 7.3: Change in selected health service utilisation variables, by Section of State, South Australia

Per cent change[1]

Variable	Adelaide	Rest of State	South Australia
1992 to 1996/7-1998/9			
Admissions of children aged 0 to 14 years:			
Public acute and private hospitals	6.0	-5.9	2.0
Public acute hospitals	10.2	-4.5	5.4
Private hospitals	-9.7	-20.0	-10.9
Males	4.3	-5.1	1.2
Females	8.5	-7.2	3.1
Respiratory system diseases	-14.4	-20.4	-16.2
- Bronchitis, emphysema and asthma	-23.0	-35.3	-26.4
Injury and poisoning	-6.5	-19.8	-10.9
Admissions of children aged 15 to 24 years:			
Public acute and private hospitals	6.0	-4.7	2.6
Public acute hospitals	15.5	-3.5	2.3
Private hospitals	-15.3	-14.0	-19.4
Males	10.5	-0.4	6.8
Females	4.0	-6.6	0.9
Injury and poisoning	-14.6	-17.7	-20.3
1990-92 to 1997-99			
Terminations of pregnancy	24.3	20.7	25.1

[1]Per cent change represents the difference (between the reference periods) for admissions - in the annual admission rate per 100,000 population; and for terminations of pregnancy – in the rate of terminations per 100,000 population, produced by indirect age-sex standardisation.

Note: Details of numbers and rates are in Tables A19, A20 and A21 in Appendix 1.7

Source: Compiled from project sources

Change by socioeconomic disadvantage of area of residence

Background

In order to summarise the extent of health inequalities shown in the maps in the earlier chapters, the health status and health service utilisation data are presented in chart form on the following pages. The data were grouped into areas of similar socioeconomic status by allocating each postcode (or SLA) in Adelaide to one of five categories (quintiles) based on its Index of Relative Socio-Economic Disadvantage (IRSD) score (this index is described on page 24). Quintile 1 comprises the postcodes (or SLAs) with the highest IRSD scores (most advantaged areas), and Quintile 5 comprises the SLAs with the lowest IRSD score (most disadvantaged areas). The average rate (or standardised ratio or percentage) for each quintile was then calculated. SLAs in the non-metropolitan areas and the whole of the State (Adelaide plus the non-metropolitan areas) were similarly treated.

The quintiles each comprise approximately 20% of the population aged 0 to 24 years. This process does not provide an exact allocation of population, so the resultant populations are only 'approximately' equal (**Table 7.4**). For example, when areas in Adelaide were ranked by their IRSD score at the postcode level and then grouped to produce quintiles, the resultant populations were relatively close to the ideal population of 72,052 per quintile (one fifth of 360,259). However, quintiles based on Adelaide SLAs were more problematic, with populations ranging from a low of 16.4% to a high of 27.7%. For example, the SLA of Salisbury (with a population of 43,198) had a score marginally below the cut-off score between Quintile 4 and Quintile 5. However, the inclusion of Salisbury in Quintile 4 resulted in populations in Quintile 4 and 5 of 105,916 and 56,700, respectively. Moving Salisbury to Quintile 5 left a population o 62,719 in quintile 4 and increased that in Quintile 5 to 99,898. While these populations are substantially different from the ideal population, they are the best that can be achieved.

Table 7.4: Population by quintile of socioeconomic disadvantage of area, 1998

Area		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Adelaide						
Postcode	– number	68,211	72,902	72,620	72,081	74,447
	proportion	18.9	20.2	20.2	20.0	20.7
SLA	– number	68,081	58,823	70,740	62,719	99,898
	proportion	18.9	16.4	19.6	17.4	27.7
Rest of State						
SLA	– number	27,744	27,898	25,794	26,130	28,444
	proportion	20.4	20.5	19.0	19.2	20.9
South Australia						
SLA	– number	101,730	97,031	98,693	96,951	101,863
	proportion	20.5	19.6	19.9	19.5	20.5

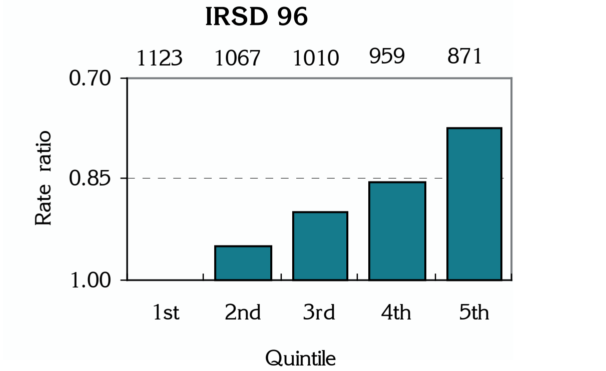
Source: Compiled from project sources

The average rate (or standardised ratio or percentage) was calculated for each of the five quintiles. For example, the average infant death rate was calculated for the most advantaged SLAs (Quintile 1), for the most disadvantaged SLAs (Quintile 5) and for each of the intervening quintiles (Quintiles 2 to 4). These rates were then graphed, with the rate, standardised ratio or percentage for the first quintile set to 1 in order to highlight variations from the rates recorded in the most advantaged areas (**Figure 7.3**). This exercise was repeated for non-metropolitan SLAs in South Australia and for South Australia as a whole (both metropolitan and non-metropolitan SLAs). The ratio of the rates in Quintile 5 to Quintile 1 in each of the periods covered by the data has also been shown: this is the 'rate ratio' (see Glossary).

As noted in Chapter 3, the ABS has calculated the IRSD so that low scores indicate greater disadvantage. This is the reverse of the way in which other data in the atlas have been calculated, where higher rates, standardised ratios etc. indicate poorest health, highest utilisation of health services and greatest disadvantage. In order to present the graph of the IRSD in a form that is visually consistent with the other graphs in this chapter (ie. with the bars increasing in size to the right, and above the base of 1), the scales on the chart in **Figures 7.1** and **7.2** have been reversed.

Figure 7.1 shows that the average IRSD score in 1996 for Quintile 1 (comprising the most advantaged SLAs) was 1123, decreasing for each quintile to a score of 871 in Quintile 5 (the most disadvantaged SLAs). This is an overall differential between Quintile 5 and Quintile 1 of 22.4%.

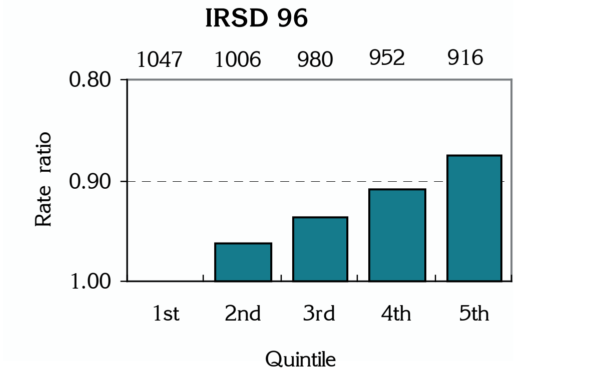
Figure 7.1: Differentials in IRSD scores for postcodes in Adelaide, by quintile of socioeconomic disadvantage of area, 1996



Source: Calculated on Index of Relative Socio-Economic Disadvantage, ABS 1996 Census

At the 1996 Census, the IRSD scores in the non-metropolitan areas of South Australia ranged from 1047 in Quintile 1 to 916 in Quintile 5 (**Figure 7.2**). This is an overall differential between Quintile 5 and Quintile 1 of 12.5%.

Figure 7.2: Differentials in IRSD scores for SLAs in the non-metropolitan areas of South Australia, by quintile of socioeconomic disadvantage of area, 1996



Source: Calculated on Index of Relative Socio-Economic Disadvantage, ABS 1996 Census

Change in health status by socioeconomic disadvantage of area of residence

The earlier part of this chapter showed the overall decrease in deaths in Adelaide and in the non-metropolitan areas of South Australia. In this section, the extent of the change in death rates is again shown, but in a way which highlights the differentials evident in the rates when examined by socioeconomic disadvantage of area. As data in the non-metropolitan area are only available at the Health Region level (due to the small number of deaths at ages 15 to 24 years), the following comparisons are only made for Adelaide (**Figure 7.3** and **Table A15**) and for South Australia as a whole (**Figure 7.4** and **Table A16**).

Adelaide

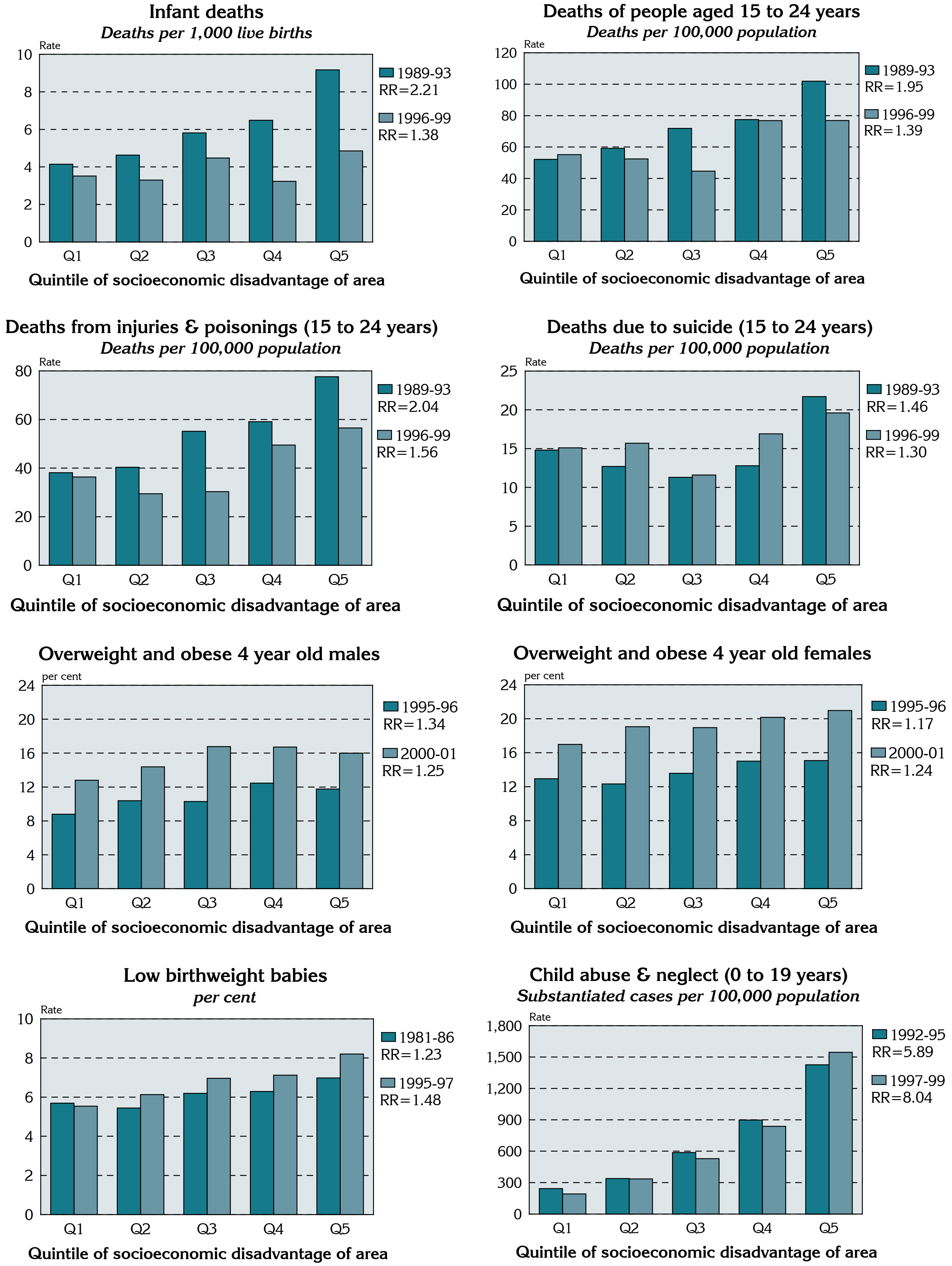
Infant death rates (infant deaths per 1,000 live births) in Adelaide are shown by quintile of socioeconomic disadvantage of area for both 1989-93 and 1996-99. There is a gradient evident for the earlier period, from the lowest rate in the high socioeconomic status areas (Quintile 1, a rate of 4.1 infant deaths per 1,000 live births) to the highest rate (9.2) in the low socioeconomic status areas (Quintile 5). Infant death rates are lower in 1996-99 than in 1989-93 for each quintile, ranging from 3.3 infant deaths per 1,000 live births in Quintile 2 to 4.9 in Quintile 5. The differential in the infant death rate between Quintile 5 (the most disadvantaged areas) and Quintile 1 (the most advantaged areas) has decreased, from 2.21 times higher in the most disadvantaged areas in 1989-93 to 1.38 times higher in 1996-99. This is a notable reduction, although the remaining differential of 38% is still substantial.

There is also a clear gradient evident for deaths of young people aged 15 to 24 years over the 1989-93 period, ranging from 52.2 deaths per 100,000 population in Quintile 1 to a rate of 101.9 in Quintile 5. Death rates in Quintiles 2 through to 5 were lower in the later period, with the largest decreases occurring in Quintile 3 (down by 37.9%) and Quintile 5 (down by 24.5%). A small increase was recorded in the most advantaged areas (Quintile 1, up by 5.8%). The differential in death rates between Quintile 5 and Quintile 1 decreased, from 1.95 times higher in the most disadvantaged areas in 1989-93 to 1.39 times higher in 1996-99.

The major contribution to total deaths at ages 15 to 24 years of deaths from injury and poisoning is evident in the similar profiles in the two graphs. Again, the high rates and strong gradient evident in the earlier period are less evident in the later period. The percentage decrease between the two periods was largest in Quintiles 3 (down by 45.1%) and 5 (down by 27.1%) and smallest in Quintile 1 (down by 4.7%); these changes have resulted in a Quintiles 2 and 3 having the lowest rates. The differential in death rates between Quintile 5 and Quintile 1 also decreased, from 2.04 times higher in the most disadvantaged areas in 1989-93 to 1.56 times higher in 1996-99.

Figure 7.3: Change in health status by quintile of socioeconomic disadvantage of area, Adelaide

Note that the graphs have different scales



Note: RR is the rate ratio (see Glossary)
Source: Compiled from project sources

The pattern in death rates from suicide among young people aged 15 to 24 years is less clear than is evident for the other variables studied. Although the highest death rates in both 1989-93 and 1996-99 were recorded in Quintile 5, the lowest rates were in Quintile 3. Suicide death rates were, overall, higher in the later period, with the largest increase occurring in Quintile 4 (up by 31.6%). The differential in death rates between Quintile 5 and Quintile 1 decreased, from 1.46 times higher in the most disadvantaged areas in 1985-89 to 1.30 times higher in 1992-95.

There is a marked gradient in both periods in the proportion of overweight and obese four year old males and females, from the lowest proportions in the most well off areas, to the highest in the disadvantaged areas. Over the five years from 1995-96 to 2001-02, there has been a marked increase in the proportions of overweight and obese four year old children in each quintile. At the same time, there has been a reduction in the ratio of the proportions in Quintile 5 and Quintile 1 for males, from 34% higher in 1995-96 to 25% higher in 2001-02. For females, the variation in the ratio of rates in Quintile 5 to Quintile 1 shows a worsening of the relative position, with 24% more overweight and obese four year olds in 2000-01 in the most disadvantaged areas (compared with 17% in 1995-96).

The differential in rates between Quintile 5 and Quintile 1 for low birthweight babies over the period 1981-86 increased from 1.23 in 1996-99 to 1.48 in 1995-97. The contributing factors were the small decrease in rates in Quintile 1 (down by 2.7%6 between 1981-86 and 1995-97) and the substantial increase in rates in Quintile 5 (17.4%).

Between 1992-95 and 1997-99, the rate of substantiated cases of child abuse and neglect in Adelaide decreased substantially in the most advantaged areas (down by 20.7% in Quintile 1) and increased in the most disadvantaged areas (up by 8.3% in Quintile 5). This has resulted in the differential between the Quintile 5 and Quintile 1 areas increasing, from 5.89 times higher in the most disadvantaged areas in 1992-95 to a substantial 8.04 times higher in 1997-99 (an increase of 36.5%). Readers should note however, that policy changes in the data recording systems for child abuse and neglect during this period may have influenced these results.

South Australia

Note that, due to the small numbers of cases for many of the variables, the following analysis has not been undertaken for the non-metropolitan area of the State. Instead, the health status data are presented for the whole State.

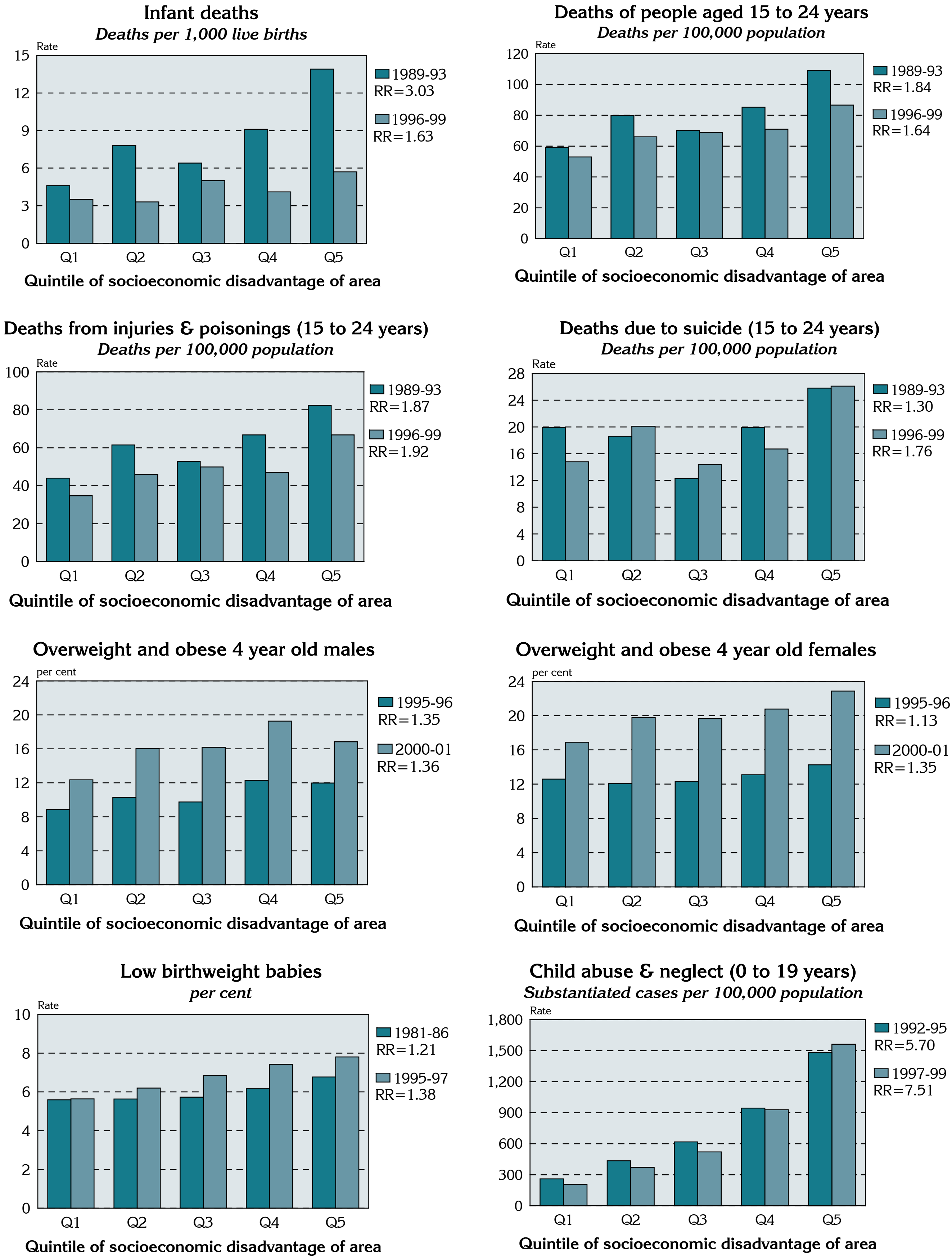
Figure 7.4 and **Table A16** show the differentials in rates by socioeconomic disadvantage of area for South Australia for the variables mapped in Chapter 4. Although there is some variability across the quintiles, the patterns in the charts (ie., the variation in rates across the quintiles) are similar to those evident in Adelaide, with the lowest rates and proportions generally recorded in the most advantaged areas (Quintile 1) and the highest rates in the most disadvantaged areas. Overall, death rates are also generally higher.

The main differences from the gradients evident for Adelaide are in the differentials for deaths from suicide at ages 15 to 24 years. Unlike the situation in Adelaide, the differential between Quintile 5 and Quintile 1 increased, from 1.30 times higher in the most disadvantaged areas in 1981-86 to 1.76 times higher in 1992-95.

The graphs for overweight and obese children are the exception, with the highest proportions recorded in the most disadvantaged areas (Quintile 5) and the lowest proportions in the most advantaged areas (Quintile 1). For males, the variation in the ratio of rates in Quintile 5 to Quintile 1 is minimal: for females it is quite marked, increasing to a differential of 35%.

Figure 7.4: Change in health status by quintile of socioeconomic disadvantage of area, South Australia

Note that the graphs have different scales



Note: RR is the rate ratio (see Glossary)

Source: Compiled from project sources

Change in use of health and welfare services by socioeconomic disadvantage of area of residence

The differentials in admission rates by socioeconomic disadvantage of area for the health service utilisation variables mapped for Adelaide and the non-metropolitan areas of the State are shown in **Figure 7.5** (and **Table A17**) and **Figure 7.6** (and **Table A18**), respectively.

Adelaide

Although there is some variability across the quintiles in Adelaide, the pattern is generally for the most advantaged areas (those in Quintile 1) to have the lowest rates of admission, and for the most disadvantaged areas (those in Quintile 5) to have the highest rates. The exception is for admissions to a private hospital, where the reverse is the case.

<u>Health service utilisation, children aged 0 to 14 years</u>

As shown in **Figure 7.5**, admission rates to public acute and private hospitals among children aged 0 to 14 years have increased in all quintiles except Quintile 4 (which recorded a decrease of 2.6%), with the largest increases occurring in the most advantaged areas (up by 7.3% in Quintile 1 and 11.1% in Quintile 2). This has resulted in the differential in admission rates between Quintile 5 and Quintile 1 decreasing, from 1.42 time higher in the most disadvantaged areas in 1992 to 1.34 times higher in 1996/97-1998/99.

The graph for admissions to a public acute hospital among people aged 0 to 14 years shows a similar gradient and rate of increase to that for total admissions. Admission rates increased in each quintile other than Quintile 4, with a larger increase in Quintile 1 (8.7%) than in Quintile 5 (3.7%). This resulted in a reduction in the differential between Quintile 5 and Quintile 1 areas, from 1.88 to 1.79.

Private hospital admission rates of children and young people from areas of higher socioeconomic status are higher than from more disadvantaged areas; that is, they are higher in areas where families are more likely to have private health insurance. The strong gradient graph in rates for private hospital admissions shows this, with the highest rates in the most advantaged areas (Quintile 1) and the lowest in the least advantaged areas (Quintile 5). Unlike admissions to public hospitals, there has been a decrease in admissions rates to private hospitals in all quintiles other than Quintile 1, where the rate increased by 3.9%.

The graph for admissions of males aged 0 to 14 years shows a similar pattern to that recorded for total admissions. The differential in admission rates decreased from 1.46 times higher in the most disadvantaged areas in 1992 to 1.39 times higher in 1996/97-1998/99. Admission rates for females aged 0 to 14 years are lower than for males, cover a smaller range, and have a smaller between Quintile 5 and Quintile 1 in both periods.

Similar gradients were evident for admissions at ages 0 to 14 years for respiratory system diseases and for bronchitis, emphysema and asthma. While there was a decrease in admission rates from 1992 to 1996/97-1998/99 in all Quintiles, the differential between Quintile 5 and Quintile 1 increased. In the three years from 1996/97 to 1998/99, the largest differential was recorded for the combined causes of bronchitis, emphysema and asthma, with 92% more admissions in the most disadvantaged areas (a differential of 1.92).

Admission rates for the external causes of injury and poisoning have changed relatively little over the two periods, resulting in a small increase in the differential in rates between Quintile 5 and Quintile 1, from 1.24 in 1992 to 1.26 in 1996/97-1998/99.

<u>Health service utilisation, people aged 15 to 24 years</u>

There are also gradients in admission rates for people aged 15 to 24 years (**Figure 7.5**), although they are generally not as strong in the earlier period as they were at ages 0 to 14 years. Admission rates for both total hospital admissions and admissions to a public acute hospital decreased in Quintile 1 and increased in the remaining quintiles. The differential in rates between Quintile 1 and Quintile 5 increased from 1.26 (total admissions) and 1.89 (public acute admissions) times higher in the most disadvantaged areas in 1992 to 1.51 and 2.50 times higher in the 1996/97 to 1998/99 period, respectively.

As shown in **Figure 7.5**, the rates for admission to a private hospital at ages 15 to 24 years exhibit a strong gradient, with the high rates in the most advantaged areas (Quintile 1) dropping rapidly to the lowest in the most disadvantaged areas (Quintile 5). The percentage decreases in admission rates also exhibit a gradient, from the smallest decrease in Quintile 1 (down by 3.4%) to the largest in Quintile 5 (down by 27.9%).

There was no clear gradient evident for admission rates of males aged 15 to 24 years in either of the periods studied. However, there was a decrease in admission rates in all quintiles and an increase in the differential to 6.0% higher in Quintile 5 areas compared with Quintile 1 areas in the later period.

Unlike male admissions, admission rates for females in the 15 to 24 year age group exhibit a strong gradient, with the differential in death rates increasing from 1.49 in 1992 to 1.83 in the period from 1996/97 to 1998/99.

Despite the decrease in admission rates in all quintiles, there was little difference in the differentials in admission rates for the external causes of injury and poisoning at ages 15 to 24 years.

Terminations of pregnancy among woman aged 15 to 24 years was higher in the later period in each of the quintiles, with the largest increase occurring in the most disadvantaged areas (Quintile 5, up by 31.2%. Termination rates in Quintile 1 dropped by a lower 18.8 per cent. The differential in rates between Quintile 1 and Quintile 5 increased from 47% (a rate ratio of 1.47) higher in 1990-92 to 63% (1.63) higher in 1997-99.

<u>Service utilisation, people aged 0 to 24 years</u>

A steep, continuous, gradient is evident in the rate of Family and Youth Services' clients, with almost nine times more clients in the most disadvantaged areas than in the most advantaged areas in 1999 (a differential of 8.71). Since 1991/92, the rates have increased across all quintiles, with increases ranging from 9.7% in Quintile 2 to 61.6% in Quintile 5. This is likely to reflect the increasing levels of inequality facing children living in Adelaide, as evidenced by the increase in the proportion of children living in single parent families and in low income families (**Table 7.1**).

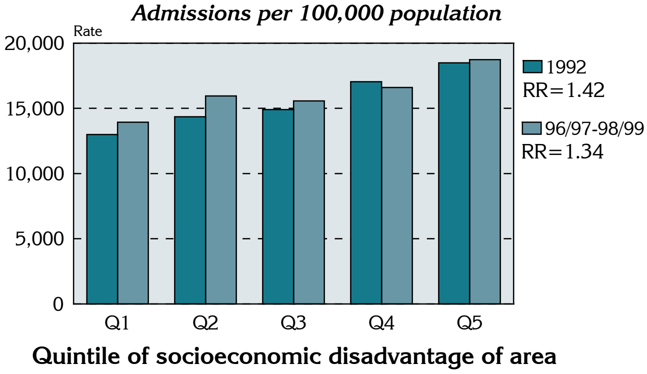
In 1997-99, the rate of services to Community Health Service clients increased from 496 clients per 100,000 population in Quintile 1 to 2,002 clients per 100,000 in Quintile 5: this was considerably lower than the 3,256 clients per 100,000 population in 1991. As a result, the differential in rates between Quintile 5 and Quintile 1 decreased from 4.80 times higher in the most disadvantaged areas in 1991 to (a still substantial) 4.04 times higher in 1997-99.

Figure 7.5: Change in service utilisation by quintile of socioeconomic disadvantage of area, Adelaide

Note that the graphs have different scales

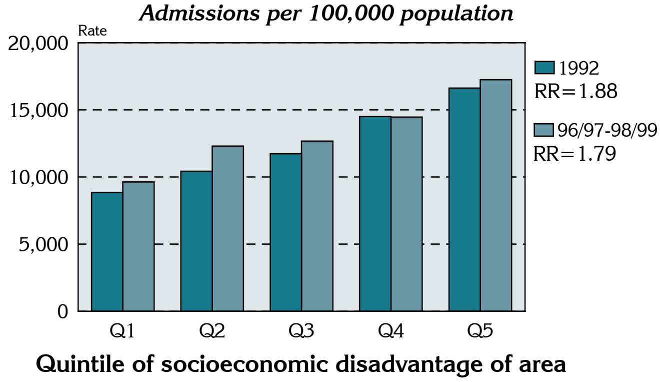
Total admissions (0-14 yrs)

Admissions per 100,000 population



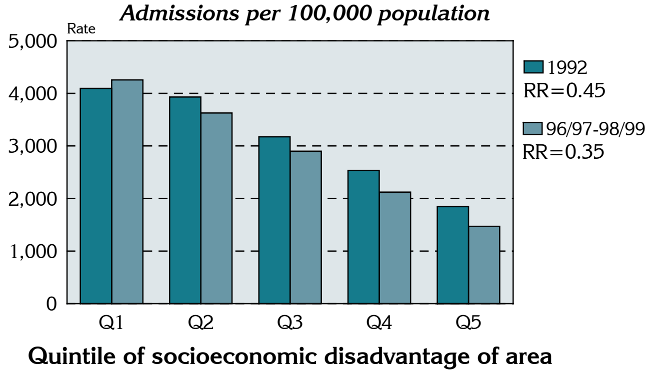
Public acute hospital admissions (0-14 yrs)

Admissions per 100,000 population



Private hospital admissions (0-14 yrs)

Admissions per 100,000 population



Male admissions (0-14 yrs)

Admissions per 100,000 population

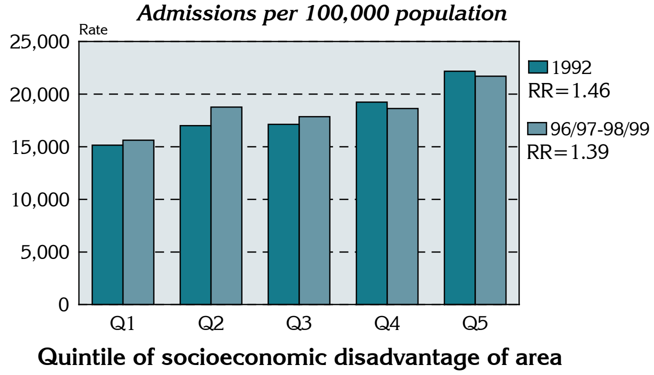


Figure 7.5: Change in service utilisation by quintile of socioeconomic disadvantage of area, Adelaide *...cont*

Note that the graphs have different scales

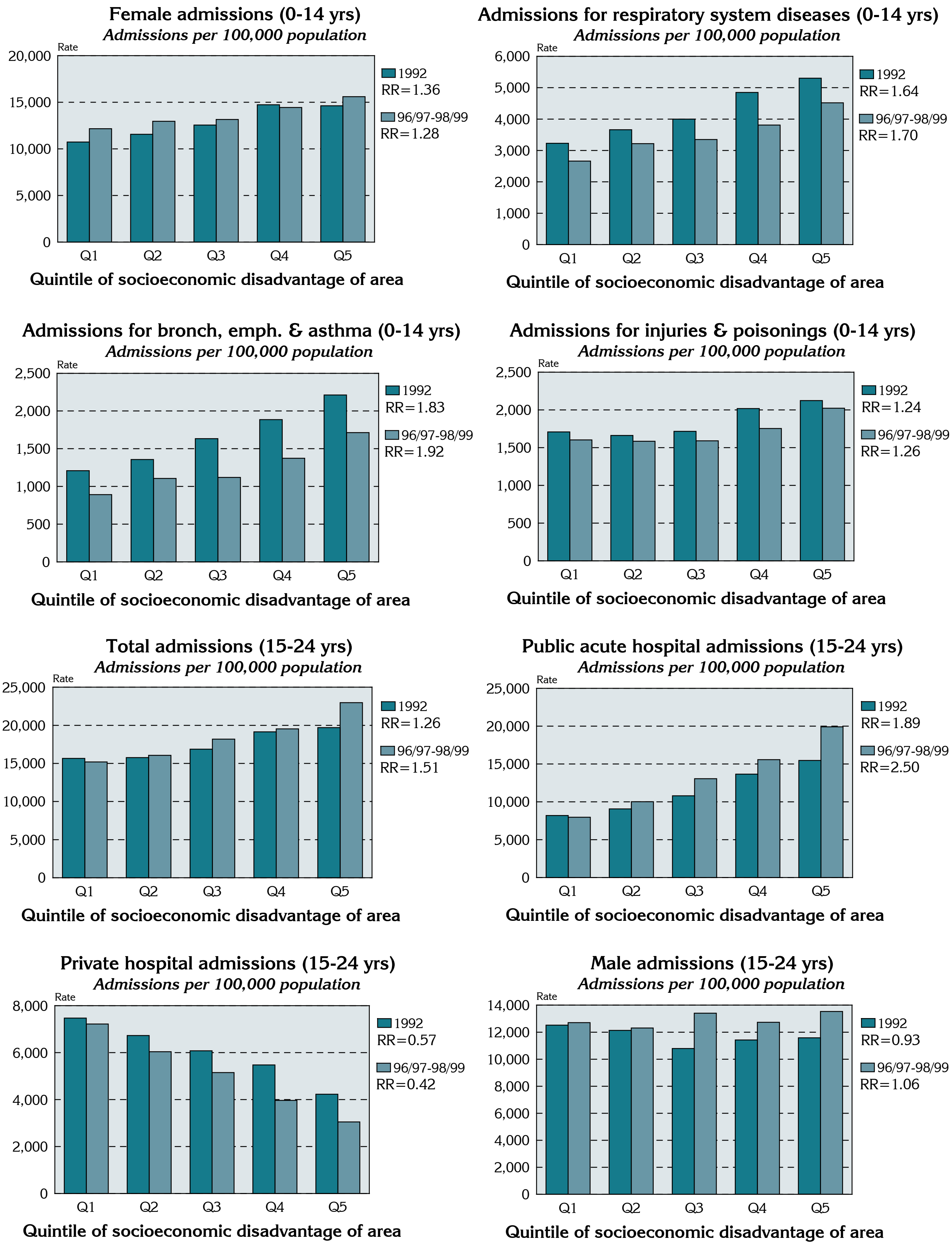
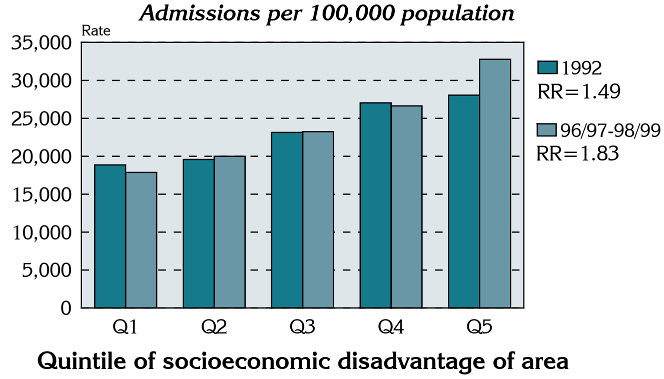


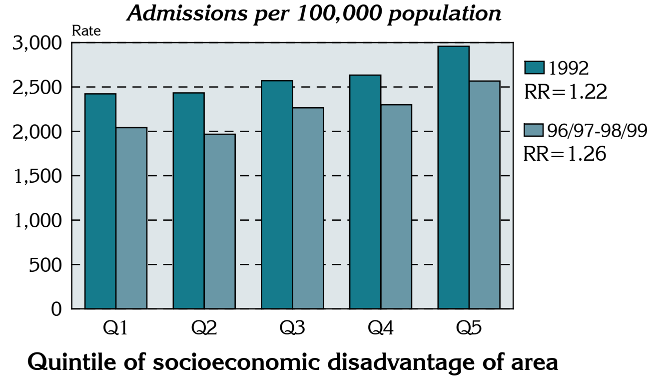
Figure 7.5: Change in service utilisation by quintile of socioeconomic disadvantage of area, Adelaide ...*cont*

Note that the graphs have different scales

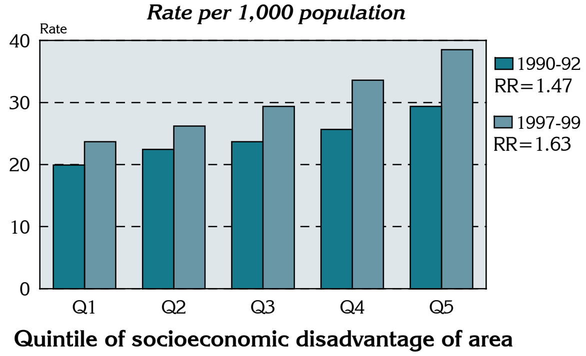
Female admissions (15-24 yrs)
Admissions per 100,000 population



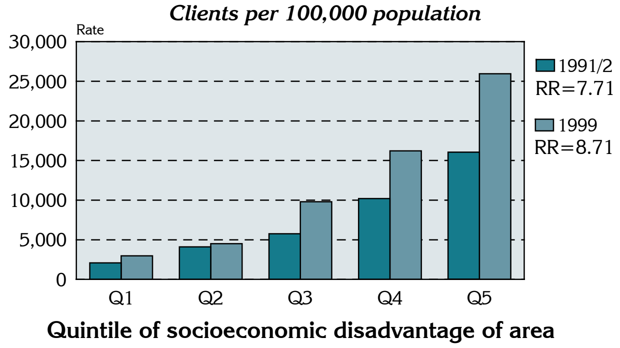
Admissions for injuries & poisonings (15-24 yrs)
Admissions per 100,000 population



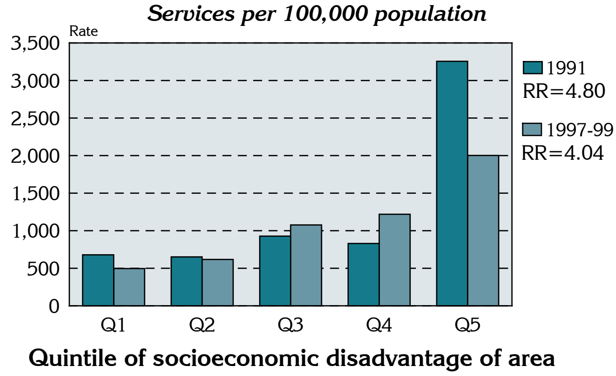
Terminations of pregnancy (15-24 yrs)
Rate per 1,000 population



Family and Youth Services clients (0-24 yrs)
Clients per 100,000 population



Community health services (0-24 yrs)
Services per 100,000 population



Note: RR is the rate ratio (see Glossary)
Source: Compiled from project sources

Non-metropolitan South Australia

Figure 7.6 and **Table A18** show admission rates for each of the health service utilisation variables for SLAs in the non-metropolitan areas of South Australia. Again, there are clear gradients for all variables which are, on the whole, more marked than in Adelaide.

The main difference from the patterns noted for Adelaide is the increase in the differential in admissions of males aged 0 to 14 years (from1.66 to 1.72); and the decrease in differentials in admission rates between Quintile 5 and Quintile 1 between the two periods for:

- admissions to public acute hospitals at ages 15 to 24 years (2.17 to 2.06);
- admissions of males aged 15 to 24 years (1.55 to 1.41); and
- for admissions for injury and poisoning at ages 15 to 24 years (1.49 to 1.29).

There is also a gradient evident in male admission rates at ages 15 to 24 years, a pattern not evident for Adelaide (**Figure 7.5**).

Figure 7.6: Change in health service utilisation by quintile of socioeconomic disadvantage of area, non-metropolitan areas of South Australia

Note that the graphs have different scales

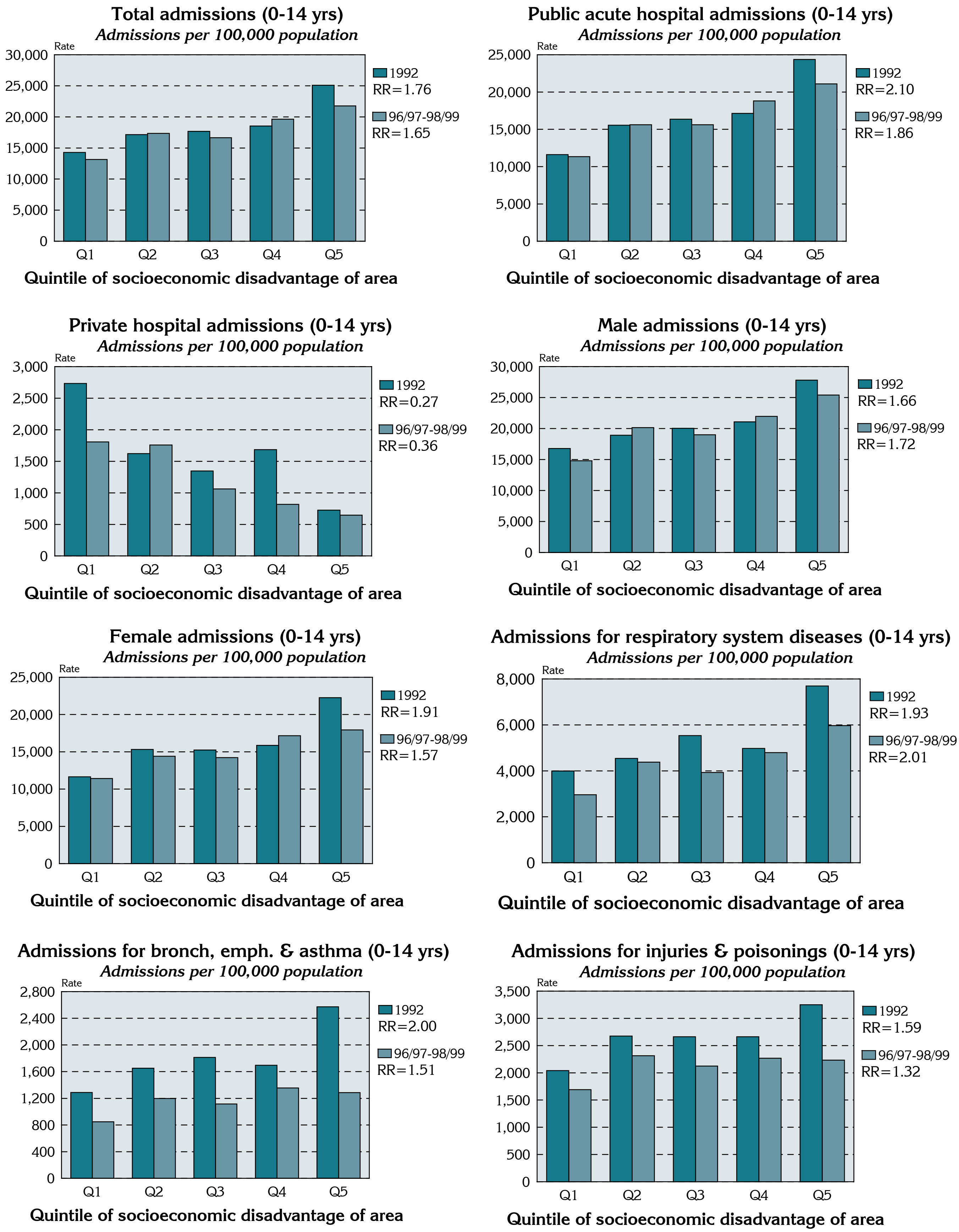
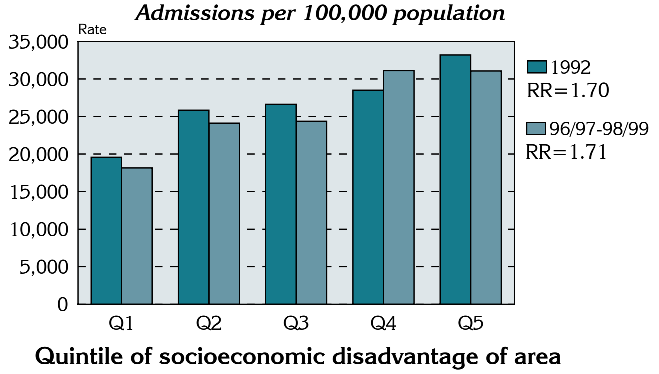


Figure 7.6: Change in health service utilisation by quintile of socioeconomic disadvantage of area, non-metropolitan areas of South Australia ***…cont***

Note that the graphs have different scales

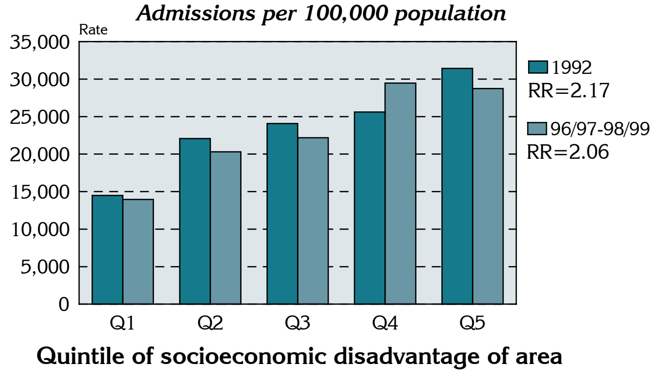
Total admissions (15-24 yrs)

Admissions per 100,000 population



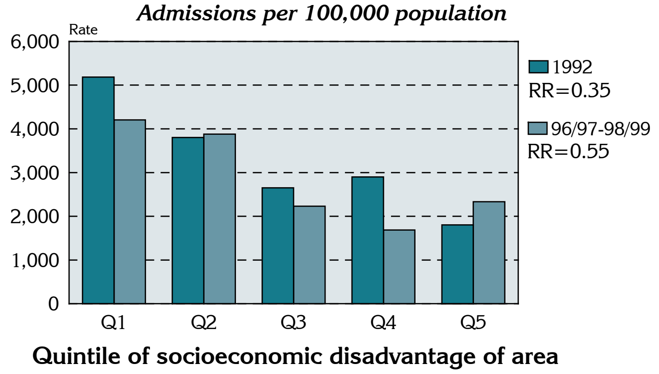
Public acute hospital admissions (15-24 yrs)

Admissions per 100,000 population



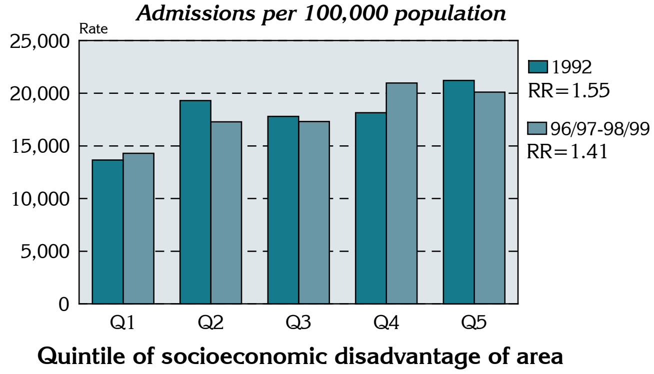
Private hospital admissions (15-24 yrs)

Admissions per 100,000 population



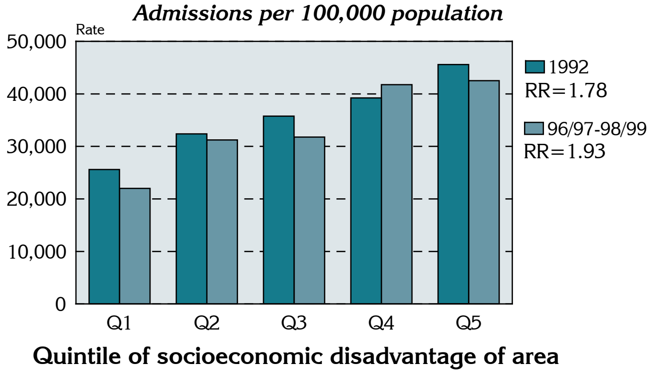
Male admissions (15-24 yrs)

Admissions per 100,000 population



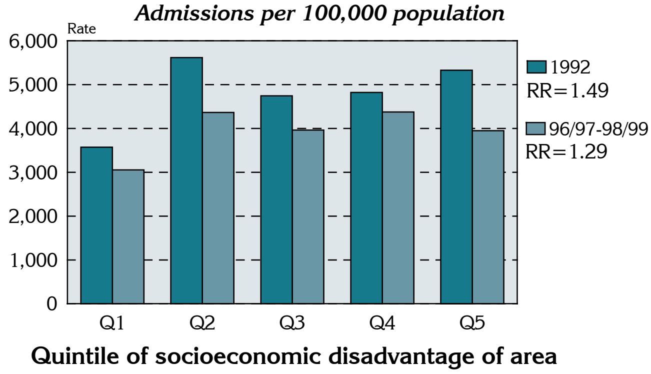
Female admissions (15-24 yrs)

Admissions per 100,000 population



Admissions for injuries & poisonings (15-24 yrs)

Admissions per 100,000 population



Note: RR is the rate ratio (see Glossary)
Source: Compiled from project sources

South Australia

Figure 7.7 and **Table A19** show admission rates for each of the health service utilisation variables by quintile of socioeconomic disadvantage of area for South Australia as a whole. Again, there are clear gradients for all variables which are, on the whole, relatively consistent with those recorded in Adelaide.

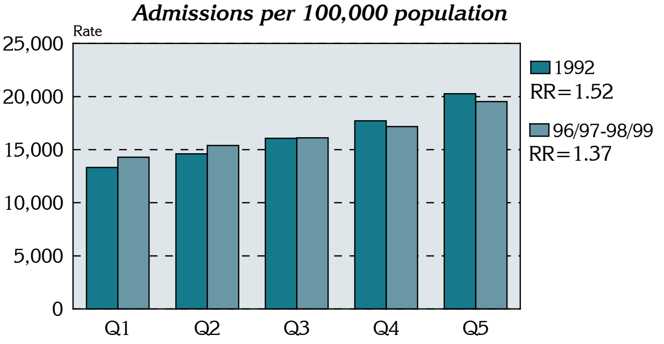
The major differences from the changes noted in Adelaide are the decrease in the differential in admission rates between the two periods for admissions for injury and poisoning (from 1.48 in 1992 to 1.34 in 1996/97-1998/99) and the increase recorded for admissions of males aged 15 to 24 years (from 1.15 to 1.27).

Figure 7.7: Change in service utilisation by quintile of socioeconomic disadvantage of area, South Australia

Note that the graphs have different scales

Total admissions (0-14 yrs)

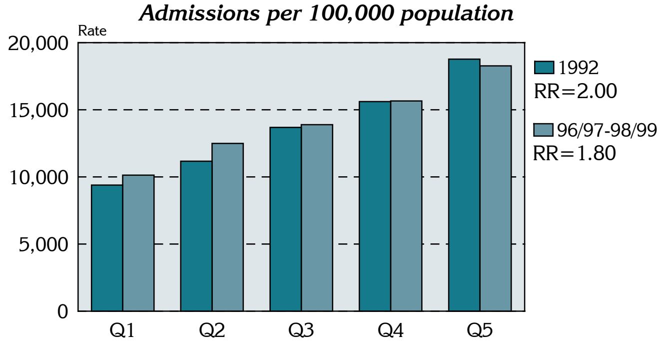
Admissions per 100,000 population



Quintile of socioeconomic disadvantage of area

Public acute hospital admissions (0-14 yrs)

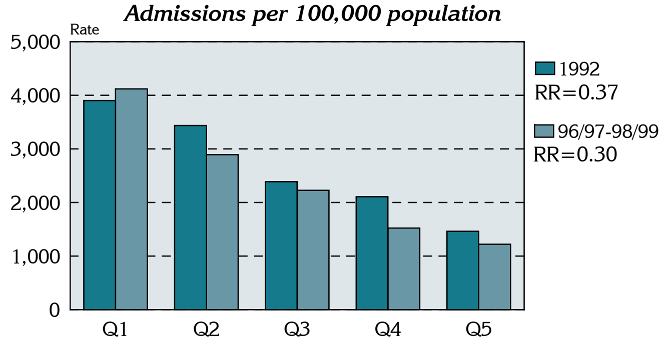
Admissions per 100,000 population



Quintile of socioeconomic disadvantage of area

Private hospital admissions (0-14 yrs)

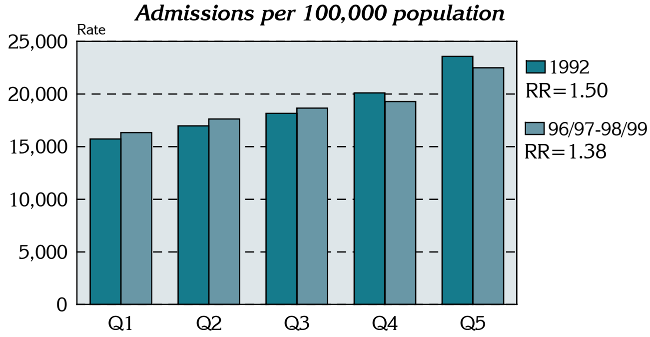
Admissions per 100,000 population



Quintile of socioeconomic disadvantage of area

Male admissions (0-14 yrs)

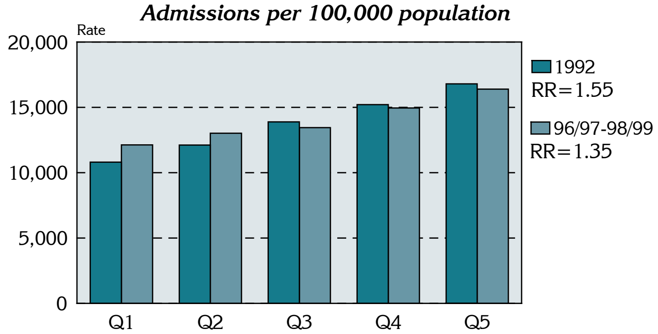
Admissions per 100,000 population



Quintile of socioeconomic disadvantage of area

Female admissions (0-14 yrs)

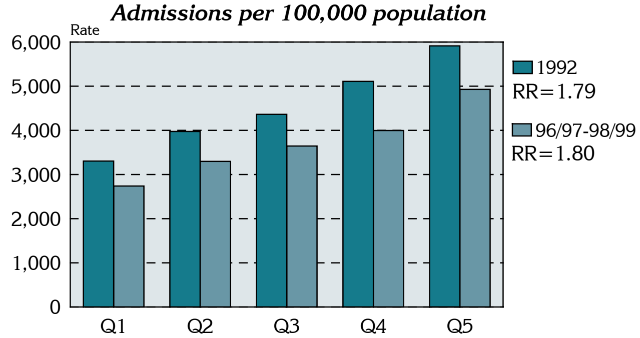
Admissions per 100,000 population



Quintile of socioeconomic disadvantage of area

Admissions for respiratory system diseases (0-14 yrs)

Admissions per 100,000 population



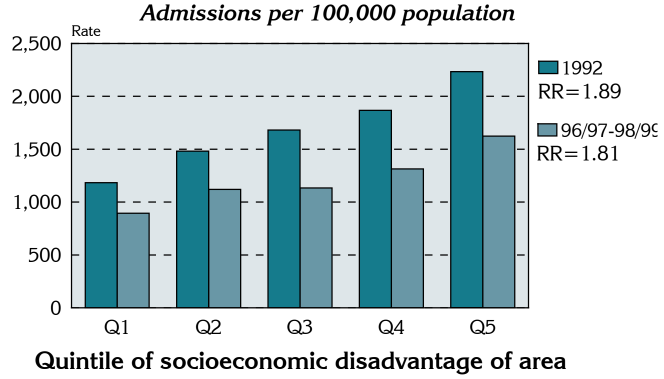
Quintile of socioeconomic disadvantage of area

Figure 7.7: Change in service utilisation by quintile of socioeconomic disadvantage of area, South Australia ...*cont*

Note that the graphs have different scales

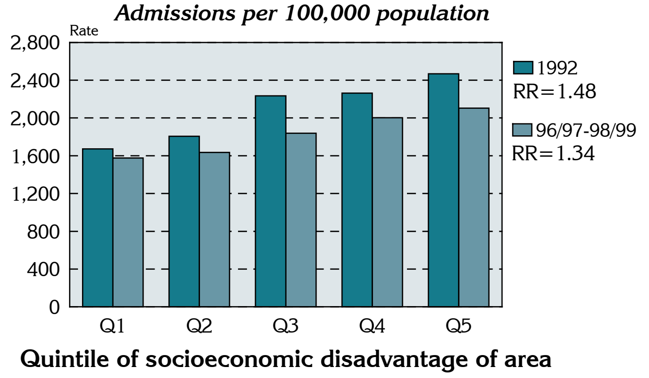
Admissions for bronch, emph. & asthma (0-14 yrs)

Admissions per 100,000 population



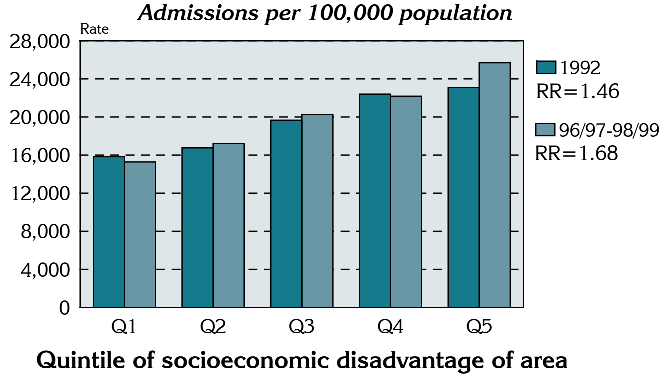
Admissions for injuries & poisonings (0-14 yrs)

Admissions per 100,000 population



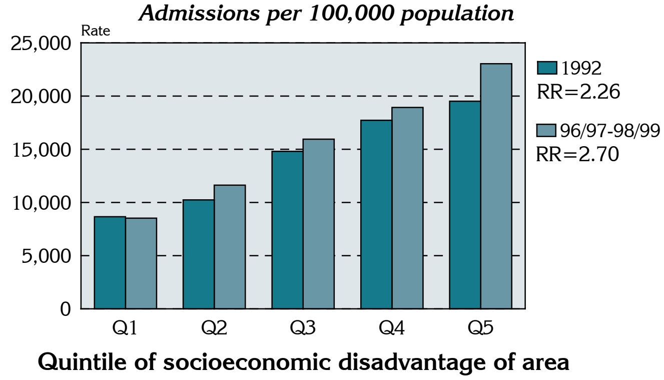
Total admissions (15-24 yrs)

Admissions per 100,000 population



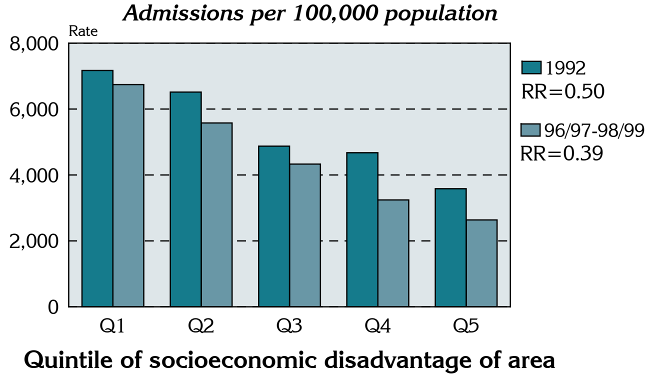
Public acute hospital admissions (15-24 yrs)

Admissions per 100,000 population



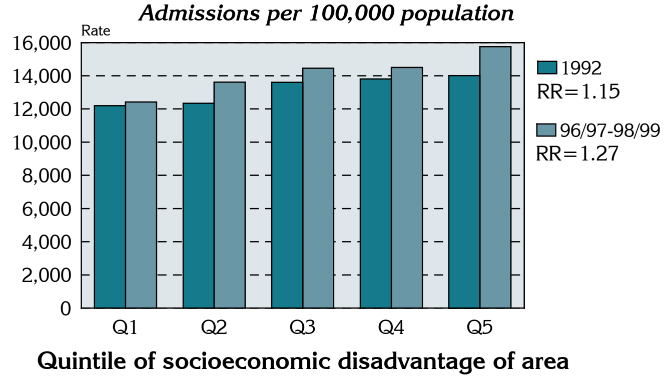
Private hospital admissions (15-24 yrs)

Admissions per 100,000 population



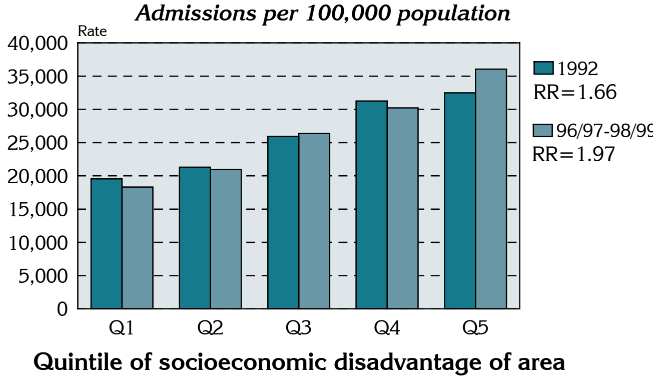
Male admissions (15-24 yrs)

Admissions per 100,000 population



Female admissions (15-24 yrs)

Admissions per 100,000 population



Admissions for injuries & poisonings (15-24 yrs)

Admissions per 100,000 population

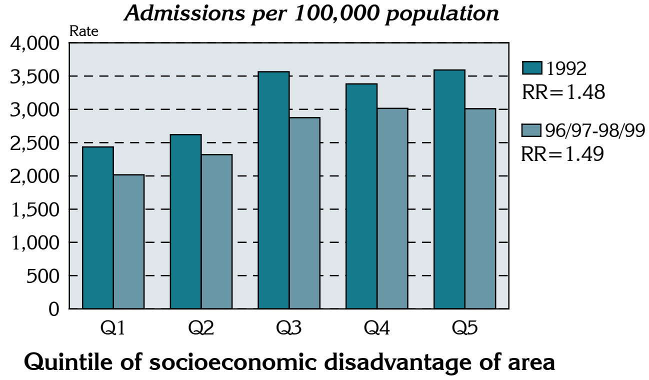
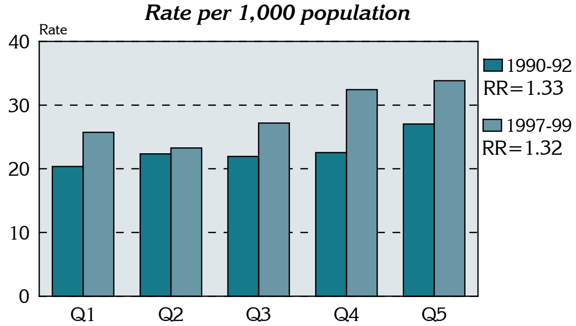


Figure 7.7: Change in service utilisation by quintile of socioeconomic disadvantage of area, South Australia ...*cont*

Note that the graphs have different scales

Terminations of pregnancy (15-24 yrs)

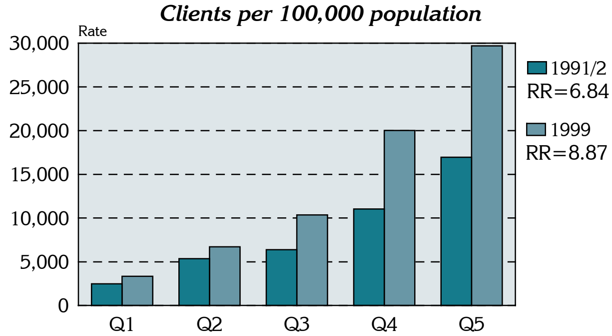
Rate per 1,000 population



Quintile of socioeconomic disadvantage of area

Family and Youth Services clients (0-24 yrs)

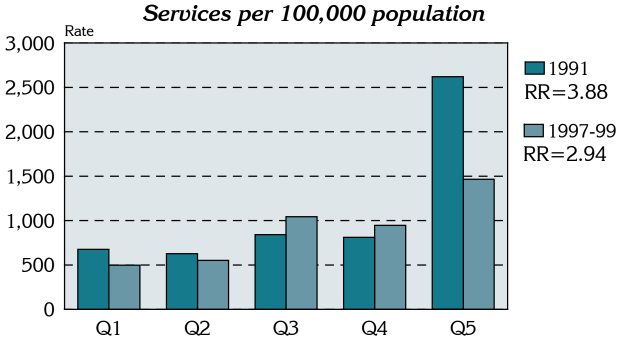
Clients per 100,000 population



Quintile of socioeconomic disadvantage of area

Community health services (0-24 yrs)

Services per 100,000 population

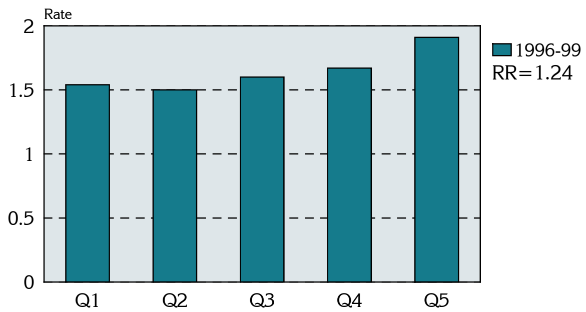


Quintile of socioeconomic disadvantage of area

Note: RR is the rate ratio (see Glossary)
Source: Compiled from project sources

Figure 7.8: Other variables by quintile of socioeconomic disadvantage of area, Adelaide

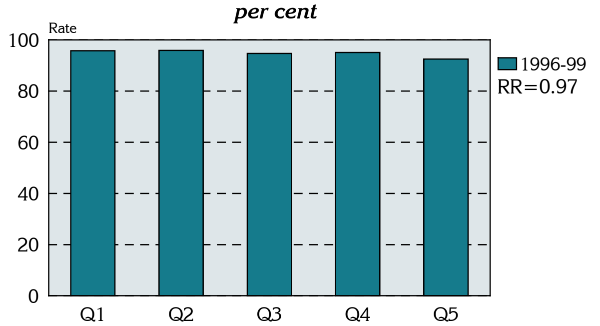
Total Fertility Rate



Quintile of socioeconomic disadvantage of area

Children fully immunised

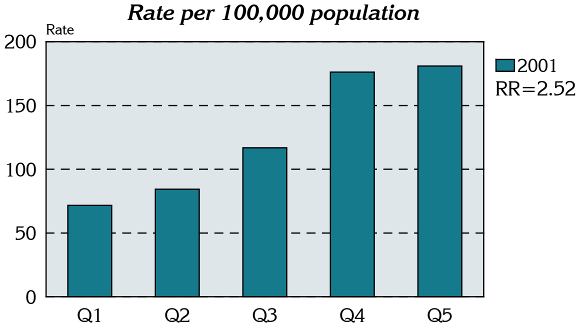
per cent



Quintile of socioeconomic disadvantage of area

Hospital inpatient booking lists

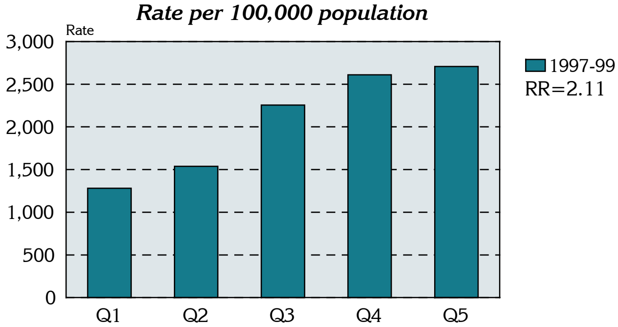
Rate per 100,000 population



Quintile of socioeconomic disadvantage of area

Child and Adolescent Mental Health Service clients

Rate per 100,000 population



Quintile of socioeconomic disadvantage of area

Figure 7.8 shows the indicators for which data were only available for one period.

The Total Fertility Rate (TFR) in 1996-99 for young women aged under 25 years is highest in the most disadvantaged areas, increasing from 1.54 in the most advantaged areas (Quintile 1) to 1.91 in the most disadvantaged areas (Quintile 5), a differential of 1.24.

There is, however, little variation across the quintiles in the proportion of children at 12 months of age who were fully immunised at 17 April 2001, with 3% fewer children immunised in the most disadvantaged areas (a differential of 0.97).

There is a steep gradient in rates by socioeconomic disadvantage of area for both people aged 0 to 24 years on a hospital inpatient booking list (at 30 June 2001) and Child and Adolescent Mental Health Service (CAMHS) clients in 1997-99. Children and young people in the most disadvantaged areas (Quintile 5) are over two and a half times more likely to be on a booking list than residents in the most advantaged areas (a differential of 2.52); and over twice as likely to be clients of CAMHS (a differential of 2.11).

Conclusion

There is clear evidence in the data of an association between socioeconomic disadvantage (as measured by the IRSD) and health status (for premature death, overweight and obese four year old children, low birthweight babies and substantiated cases of child abuse and neglect). These associations are generally evident not only between the most advantaged (Quintile 1) and disadvantaged (Quintile 5) areas, but also in many instances at each of the intervening levels of socioeconomic status (Quintiles 2 to 4) (**Figures 7.3** and **7.4**).

Similarly, there are associations between socioeconomic disadvantage and high rates of hospital admission in the metropolitan and non-metropolitan areas, and in the State as a whole, as well as for hospital inpatient booking lists, terminations of pregnancy, clients of FAYS and CAMHS and community health services in Adelaide (**Figures 7.5** and **7.6**). The gradients by socioeconomic status are particularly strong in the non-metropolitan areas.

It is also clear that, along with the overall improvement in death rates at ages 15 to 24 years (**Table A15**, **Figure 7.3**), there have been marked reductions in disparities in death rates between the poorest areas and the most well off areas. However, the remaining differentials in death rates, of 30% and above, are substantial.

The same cannot be said for the indicators of overweight and obese four year old females, low birthweight babies and substantiated cases of child abuse and neglect: for each of these indicators, the gap has widened. However, for overweight and obese four year old males in Adelaide the gap has narrowed, and for South Australia as a whole, it is static.

While the differential in overall admission rates has been reduced for 0 to 14 year old children (in Adelaide and the non-metropolitan areas), it has increased for those aged 15 to 24 years (in Adelaide). Similarly, the disparity in rates of terminations of pregnancy and FAYS clients, between the poorest areas and most well off areas in Adelaide, has increased.

The information presented in the atlas adds to a convincing body of evidence as to the striking disparities in health that exists between groups in the population. The challenge for policy makers, researchers, health practitioners and governments is to find ways to address these health inequalities and the socioeconomic factors which underpin them.

Appendix:
Supporting documentation

This page intentionally left blank

Appendix 1.1: Project resources

Software

The main software products used in the production of this atlas were:

HealthMap – mapping (see box, opposite)
HealthWIZ – data analysis (see box, opposite)
Harvard Graphics - charting
Microsoft Excel for Windows – calculation of percentages, rates, data standardisation, correlations
Microsoft Word for Windows - word processing, production of PDFs for publishing.

Production

The text, tables, graphs and maps were collated in MS Word (the maps and ARIA+ graphs were pasted into frames in the document). When editing was completed, the word processing files were printed to PDFs as 'final copy'. These were sent to the printer and electronically transferred to plates for offset printing.

Project output

Data in electronic and printed form

The text, maps and data can be downloaded for reading and printing from the Public Health Information Development Unit's World Wide Web site at www.publichealth.gov.au

Where errors are found in the text or data, errata sheets will be posted to the web site, as will additional analyses of relevant data.

HealthMap

HealthMap is an in-house mapping product developed to allow data with a geographic base to be mapped in a straightforward way. This is achieved by pasting the area code (eg. postcode number, SLA code) and the data into a spreadsheet, from where the map areas are in-filled with the colour or shade for the particular value. The package provides a wide range of options for selecting colours or shades, for setting to different map projections, etc.

HealthWIZ

HealthWIZ is a comprehensive health statistics database product, with a small area focus, produced by the Commonwealth Department of Health and Ageing. It is comprised of detailed, data collections from Australia's hospital systems, cause of death registries, Medicare and social security payment systems and population censuses, together with data from administrative systems such as aged care and child care.

The data are contained on a CD-ROM and are accompanied by table-building software. The menu-driven interface allows for a range of statistical calculations (age-standardised rates, confidence intervals, indices, time series data) to be undertaken to choose the most appropriate calculation for the dataset and the needs of the user. These calculations are built into the software. The HealthWIZ software is also accessible via the World Wide Web at www.prometheus.com.au

HealthWIZ Version 6.2 comes with an integrated mapping module. All the datasets and variables in the database can be mapped without the need for specialist knowledge of mapping software. All necessary digitised boundaries are included for users to be able to copy the maps to their own documents for publication. This feature was not used for the production of this atlas.

This page intentionally left blank

Appendix 1.2: Geographic areas mapped

Introduction

The following notes are intended to amplify and explain points raised in Chapter 2, Methods as to the areas mapped in the atlas.

Areas

Background

While the SLA has historically been the main local area level spatial unit for official statistical collections, the postcode area has been widely used for many years. The postcode area is a particularly useful spatial unit of analysis because it generally covers smaller and more homogenous geographic areas than an SLA and, unlike the SLA (which is coded using details of the suburb/ town and street address), it does not require any additional coding. Residential postcodes are also extensively used for administration purposes, as most service provision of any kind requires an address listing. This means that the postcode is available in the record of the event being captured (eg. hospital admission) with other data items of interest (eg. age, sex) and can be used for statistical purposes.

In non-metropolitan areas, the postcode is less useful as an indicator of address of usual residence, as many people living outside of a town do not receive a mail delivery. They are likely to use, in administrative records (Medicare claims, hospital admission forms), the postcode of the town where they collect their mail (the postcode of their postal address), rather than the postcode of their residential address. In addition, postcode areas in the country frequently cover large areas, which may not be contiguous. For example, a postcode may cover a town and the population living in a number of other towns and rural areas along a major highway, some as far as 100 or more kilometres away. Intervening towns may have another postcode.

Areas mapped in Adelaide

As noted in Chapter 2, there are difficulties associated with obtaining valid data from the Population Census for postcode areas. In addition, data are not available for some postcode areas (these postcodes are listed in **Table A1**).

The postcode areas and SLAs mapped for Adelaide are shown in **Map A1** and **Map A2**, and are listed in the accompanying tables (**Tables A4** and **A5**).

Copies of the boundaries to use as overlays with the maps are in a pocket inside the back cover.

Table A1
Postcode areas not mapped

Nil or sparse population[1]	
. .	Torrens Island
5001	Private Boxes at Adelaide GPO & Adelaide Airport
5005	University of Adelaide
5071	Kent Town Private Boxes
5106	Parafield Airport
5111	Edinburgh RAAF
5150	Eagle on the Hill
5160	Lonsdale
5950	Export Park Private Boxes
Mostly outside of Metropolitan Adelaide	
5131	Houghton
5132	Paracombe
5133	Inglewood
Unreliable estimate of resident population (not mapped for Census variables describing individuals)	
5000	Adelaide
5006	North Adelaide

[1]**Where data for Torrens Island appears in statistics it is included with Port Adelaide (postcode or SLA)**

Areas mapped in non-metropolitan areas

A majority of the data for non-metropolitan areas is mapped by SLA. SLAs that are wholly or predominantly urban centres (towns) have been separately identified and located on the maps as a circle. Many urban centres – including two of the largest (Port Augusta, 13,091 and Murray Bridge, 12,725) and several of medium size (e.g. Victor Harbor, 5,928; Mount Barker, 5,523; Millicent, 5,118; and Renmark, 4,256) – are not separate SLAs. Each of the SLAs covering these urban centres includes a proportion of rural population.

To increase the number of urban centres for which data could be analysed and mapped, all urban centres with a population of 1,500 or more were examined to see whether they met a set of rules relating to the extent to which they provided the majority of the population of the SLA in which they lay. The rules are shown in **Table A2,** overleaf.

Table A2
Rules for mapping urban centres
(outside of Metropolitan Adelaide)

1 If 100 per cent of an urban centre/ locality (UCL) [with a population of 1500 or more] is in an SLA ***and*** the UCL represents 80 per cent or more of the SLA, then the SLA is mapped as the urban centre.

2 If an UCL is located in ***two*** SLAs and the largest part represents 80 per cent or more of a single SLA, it is mapped provided the part in another SLA represents less than 20 per cent of the total UCL population: in this case it is mapped as the area represented by the host SLA [i.e. by the population relating to the major part].

3 If the above two conditions are met, a further requirement is that the population be largely comprised of usual residents.

Using this approach, thirteen of a total of thirty-five urban centres in the State with a population of 1,500 or more have been mapped. **Table A3** shows the way in which individual urban centres were treated.

Table A3
Urban centres mapped

Urban centre	Urban centre pop	SLA pop	Urban centre as % of SLA	CD derived postcode pop
Include: urban centre 80% or more of SLA				
Wallaroo	2,465	2,272	108.5	2,272
Mount Gambier	21,153	21,153	100.0	24,119
Naracoorte	4,711	4,711	100.0	6,915
Peterborough	2,138	2,138	100.0	2,409
Whyalla	25,517	25,739	99.1	25,866
Port Pirie	14,110	14,398	98.0	15,732
Port Lincoln	11,345	11,809	96.1	12,631
Port Augusta	13,091	14,965	87.5	13,358
Coober Pedy	2,491	2,881	86.5	3,069
Roxby Downs	1,990	2,378	83.7	2,369
Tanunda	3,087	3,743	82.5	4,129
Victor Harbor	5,928	7,228	82.0	7,306
Murray Bridge	12,725	15,884	80.1	14,319
Exclude: urban centre less than 80% of SLA				
Mount Barker	5,523	17,517	31.5	6,821
Millicent	5,118	7,752	66.0	7,984
Renmark	4,256	7,546	56.4	7,597
Berri	3,733	6,678	55.9	5,581
Kadina	3,536	7,263	48.7	4,062
Loxton	3,322	6,914	48.0	5,977
Nuriootpa	3,321	6,742	49.3	4,817
Goolwa	3,018	6,729	44.9	3,524
Ceduna	2,753	3,654	75.3	4,171
Moonta	2,723	7,263	37.5	2,961
Strathalbyn	2,623	6,249	42.0	4,966
Clare	2,575	3,929	65.5	3,647
Bordertown	2,235	6,939	32.2	3,322
Mannum	2,025	3,083	65.7	3,279
Kapunda	1,979	3,197	61.9	2,711
Barmera	1,859	4,320	43.0	3,782
Angaston	1,819	6,742	27.0	3,649
Waikerie	1,748	4,579	38.2	4,021
Hahndorf	1,661	17,517	9.5	2,784
Woomera	1,600	7,015	22.8	7,015
Lobethal	1,521	7,431	20.5	1,947
Tailem Bend	1,502	3,893	38.6	1,902

Source: Compiled from 1991 ABS Census data

The SLAs mapped for non-metropolitan areas are shown in **Map A3** and **Tables A6** and **A7** (1996 boundaries) and **Map A4** and **Tables A8** and **A9** (1998 boundaries); for Health Service Regions they are shown in **Map A5.**

Map A1
Key to areas mapped for Adelaide postcodes
(also included as clear film overlay inside back cover)

N

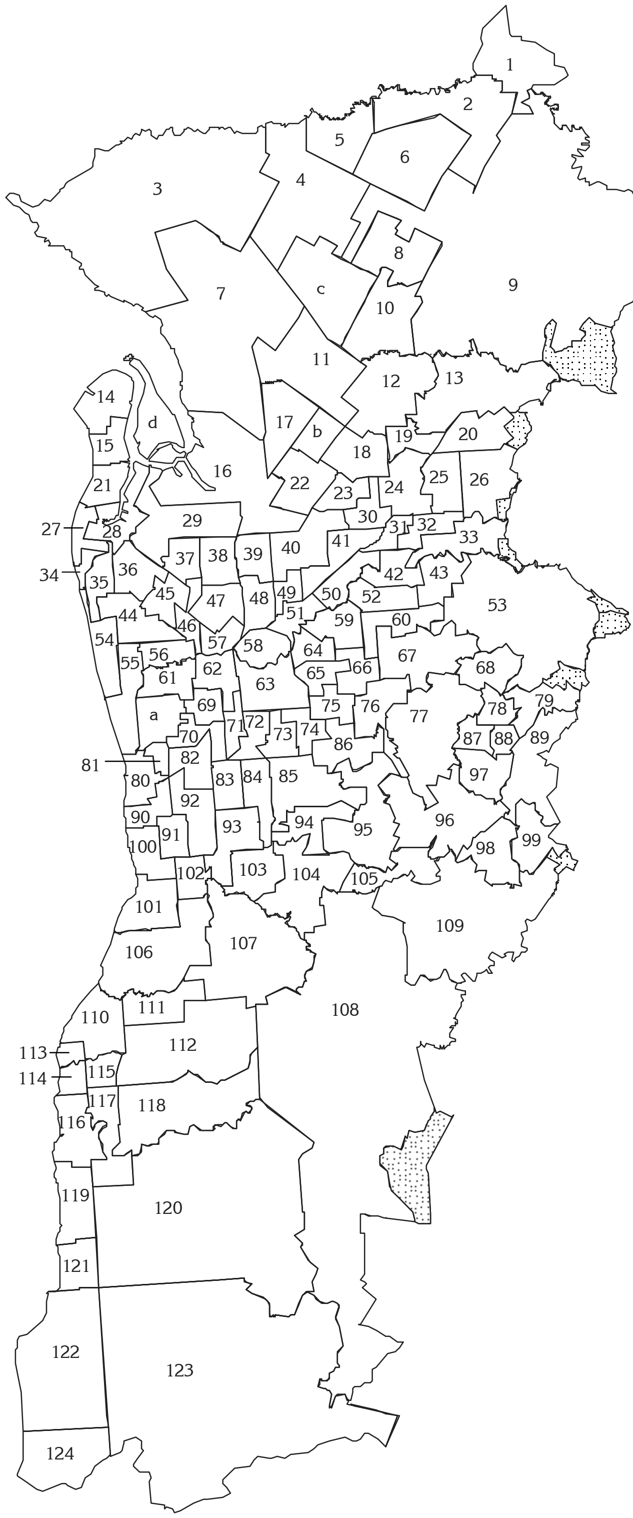


Table A4
Key to postcode areas mapped for Metropolitan Adelaide: Map reference number order

Map ref.	Postcode number	Postcode name	Map ref.	Postcode number	Postcode name	Map ref.	Postcode number	Postcode name
1	5118	Gawler	51	5081	Walkerville	101	5049	Seacliff
2	5116	Evanston	52	5074	Campbelltown	102	5047	Darlington
3	5120	Virginia	53	5134	Montacute	103	5050	Eden Hills
4	5121	MacDonald Park	54	5022	Henley Beach	104	5051	Blackwood
5	5117	Angle Vale	55	5024	Fulham	105	5156	Upper Sturt
6	5115	Munno Para	56	5025	Flinders Park	106	5158	O'Halloran Hill
7	5110	Burton	57	5007	Hindmarsh	107	5159	Happy Valley
8	5113	Elizabeth North	58	5006	North Adelaide	108	5157	Blackwood Forward
9	5114	Smithfield	59	5070	Marden	109	5153	Stirling Forward
10	5112	Elizabeth	60	5073	Rostrevor	110	5160	Lonsdale
11	5108	Salisbury	61	5032	Brooklyn Park	111	5161	Reynella
12	5109	Salisbury East	62	5031	Thebarton	112	5162	Morphett Vale
13	5125	Golden Grove	63	5000	Adelaide (City)	113	5166	O'Sullivan Beach
14	5018	Outer Harbor	64	5069	St Peters	114	5165	Christies Beach
15	5017	Osborne	65	5067	Norwood	115	5164	Christie Downs
16	5094	Gepps Cross	66	5068	Kensington Park	116	5167	Port Noarlunga
17	5107	Parafield Gardens	67	5072	Magill	117	5168	Old Noarlunga
18	5096	Para Hills	68	5136	Norton Summit	118	5163	Hackham
19	5127	Wynn Vale	69	5033	Cowandilla	119	5169	Moana
20	5126	Fairview Park	70	5037	Netley	120	5171	McLaren Vale
21	5016	Largs Bay	71	5035	Keswick	121	5170	Maslin Beach
22	5095	Pooraka	72	5034	Goodwood	122	5173	Aldinga
23	5098	Ingle Farm	73	5061	Unley	123	5172	Willunga
24	5092	Modbury North	74	5063	Eastwood	124	5174	Sellicks Beach
25	5097	St Agnes	75	5065	Glenside			
26	5091	Tea Tree Gully	76	5066	Burnside	**Not mapped**		
27	5019	Semaphore	77	5140	Greenhill	a	Adelaide Airport (5000)	
28	5015	Port Adelaide	78	5137	Ashton	b	Parafield Airport (5106)	
29	5013	Rosewater East	79	5138	Basket Range	c	Edinburgh RAAF Base (5111)	
30	5093	Para Vista	80	5045	Glenelg	d	Torrens Island	
31	5088	Holden Hill	81	5040	Novar Gardens			
32	5090	Hope Valley	82	5038	Plympton			
33	5089	Highbury	83	5039	Edwardstown			
34	5020	West Lakes Shore	84	5041	Daw Park			
35	5021	West Lakes	85	5062	Kingswood			
36	5014	Alberton	86	5064	Glen Osmond			
37	5012	Woodville North	87	5141	Summertown			
38	5010	Ferryden Park	88	5142	Uraidla			
39	5084	Blair Athol	89	5144	Carey Gully			
40	5085	Enfield	90	5044	Somerton Park			
41	5086	Greenacres	91	5046	Oaklands Park			
42	5075	Paradise	92	5043	Park Holme			
43	5076	Athelstone	93	5042	St Marys			
44	5023	Seaton	94	5052	Belair			
45	5011	Woodville	95	5150	Line of Mail[1]			
46	5009	Kilkenny	96	5152	Stirling			
47	5008	Croydon	97	5151	Piccadilly			
48	5082	Prospect	98	5154	Aldgate			
49	5083	Nailsworth	99	5155	Bridgewater			
50	5087	Klemzig	100	5048	Brighton			

[1]**Includes Eagle on the Hill**

Table A5
Key to postcode areas mapped for Metropolitan Adelaide: postcode order

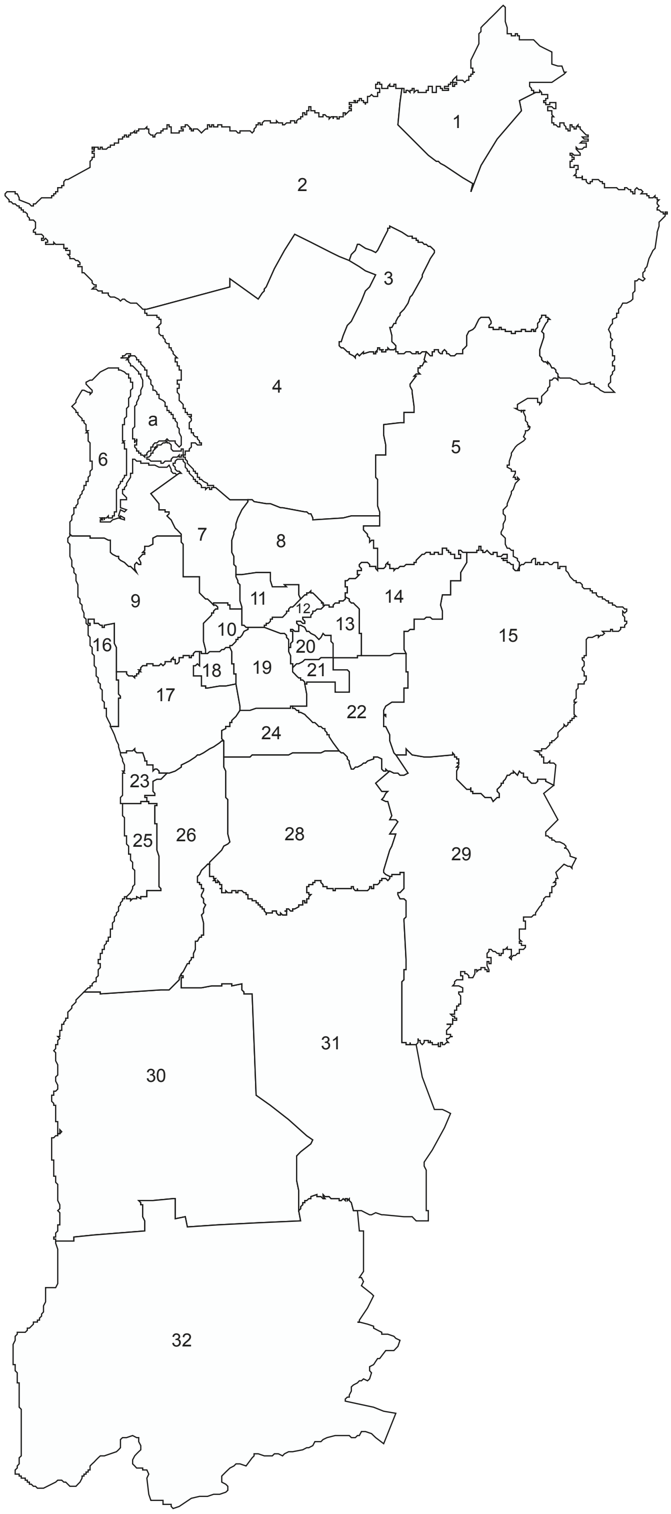
Map ref.	Postcode number	Postcode name	Map ref.	Postcode number	Postcode name	Map ref.	Postcode number	Postcode name
63	5000	Adelaide (City)	64	5069	St Peters	97	5151	Piccadilly
58	5006	North Adelaide	59	5070	Marden	96	5152	Stirling
57	5007	Hindmarsh	67	5072	Magill	109	5153	Stirling Forward
47	5008	Croydon	60	5073	Rostrevor	98	5154	Aldgate
46	5009	Kilkenny	52	5074	Campbelltown	99	5155	Bridgewater
38	5010	Ferryden Park	42	5075	Paradise	105	5156	Upper Sturt
45	5011	Woodville	43	5076	Athelstone	108	5157	Blackwood Forward
37	5012	Woodville North	51	5081	Walkerville	106	5158	O'Halloran Hill
29	5013	Rosewater East	48	5082	Prospect	107	5159	Happy Valley
36	5014	Alberton	49	5083	Nailsworth	110	5160	Lonsdale
28	5015	Port Adelaide	39	5084	Blair Athol	111	5161	Reynella
21	5016	Largs Bay	40	5085	Enfield	112	5162	Morphett Vale
15	5017	Osborne	41	5086	Greenacres	118	5163	Hackham
14	5018	Outer Harbor	50	5087	Klemzig	115	5164	Christie Downs
27	5019	Semaphore	31	5088	Holden Hill	114	5165	Christies Beach
34	5020	West Lakes Shore	33	5089	Highbury	113	5166	O'Sullivan Beach
35	5021	West Lakes	32	5090	Hope Valley	116	5167	Port Noarlunga
54	5022	Henley Beach	26	5091	Tea Tree Gully	117	5168	Old Noarlunga
44	5023	Seaton	24	5092	Modbury North	119	5169	Moana
55	5024	Fulham	30	5093	Para Vista	121	5170	Maslin Beach
56	5025	Flinders Park	16	5094	Gepps Cross	120	5171	McLaren Vale
62	5031	Thebarton	22	5095	Pooraka	123	5172	Willunga
61	5032	Brooklyn Park	18	5096	Para Hills	122	5173	Aldinga
69	5033	Cowandilla	25	5097	St Agnes	124	5174	Sellicks Beach
72	5034	Goodwood	23	5098	Ingle Farm			
71	5035	Keswick	17	5107	Parafield Gardens			
70	5037	Netley	11	5108	Salisbury			
82	5038	Plympton	12	5109	Salisbury East			
83	5039	Edwardstown	7	5110	Burton			
81	5040	Novar Gardens	10	5112	Elizabeth			
84	5041	Daw Park	8	5113	Elizabeth North			
93	5042	St Marys	9	5114	Smithfield			
92	5043	Park Holme	6	5115	Munno Para			
90	5044	Somerton Park	2	5116	Evanston			
80	5045	Glenelg	5	5117	Angle Vale			
91	5046	Oaklands Park	1	5118	Gawler			
102	5047	Darlington	3	5120	Virginia			
100	5048	Brighton	4	5121	MacDonald Park			
101	5049	Seacliff	13	5125	Golden Grove			
103	5050	Eden Hills	20	5126	Fairview Park			
104	5051	Blackwood	19	5127	Wynn Vale			
94	5052	Belair	53	5134	Montacute			
73	5061	Unley	68	5136	Norton Summit			
85	5062	Kingswood	78	5137	Ashton			
74	5063	Eastwood	79	5138	Basket Range			
86	5064	Glen Osmond	77	5140	Greenhill			
75	5065	Glenside	87	5141	Summertown			
76	5066	Burnside	88	5142	Uraidla			
65	5067	Norwood	89	5144	Carey Gully			
66	5068	Kensington Park	95	5150	Leawood Gardens			

Not mapped

a	Adelaide Airport (5000)
b	Parafield Airport (5106)
c	Edinburgh RAAF Base (5111)
d	Torrens Island

Map A2
Key to areas mapped for Adelaide Statistical Local Areas
(also included as clear film overlay inside back cover)

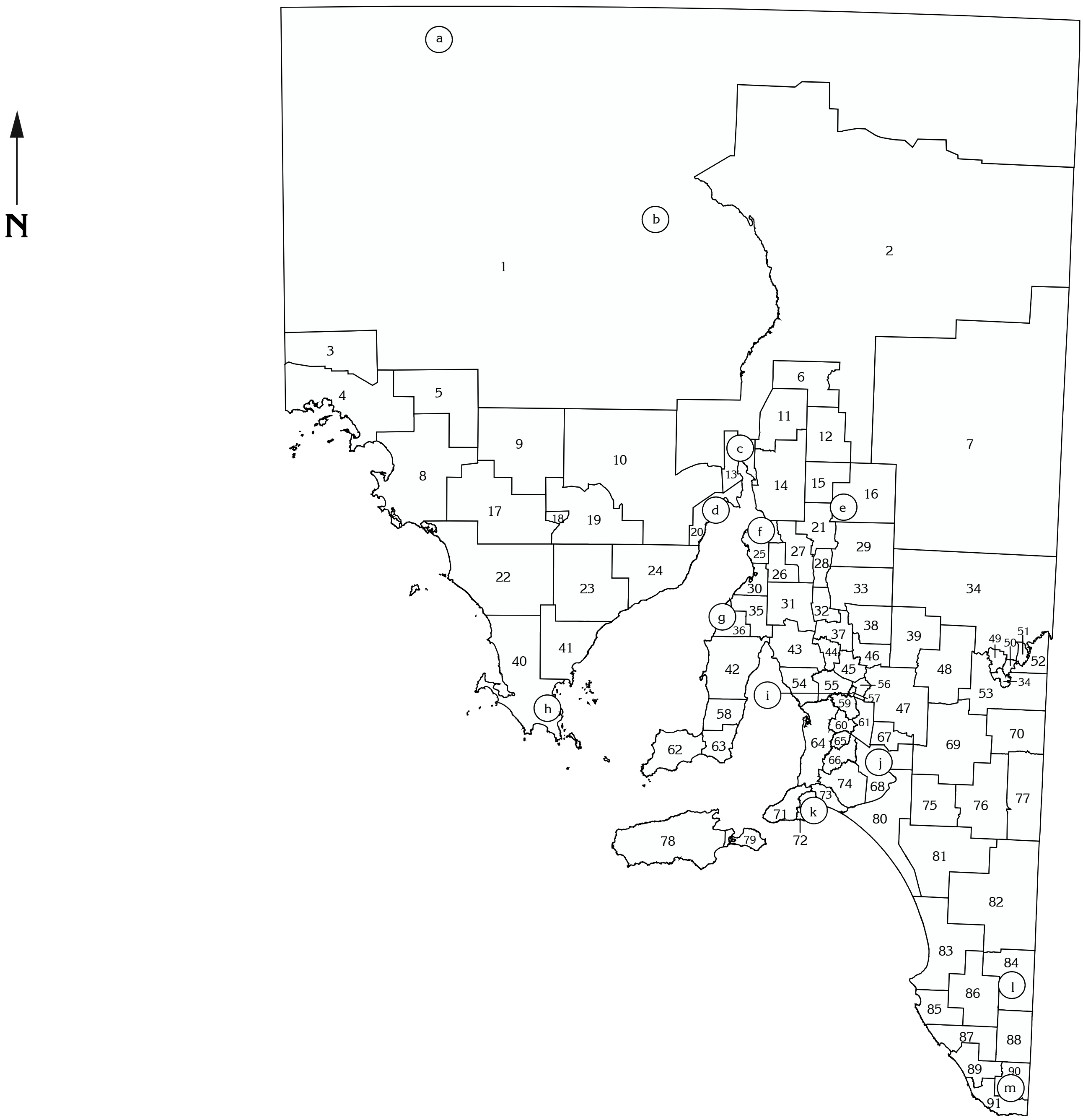
Adelaide (C)	19
Brighton (C)	24
Burnside (C)	21
Campbelltown (C)	13
East Torrens (C)	14
Elizabeth (C)	3
Enfield (C)	
Part A	8
Part B	7
Gawler (M)	1
Glenelg (C)	22
Happy Valley (C)	29
Henley & Grange (C)	15
Hindmarsh & Woodville (C)	9
Kensington & Norwood (C)	20
Marion (C)	25
Mitcham (C)	26
Munno Para (C)	2
Noarlunga (C)	28
Payneham (C)	12
Port Adelaide (C)	6
Prospect (C)	10
St Peters (M)	19
Salisbury (C)	4
Stirling (DC)	27
Tea Tree Gully (C)	5
Thebarton (M)	17
Unley (C)	23
Walkerville (M)	11
West Torrens (C)	16
Willunga (DC)	30
Unincorporated Western	a



Details of map boundaries are in Appendix 1.2

Map A3
Key to areas mapped for South Australia, Statistical Local Areas, 1996

(also included as clear film overlay inside back cover)



Details of map boundaries are in Appendix 1.2

Table A6
Key to Statistical Local Areas (SLAs) mapped for non-metropolitan areas: map reference order, 1996

Map ref.	SLA code	Statistical Local Area name	ARIA+ class	Map ref.	SLA code	Statistical Local Area name	ARIA+ class
1	9589	Unincorporated Far North	4 (31.5)	43	8190	Wakefield Plains (DC)	3 (21.4)
			5 (68.5)				4 (78.6)
2	9529	Unincorporated Flinders Ranges	4 (75.4)	44	6790	Riverton (DC)	3 (100.0)
			5 (24.6)	45	3010	Kapunda (DC)	3 (100.0)
3	9249	Unincorporated West Coast [pt]	5 (100.0)	46	1890	Eudunda (DC)	2 (75.2)
4	4970	Murat Bay (DC)	5 (100.0)				3 (24.8)
5	9249	Unincorporated West Coast [pt]	5 (100.0)	47	7840	Ridley-Truro (DC)	2 (41.5)
6	2520	Hawker (DC)	4 (100.0)				3 (58.5)
7	9459	Unincorporated Pirie	4 (100.0)	48	8120	Waikerie (DC)	3 (100.0)
8	7490	Streaky Bay (DC)	4 (52.5)	49	210	Barmera (DC)	3 (100.0)
			5 (47.5)	50	420	Berri (DC)	3 (100.0)
9	9179	Unincorporated Lincoln [pt]	4 (19.4)	51	6650	Renmark (M)	3 (100.0)
			5 (80.6)	52	5460	Paringa (DC)	3 (100.0)
10	9389	Unincorporated Whyalla	3 (71.0)	53	3780	Loxton (DC)	3 (100.0)
			4(29.0)	54	3920	Mallala (DC)	3 (100.0)
11	2940	Kanyaka-Quorn (DC)	3 (100.0)	55	3640	Light (DC)	1 (1.0)
12	980	Carrieton (DC)	4 (100.0)				2 (99.0)
13	6090	Port Augusta (C)	3 (100.0)	56	140	Angaston (DC)	2 (100.0)
14	4830	Mount Remarkable (DC)	3 (100.0)	57	7560	Tanunda (DC)	2 (100.0)
15	5390	Orroroo (DC)	3 (100.0)	58	4270	Minlaton (DC)	3 (65.8)
16	5810	Peterborough (DC)	3 (100.0)				4 (34.2)
17	3570	Le Hunte (DC)	4 (19.6)	59	280	Barossa (DC)	2 (100.0)
			5 (80.4)	60	2310	Gumeracha (DC)	1 (17.1)
18	9179	Unincorporated Lincoln [pt]	4 (19.4)				2 (82.9)
			5 (80.6)	61	4760	Mount Pleasant (DC)	3 (100.0)
19	3220	Kimba (DC)	4 (100.0)	62	8400	Warooka (DC)	4 (100.0)
20	8540	Whyalla (C)	3 (100.0)	63	8820	Yorketown (DC)	4 (100.0)
21	2740	Jamestown (DC)	3 (100.0)	64	..	Metropolitan Adelaide	1 (100.0)
22	1750	Elliston (DC)	4 (58.9)	65	5320	Onkaparinga (DC)	3 (100.0)
			5 (41.1)	66	4550	Mount Barker (DC)	3 (100.0)
23	1190	Cleve (DC)	4 (100.0)	67	3990	Mannum (DC)	3 (100.0)
24	1960	Franklin Harbor (DC)	4 (100.0)	68	5040	Murray Bridge (DC)	3 (100.0)
25	5950	Pirie (DC)	3 (100.0)	69	3080	Karoonda-East Murray (DC)	3 (100.0)
26	1480	Crystal Brook/Red Hill	3 (100.0)	70	630	Browns Well (DC)	3 (100.0)
27	6950	Rocky River (DC)	3 (100.0)	71	8750	Yankalilla (DC)	2 (100.0)
28	7280	Spalding (DC)	3 (100.0)	72	8050	Victor Harbor (DC)	2 (100.0)
29	2380	Hallett (DC)	3 (100.0)	73	6230	Port Elliot & Goolwa (DC)	2 (100.0)
30	6160	Port Broughton (DC)	3 (100.0)	74	7420	Strathalbyn (DC)	2 (100.0)
31	7210	Blyth-Snowtown (DC)	3 (100.0)	75	5600	Peake (DC)	3 (100.0)
32	1120	Clare (DC)	3 (100.0)	76	3430	Lameroo (DC)	3 (23.3)
33	770	Burra Burra (DC)	3 (100.0)	77	5880	Pinnaroo (DC)	4 (100.0)
34	9039	Unincorporated Riverland	3 (70.6)	78	3290	Kingscote (DC)	4 (100.0)
			4 (29.4)	79	1540	Dudley (DC)	4 (100.0)
35	840	Bute (DC)	3 (100.0)	80	4130	Meningie (DC)	2 (50.9)
36	5280	Northern Yorke Peninsula (DC)	3 (100.0)				3 (49.1)
37	7000	Saddleworth & Auburn (DC)	2 (14.8)	81	1400	Coonalpyn Downs (DC)	3 (100.0)
			3 (85.2)	82	7630	Tatiara (DC)	3 (82.7)
38	6930	Robertstown (DC)	3 (100.0)				4 (17.3)
39	4480	Morgan (DC)	3 (100.0)	83	3360	Lacepede (DC)	3 (87.8)
40	3710	Lower Eyre Peninsula (DC)	4 (100.0)				4 (12.2)
41	7910	Tumby Bay (DC)	4 (100.0)	84	5180	Naracoorte (DC)	3 (100.0)
42	1040	Central Yorke Peninsula	3 (100.0)	85	6860	Robe (DC)	3 (100.0)

Table A6
Key to Statistical Local Areas (SLAs) mapped for non-metropolitan areas: map reference order, 1996...*cont*

Map ref.	SLA code	Statistical Local Area name	ARIA+ class	Map ref.	SLA code	Statistical Local Area name	ARIA+ class
86	3850	Lucindale (DC)	3 (100.0)	d	8540	Whyalla (C)	3 (100.0)
87	350	Beachport (DC)	3 (100.0)	e	5740	Peterborough (M)	3 (100.0)
88	5670	Penola (DC)	3 (100.0)	f	6440	Port Pirie (C)	3 (100.0)
89	4200	Millicent (DC)	3 (100.0)	g	8330	Wallaroo (M)	3 (100.0)
90	4690	Mount Gambier (DC)	3 (100.0)	h	4630	Port Lincoln (C)	4 (100.0)
91	6370	Port MacDonnell (DC)	3 (100.0)	i	7560	Tanunda (DC)	2 (100.0)
				j	5040	Murray Bridge (DC)	2 (100.0)
Separately mapped towns				k	8050	Victor Harbor (DC)	2 (100.0)
a	1330	Coober Pedy (DC)	5 (100.0)	l	5110	Naracoorte (M)	3 (100.0)
b	6970	Roxby Downs (M)	4 (100.0)	m	4620	Mount Gambier (C)	2 (100.0)
c	6090	Port Augusta (C)	3 (100.0)				

ARIA+ codes: 1 – Highly Accessible; 2 – Accessible; 3 – Moderately Accessible; 4 – Remote; 5 – Very Remote.

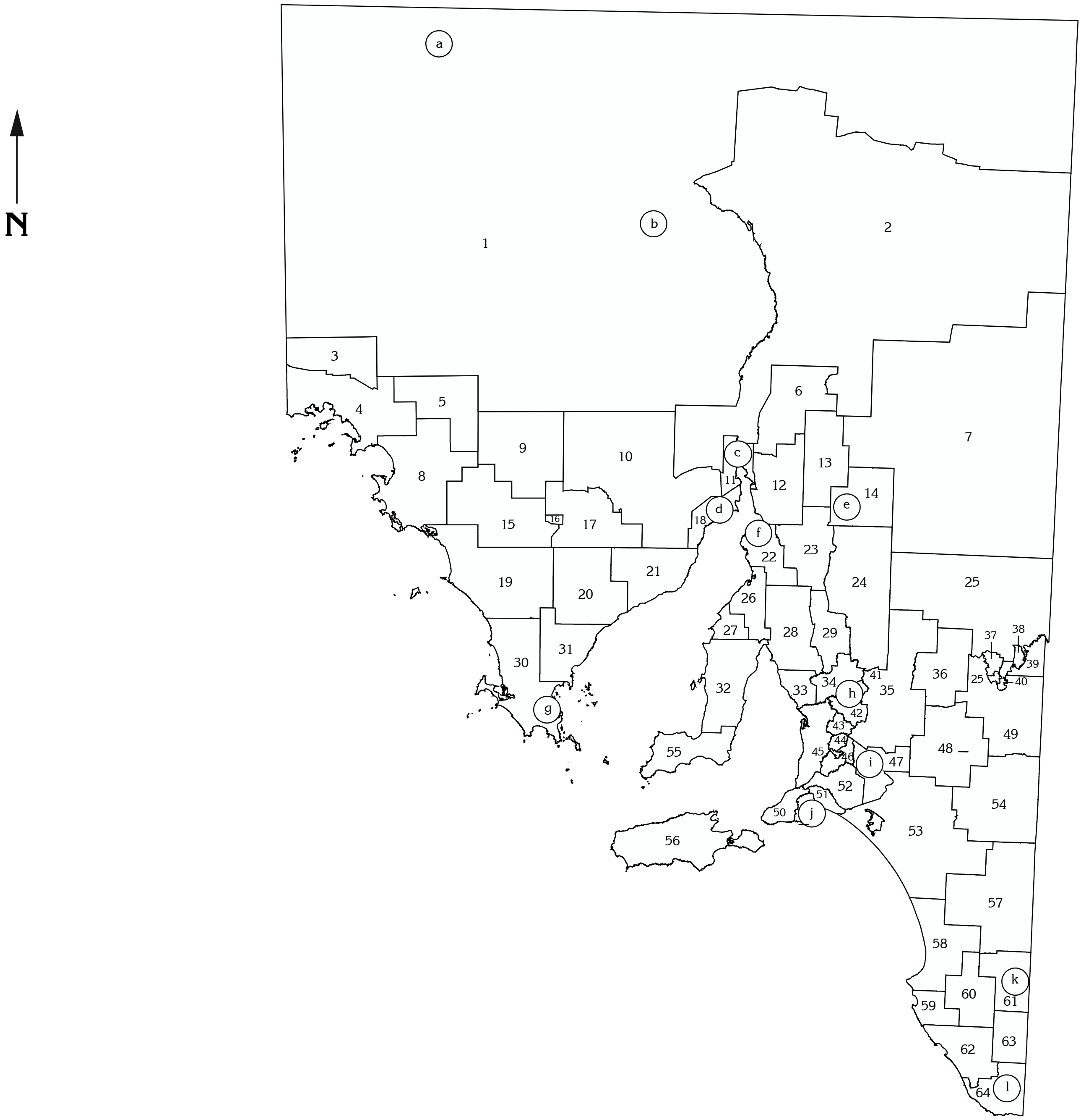
Note: The figure in brackets following the ARIA+ code indicates the proportion of the SLA in that ARIA+ class.

Table A7
Key to Statistical Local Areas (SLAs) mapped for non-metropolitan areas: SLA name order, 1996

Map ref.	SLA code	Statistical Local Area name	Map ref.	SLA code	Statistical Local Area name
56	140	Angaston (DC)	16	5810	Peterborough DC)
49	210	Barmera (DC)	77	5880	Pinnaroo (DC)
59	280	Barossa (DC)	25	5950	Pirie (DC)
87	350	Beachport (DC)	13	6090	Port Augusta (C)
50	420	Berri (DC)	30	6160	Port Broughton (DC)
70	630	Browns Well (DC)	73	6230	Port Elliot & Goolwa (DC)
33	770	Burra Burra (DC)	91	6370	Port MacDonnell (DC)
35	840	Bute (DC)	51	6650	Renmark (M)
12	980	Carrieton (DC)	47	6720	Ridley-Truro (DC)
42	1040	Central Yorke Peninsula	44	6790	Riverton (DC)
32	1120	Clare (DC)	85	6860	Robe (DC)
23	1190	Cleve (DC)	38	6930	Robertstown (DC)
81	1400	Coonalpyn Downs (DC)	27	6950	Rocky River (DC)
26	1480	Crystal Brook/Red Hill	37	7000	Saddleworth & Auburn (DC)
79	1540	Dudley (DC)	31	7210	Blyth-Snowtown (DC)
22	1750	Elliston (DC)	28	7280	Spalding (DC)
46	1890	Eudunda (DC)	74	7420	Strathalbyn (DC)
24	1960	Franklin Harbor (DC)	8	7490	Streaky Bay (DC)
60	2310	Gumeracha (DC)	57	7560	Tanunda (DC)
29	2380	Hallett (DC)	82	7630	Tatiara (DC)
6	2520	Hawker (DC)	41	7910	Tumby Bay (DC)
21	2800	Jamestown (DC)	72	8050	Victor Harbor (DC)
11	2940	Kanyaka-Quorn (DC)	48	8120	Waikerie (DC)
45	3010	Kapunda (DC)	43	8190	Wakefield Plains (DC)
69	3080	Karoonda-East Murray (DC)	62	8400	Warooka (DC)
19	3220	Kimba (DC)	20	8540	Whyalla (C)
78	3290	Kingscote (DC)	71	8750	Yankalilla (DC)
83	3360	Lacepede (DC)	63	8820	Yorketown (DC)
76	3430	Lameroo (DC)	34	9039	Unincorporated Riverland
17	3570	Le Hunte (DC)	9,18	9179	Unincorporated Lincoln
55	3640	Light (DC)	3,5	9249	Unincorporated West Coast
40	3710	Lower Eyre Peninsula (DC)	10	9389	Unincorporated Whyalla
53	3780	Loxton	7	9459	Unincorporated Pirie
86	3850	Lucindale (DC)	2	9529	Unincorporated Flinders Ranges
54	3920	Mallala (DC)	1	9589	Unincorporated Far North
67	3990	Mannum (DC)	64	..	Metropolitan Adelaide
80	4130	Meningie (DC)			
89	4200	Millicent (DC)		**Separately mapped towns**	
58	4270	Minlaton (DC)	a	1330	Coober Pedy (DC)
39	4480	Morgan (DC)	m	4620	Mount Gambier (C)
66	4550	Mount Barker (DC)	j	5040	Murray Bridge (DC)
90	4690	Mount Gambier (DC)	l	5110	Naracoorte (M)
61	4760	Mount Pleasant (DC)	e	5740	Peterborough (M)
14	4830	Mount Remarkable (DC)	c	6090	Port Augusta (C)
4	4970	Murat Bay (DC)	h	4630	Port Lincoln (C)
68	5040	Murray Bridge (DC)	f	6440	Port Pirie (C)
84	5180	Naracoorte (DC)	b	6970	Roxby Downs (M)
36	5280	Northern Yorke Peninsula (DC)	i	7560	Tanunda (DC)
65	5320	Onkaparinga (DC)	k	8050	Victor Harbor (DC)
15	5390	Orroroo (DC)	g	8330	Wallaroo (M)
52	5460	Paringa (DC)	d	8540	Whyalla (C)
75	5600	Peake (DC)			
88	5670	Penola (DC)			

Map A4
Key to areas mapped for South Australia, Statistical Local Areas, 1998

(also included as clear film overlay inside back cover)



Details of map boundaries are in Appendix 1.2

Table A8
Key to Statistical Local Areas (SLAs) mapped for non-metropolitan areas: map reference order, 1998

Map ref.	SLA code	Statistical Local Area name	ARIA+ class	Map ref.	SLA code	Statistical Local Area name	ARIA+ class
1	9589	Unincorporated Far North	4 (31.5)	35	4210	Mid Murray (DC)	2 (70.8)
			5 (68.5)				3 (29.2)
2	9529	Unincorporated Flinders Ranges	4 (75.4)	36	3794	Loxton Waikerie (DC) - West	3 (100.0)
3	9249	Unincorporated West Coast	5 (24.6)	37	521	Berri & Barmera (DC) - Barmera	3 (100.0)
4	1010	Ceduna (DC)	5 (100.0)	38	6674	Renmark Paringa (DC) - Renmark	3 (100.0)
5	9249	Unincorporated West Coast	5 (100.0)	39	6671	Renmark Paringa (DC) - Paringa	3 (100.0)
6	1830	Flinders Ranges (DC)	3 (50.0)	40	524	Berri & Barmera (DC) - Berri	3 (100.0)
			4 (50.0)	41	311	Barossa (DC) - Angaston	2 (100.0)
7	9459	Unincorporated Pirie	4 (100.0)	42	314	Barossa (DC) - Barossa	2 (100.0)
8	7490	Streaky Bay (DC)	4 (52.5)	43	125	Adelaide Hills (DC) - North	1 (17.1)
			5 (47.5)				2 (82.9)
9	9179	Unincorporated Lincoln	4 (19.3)	44	128	Adelaide Hills (DC) Bal	2 (100.0)
			5 (80.7)	45	4551	Mount Barker (DC) - Central	2 (100.0)
10	9389	Unincorporated Whyalla	3 (71.0)	46	4554	Mount Barker (DC) Bal	2 (100.0)
			4 (29.0)	47	5040	Murray Bridge (RC)	2 (100.0)
11	6090	Port Augusta (C)	3(100.0)	48	3080	Karoonda East Murray (DC)	3 (100.0)
12	4830	Mount Remarkable (DC)	3 (100.0)	49	3791	Loxton Waikerie (DC) - East	3 (100.0)
13	5400	Orroroo/Carrieton (DC)	3 (50.0)	50	8750	Yankalilla (DC)	2 (100.0)
			4 (50.0)	51	221	Alexandrina (DC) - Coastal	2 (100.0)
14	5540	Peterborough (DC)	3 (100.0)	52	224	Alexandrina (DC) - Strathalbyn	2 (100.0)
15	3570	Le Hunte (DC)	4 (19.6)	53	7800	The Coorong (DC)	2 (12.7)
			5 (80.4)				3 (87.3)
16	9179	Unincorporated Lincoln	4 (19.3)	54	7290	Southern Mallee (DC)	3 (11.6)
			5 (80.7)				4 (88.4)
17	3220	Kimba (DC)	4 (100.0)	55	8834	Yorke Peninsula (DC) - South	4 (100.0)
18	8540	Whyalla (C)	3 (100.0)	56	2750	Kangaroo Island (DC)	4 (100.0)
19	1750	Elliston (DC)	4 (58.9)	57	7630	Tatiara (DC)	3 (82.7)
			5 (41.1)				4 (17.3)
20	1190	Cleve (DC)	4 (100.0)	58	3360	Lacepede (DC)	3 (87.8)
21	1960	Franklin Harbor (DC)	4 (100.0)				4 (12.2)
22	6454	Port Pirie Districts (M) - Balance	3 (100.0)	59	6860	Robe (DC)	3 (100.0)
23	5120	Northern Areas (DC)	3 (100.0)	60	3850	Lucindale (DC)	3 (100.0)
24	2110	Goyder (DC)	2 (9.4)	61	5080	Naracoorte (DC)	3 (100.0)
			3 (90.6)	62	8344	Wattle Range (DC) - West	3 (100.0)
25	9039	Unincorporated Riverland	3 (70.6)	63	8341	Wattle Range (DC) - East	3 (100.0)
			4 (29.4)	64	2250	Grant (DC)	3 (100.0)
26	430	Barunga West (DC)	3 (100.0)	**Separately mapped towns**			
27	1560	Copper Coast (DC)	3 (100.0)	a	1330	Coober Pedy (DC)	5 (100.0)
28	8130	Wakefield (DC)	2 (39.3)	b	6970	Roxby Downs (M)	4 (100.0)
			3 (60.7)	c	6090	Port Augusta (C)	3 (100.0)
29	1140	Clare and Gilbert Valleys (DC)	2 (32.4)	d	8540	Whyalla (C)	3 (100.0)
			3 (67.6)	e	5740	Peterborough (M)	3 (100.0)
30	3710	Lower Eyre Peninsula (DC)	4 (100.0)	f	6440	Port Pirie (C)	3 (100.0)
31	7910	Tumby Bay (DC)	4 (100.0)	g	4630	Port Lincoln (C)	4 (100.0)
32	8831	Yorke Peninsula (DC) - North	3 (82.9)	h	7560	Tanunda (DC)	2 (100.0)
			4 (17.1)	i	5040	Murray Bridge (DC)	2 (100.0)
33	3920	Mallala (DC)	3 (100.0)	j	8050	Victor Harbor (DC)	2 (100.0)
34	2950	Kapunda and Light (DC)	1 (0.5)	k	5110	Naracoorte (M)	3 (100.0)
			2 (99.5)	l	4620	Mount Gambier (C)	2 (100.0)

ARIA+ codes: 1 – Highly Accessible; 2 – Accessible; 3 – Moderately Accessible; 4 – Remote; 5 – Very Remote.

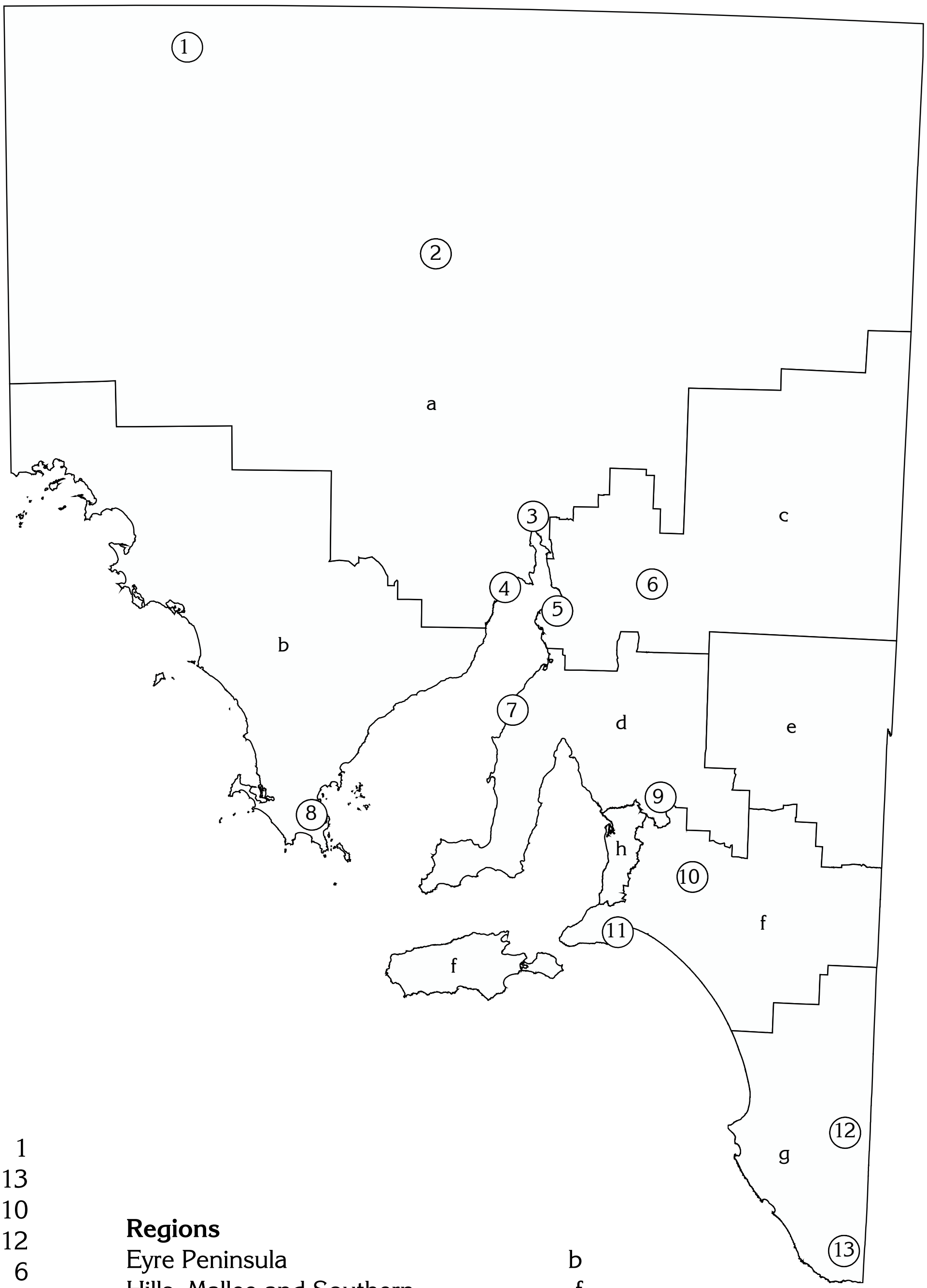
Note: The figure in brackets following the ARIA+ code indicates the proportion of the SLA in that ARIA+ class.

Table A9
Key to Statistical Local Areas (SLAs) mapped for non-metropolitan areas: SLA name order, 1998

Map ref.	SLA code	Statistical Local Area name	Map ref.	SLA code	Statistical Local Area name
43	125	Adelaide Hills (DC) - North	39	6671	Renmark Paringa (DC) - Paringa
44	128	Adelaide Hills (DC) Bal	38	6674	Renmark Paringa (DC) - Renmark
51	221	Alexandrina (DC) - Coastal	59	6860	Robe (DC)
52	224	Alexandrina (DC) - Strathalbyn	54	7290	Southern Mallee (DC)
41	311	Barossa (DC) - Angaston	8	7490	Streaky Bay (DC)
42	314	Barossa (DC) - Barossa	57	7630	Tatiara (DC)
26	430	Barunga West (DC)	53	7800	The Coorong (DC)
37	521	Berri & Barmera (DC) - Barmera	31	7910	Tumby Bay (DC)
40	524	Berri & Barmera (DC) - Berri	28	8130	Wakefield (DC)
4	1010	Ceduna (DC)	63	8341	Wattle Range (DC) - East
29	1140	Clare and Gilbert Valleys (DC)	62	8344	Wattle Range (DC) - West
20	1190	Cleve (DC)	18	8540	Whyalla (C)
27	1560	Copper Coast (DC)	50	8750	Yankalilla (DC)
19	1750	Elliston (DC)	32	8831	Yorke Peninsula (DC) - North
6	1830	Flinders Ranges (DC)	55	8834	Yorke Peninsula (DC) - South
21	1960	Franklin Harbor (DC)	1	9589	Unincorporated Far North
24	2110	Goyder (DC)	2	9529	Unincorporated Flinders Ranges
64	2250	Grant (DC)	9	9179	Unincorporated Lincoln
56	2750	Kangaroo Island (DC)	16	9179	Unincorporated Lincoln
34	2950	Kapunda and Light (DC)	7	9459	Unincorporated Pirie
48	3080	Karoonda East Murray (DC)	25	9039	Unincorporated Riverland
17	3220	Kimba (DC)	3	9249	Unincorporated West Coast
58	3360	Lacepede (DC)	5	9249	Unincorporated West Coast
15	3570	Le Hunte (DC)	10	9389	Unincorporated Whyalla
30	3710	Lower Eyre Peninsula (DC)			
49	3791	Loxton Waikerie (DC) - East	**Separately mapped towns**		
36	3794	Loxton Waikerie (DC) - West	a	1330	Coober Pedy (DC)
60	3850	Lucindale (DC)	b	6970	Roxby Downs (M)
33	3920	Mallala (DC)	c	6090	Port Augusta (C)
35	4210	Mid Murray (DC)	d	8540	Whyalla (C)
45	4551	Mount Barker (DC) - Central	e	5740	Peterborough (M)
46	4554	Mount Barker (DC) Bal	f	6440	Port Pirie (C)
12	4830	Mount Remarkable (DC)	g	4630	Port Lincoln (C)
47	5040	Murray Bridge (RC)	h	7560	Tanunda (DC)
61	5080	Naracoorte (DC)	i	5040	Murray Bridge (DC)
23	5120	Northern Areas (DC)	j	8050	Victor Harbor (DC)
13	5400	Orroroo/Carrieton (DC)	k	5110	Naracoorte (M)
14	5540	Peterborough (DC)	l	4620	Mount Gambier (C)
11	6090	Port Augusta (C)			
22	6454	Port Pirie Districts (M) - Balance			

Map A5
Key to areas mapped for Country Health Service Regions

(also included as clear film overlay inside back cover)



Towns

Coober Pedy (DC)	1
Mount Gambier (C)	13
Murray Bridge (DC)	10
Naracoorte (M)	12
Peterborough (M)	6
Port Augusta (C)	3
Port Pirie (C)	5
Port Lincoln (C)	8
Roxby Downs (M)	2
Tanunda (DC)	9
Victor Harbor (DC)	11
Wallaroo (M)	7
Whyalla (C)	4

Regions

Eyre Peninsula	b
Hills, Mallee and Southern (includes Kangaroo Island)	f
Mid North	c
Riverland	e
South East	g
Whyalla, Flinders and Far North	a
Yorke, Lower North and Barossa	d
Metropolitan Adelaide	h

Details of map boundaries are in Appendix 1.2

1.3: Analysis and presentation of data

Data ranges settings

The selection of ranges for the presentation of data in the maps in this atlas takes into account a variety of factors. These are the

- data ranges used for maps, particularly closely related maps
- number of areas in each range
- 'balance' of the visual impact of the map.

Denominators

Chapter 3, Demography and socioeconomic status, mainly comprises variables drawn from the 1996 Census of Population and Housing and the 1998 Estimated Resident Population. The Census-based socioeconomic variables are expressed as percentages of an appropriate denominator, as shown in **Table A10**. Five measures mapped in Chapter 3 are from other (non-Census) sources: these are the Total Fertility Rate, dependent children in low income families and SACE subject scores (PES, PAS and SAS). The calculation of these measures is described in the text associated with each topic. The calculation of the measures mapped in the other chapters is covered in the chapter introduction or in the text associated with each topic.

Table A10: Details of demographic and socioeconomic variables mapped

Topic and variable name	Numerator	Denominator
Families		
single parent families	children aged 0-14 yrs living in single parent families	all families
low income families[1]	children aged 0-14 yrs living in low income families	all families with an income
Labour force		
unemployed males	males aged 15-24 yrs with labour force status as unemployed	male labour force 15-24 yrs
unemployed females	females aged 15-24 yrs with labour force status as unemployed	female labour force 15-24 yrs
Educational participation and achievement		
full-time students	people aged 15-24 yrs who are full-time students	population aged 15-24 yrs
early school leavers[2]	people aged 15-24 yrs who left school at age 15 years or less, or did not go to school	population aged 15-24 yrs
average publicly examined subject achievement scores	average publicly examined subject achievement scores	..
average publicly assessed subject achievement scores	average publicly assessed subject achievement scores	..
average school assessed subject achievement scores	average school assessed subject achievement scores	..
Aboriginal and Torres Strait Islander		
aged 0 to 14 years	Indigenous children aged 0-14 yrs	population aged 0-14 yrs
aged 15 to 24 years	Indigenous people aged 15-24 yrs	population aged 15-24 yrs
People born in predominantly non-English speaking countries		
aged 0 to 14 years	children aged 0-14 yrs born in predominantly non-English speaking countries	population aged 0-14 yrs
aged 15 to 24 years	people aged 15-24 yrs born in predominantly non-English speaking countries	population aged 15-24 yrs
Housing		
housing authority rented dwellings	children aged 0-14 years living in occupied private dwellings rented from the State housing authority	all occupied private dwellings
dwellings with no motor vehicle	children aged 0-14 years living in occupied private dwellings with no motor vehicles garaged or parked there on Census night	all occupied private dwellings

[1]When interpreting the figures for low income families in the text in Chapter 6, it should be noted that the indicators of low income used in the comparisons ($16,000 per annum or less in 1991 and less than $21,000 per annum in 1996) do not equate to equivalent incomes: that is, they have not been adjusted for changes in buying power. Rather, they are based on categories of income available from the Census and denote comparability of income in 1991 and 1996 based on the levels of incomes of recipients of the sole parents' allowance and unemployment allowances.

[2]This variable was adjusted using age-sex standardisation: a description of this process is in the text above.

Source: Compiled from project sources

Indirect standardisation

In comparing populations, for example the mortality experience of two populations, crude rates (eg. the number of deaths per 1,000 population) may be misleading. Mortality, for example, depends strongly on age and sex. If the two areas have different age and sex structures, this variation alone may explain a difference in crude rates. The technique of standardisation is used to prevent variations in population structure from distorting differentials in events.

Indirect standardisation, used in this analysis, calculates the number of events (eg. deaths, or hospital admissions) which would theoretically occur if the rates for each five year age-sex group in a given population (the standard – in this atlas the standard is the population of South Australia) were applied to the population of interest. The result is termed the 'expected' number of events. If the actual number of events is then divided by this expected number, we obtain the standardised ratio, a figure which is independent of population age-sex structure. Thus, the standardised ratio for a particular area will show the extent to which the rate of deaths or admissions differs from the experience found in the whole population. In this atlas, this figure has been expressed as an index, where the value calculated for South Australia is 100. Standardised ratios with an index of higher than 100 are described as being 'elevated' and those below 100 as being 'lower than expected'.

Taking an example, the Standardised Death Ratio for deaths of 15 to 24 year olds in the SLA of Gawler was 149: that is, there were almost one and a half times more deaths of residents of Gawler aged from 15 to 24 years (49 per cent more) than would have been the case had the South Australian rates applied in Gawler. In other words, the ratio was substantially above the State average.

Standardised ratios were not calculated for areas where fewer than five events (deaths, admissions, etc.) were expected from the State rates, because of the doubtful reliability of such small numbers. All cases were, however, retained in the analysis for the calculation of capital city and State/Territory totals and ratios.

It should be noted that standardised ratios derived for areas by this indirect method are generally comparable only by relation to the standard population and not directly with each other. This is largely applicable to areas with small numbers of events: where the number of events is relatively large, then a direct comparison is possible.

Impact of Indigenous deaths on standardisation

In some areas, however, high ratios are due to the relatively high proportion of Aboriginal people and Torres Strait Islanders. This occurs because, in the methodology used, a standard population with a fixed age structure is introduced. The mortality or morbidity, for example, for a particular population (eg. people in an SLA) is then adjusted to allow for discrepancies in age structure between the standard and the particular population. When the particular population includes a sub group with a substantially different age structure and health experience (for example, mortality experience) the process is distorted. Indigenous people represent such a population. They have a substantially lower life expectancy than the total population, are a much younger population, have higher age-specific death rates at all ages and their average age at death is lower. However, since data relating to Indigenous people are not adequately identified in, for example, death or hospital statistics, they cannot be analysed as a discrete group.

The high standardised ratios for some data for areas with a relatively large proportion of Indigenous people therefore reflect, in part, that the data have not been effectively standardised. This does not invalidate the data for these areas – on the contrary, it highlights the inequity evident in the health of Indigenous people, and the urgent need to address this inequity, as well as the need to identify Indigenous people more accurately in the statistics.

For variables presented as standardised ratios, the text and tables include details of whether the ratios were statistically significant ie. that they differed significantly from the standard. Whether an standardised ratio for an area differs significantly from the standard depends not only on the size of the ratio, but also on the population size of the area and the overall rate for the particular event (eg. a cause of death), both of which contribute to the 'expected' number of cases in an area. The same standardised ratio value in two areas which differ greatly in population size, may be significantly different from the standard in the area with the larger population, but not so in the area with the smaller population.

Appendix 1.4: Classification of deaths, admissions and procedures

Codes used

Causes of death are classified by the Australian Bureau of Statistics to the Ninth (1975) Revision of the World Health Organization's International Classification of Diseases (ICD-9) which was adopted for world-wide use from 1979. The codes used for the variables mapped in Chapter 4 are listed in **Table A11**.

Diagnoses and procedures mapped in Chapter 6 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. The codes used for the variables mapped in Chapter 6 are listed in **Table A12** and **A13.**

Table A11: ICD-9 Codes for causes of death, mapped in Chapter 4

Cause of death	ICD code
Injury and poisoning	E800-E999

Table A12: ICD-11 Codes for diagnoses/external causes, mapped in Chapter 5

Diagnoses/external cause	ICD code
Respiratory system diseases	460-519
Bronchitis, emphysema & asthma	490-493
Injury and poisoning	E800-E999

Table A13: ICD-9 Codes for surgical procedures, mapped in Chapter 5

Surgical procedure	ICD code
All procedures	010-169; 180-695; 704-789; 792-793; 795-796; 798-869
Tonsillectomy with/ without adenoidectomy	28.2, 28.3
Myringotomy	20.01

This page intentionally left blank

1.5: Area listings

Table A14: Suburbs included in each postcode in Adelaide

Postcode		Postcode		Postcode	
No.	**Name**	**No.**	**Name**	**No.**	**Name**
5000	**Adelaide**	5019	Exeter	5039	Clarence Gardens
5006	**North Adelaide**		**Semaphore**		**Edwardstown**
5007	Bowden		Semaphore Park		Melrose Park
	Brompton		Semaphore South	5040	**Novar Gardens**
	Hindmarsh	5020	**West Lakes Shore**	5041	Colonel Light Gardens
	Welland	5021	**West Lakes**		Cumberland Park
	West Hindmarsh	5022	Grange		**Daw Park**
5008	**Croydon**		**Henley Beach**		Panorama
	Croydon Park		Henley Beach South		Westbourne Park
	Devon Park		Tennyson	5042	Bedford Park
	Dudley Park	5023	Findon		Clovelly Park
	Renown Park		**Seaton**		Pasadena
	Ridleyton	5024	**Fulham**		**St Marys**
	West Croydon		Fulham Gardens	5043	Ascot Park
5009	Allenby Gardens		West Beach		Marion
	Beverley	5025	**Flinders Park**		Mitchell Park
	Kilkenny		Kidman Park		Morphettville
5010	Angle Park	5031	Mile End		**Park Holme**
	Ferryden Park		Mile End South	5044	Glengowrie
	Regency Park		**Thebarton**		**Somerton Park**
5011	**Woodville**		Torrensville	5045	**Glenelg**
	Woodville Park	5032	**Brooklyn Park**		Glenelg East
	Woodville South		Lockleys		Glenelg North
	Woodville West		Underdale		Glenelg South
5012	Athol Park	5033	**Cowandilla**	5046	**Oaklands Park**
	Mansfield Park		Hilton		Warradale
	Woodville Gardens		Marleston	5047	**Darlington**
	Woodville North		Richmond		Seacombe Gardens
5013	Ottoway		West Richmond		Seacombe Heights
	Pennington	5034	Clarence Park		Sturt
	Rosewater East		**Goodwood**	5048	**Brighton**
	Wingfield		Kings Park		Dover Gardens
5014	Albert Park		Millswood		Hove
	Alberton		Wayville		North Brighton
	Cheltenham	5035	Ashford		South Brighton
	Hendon		Black Forest	5049	Marino
	Queenstown		Everard Park		**Seacliff**
	Royal Park		Forestville		Seacliff Park
5015	Birkenhead		**Keswick**		Seaview Downs
	Ethelton	5037	Glandore	5050	Bellevue Heights
	Glanville		Kurralta Park		**Eden Hills**
	Port Adelaide		**Netley**	5051	**Blackwood**
5016	**Largs Bay**		North Plympton		Coromandel Valley
	Largs North	5038	Camden Park		Hawthorndene
	Peterhead		**Plympton**	5052	**Belair**
5017	**Osborne**		Plympton Park		Glenalta
	Taperoo		South Plympton		
5018	**Outer Harbor**				
	North Haven				

Table A14: Suburbs included in each postcode in Metropolitan Adelaide ...*cont*

Postcode		Postcode		Postcode	
No.	**Name**	**No.**	**Name**	**No.**	**Name**
5061	Hyde Park		Stepney		**Tea Tree Gully**
	Malvern	5070	Felixstow		Vista
	Unley		Firle	5092	Modbury
	Unley Park		Glynde		Modbury Heights
5062	Clapham		Joslin		**Modbury North**
	Hawthorn		**Marden**	5093	**Para Vista**
	Kingswood		Payneham		Valley View
	Lower Mitcham		Payneham South	5094	Dry Creek
	Mitcham		Royston Park		**Gepps Cross**
	Netherby	5072	Auldana	5095	**Pooraka**
	Springfield		**Magill**	5096	**Para Hills**
	Torrens Park		Rosslyn Park		Para Hills West
5063	**Eastwood**		Skye	5097	Redwood Park
	Frewville		Teringie		Ridgehaven
	Fullarton		Woodforde		**St Agnes**
	Highgate	5073	Hectorville	5098	**Ingle Farm**
	Parkside		**Rostrevor**	5107	**Parafield Gardens**
5064	**Glen Osmond**		Tranmere	5108	Paralowie
	Glenunga	5074	**Campbelltown**		**Salisbury**
	Myrtle Bank		Newton		Salisbury Downs
	St Georges	5075	Dernancourt		Salisbury North
	Urrbrae		**Paradise**		Salisbury South
5065	Dulwich	5076	**Athelstone**	5109	Brahma Lodge
	Glenside	5081	Collinswood		**Salisbury East**
	Linden Park		Gilberton		Salisbury Heights
	Toorak Gardens		Medindie		Salisbury Park
	Tusmore		Medindie Gardens		Salisbury Plain
5066	Beaumont		Vale Park	5110	Bolivar
	Burnside		**Walkerville**		**Burton**
	Erindale	5082	Fitzroy		Direk
	Hazelwood Park		Ovingham	5112	**Elizabeth**
	Stonyfell		**Prospect**		Elizabeth East
	Waterfall Gully	5083	Broadview		Elizabeth Grove
	Wattle Park		**Nailsworth**		Elizabeth South
5067	Beulah Park		Sefton Park		Elizabeth Vale
	Kent Town	5084	**Blair Athol**		Hillbank
	Norwood		Kilburn	5113	Elizabeth Downs
	Rose Park	5085	Clearview		Elizabeth Field
5068	Heathpool		**Enfield**		**Elizabeth North**
	Kensington		Northfield		Elizabeth Park
	Kensington Gardens	5086	Gilles Plains		Elizabeth West
	Kensington Park		**Greenacres**	5114	Craigmore
	Leabrook		Hampstead Gardens		**Smithfield**
	Marryatville		Hillcrest		Smithfield Plains
	St Morris		Manningham		Smithfield West
	Trinity Gardens	5087	**Klemzig**	5115	Kudla
5069	College Park		Windsor Gardens		**Munno Para**
	Evandale	5088	**Holden Hill**		Munno Para West
	Hackney	5089	**Highbury**	5116	**Evanston**
	Maylands	5090	**Hope Valley**		Evanston Gardens
	St Peters	5091	Banksia Park		Evanston Park

Table A14: Suburbs included in each postcode in Metropolitan Adelaide ...*cont*

Postcode		Postcode		Postcode	
No.	**Name**	**No.**	**Name**	**No.**	**Name**
5117	**Angle Vale**	5144	**Carey Gully**	5162	**Morphett vale**
5118	**Gawler**	5150	Eagle on the Hill		Woodcroft
	Gawler East		**Leawood Gardens**	5163	**Hackham**
	Gawler South	5151	**Piccadilly**		Hackham West
	Gawler West	5152	Crafers	5164	**Christie Downs**
	Willaston		Crafers West	5165	**Christies Beach**
5120	**Virginia**		**Stirling**	5166	**O'Sullivan Beach**
5121	**MacDonald Park**	5153	Heathfield	5167	**Port Noarlunga**
	Penfield		Longwood		Port Noarlunga South
	Penfield Gardens		Mylor	5168	Noarlunga Downs
5125	**Golden Grove**		**Stirling Forward**		**Old Noarlunga**
	Greenwith	5154	**Aldgate**	5169	**Moana**
5126	**Fairview Park**	5155	**Bridgewater**		Seaford
	Surrey Downs	5156	**Upper Sturt**	5170	**Maslin Beach**
5127	**Wynn Vale**	5157	**Blackwood Forward**	5171	Bethany
5134	Cherryville	5158	Hallett Cove		Blewitt Flat
	Montacute		**O'Halloran Hill**		McClaren Flat
	Montacute Heights		Sheidow Park		**McClaren Vale**
5136	**Norton Summit**		Trott Park		Pedler Creek
5137	**Ashton**	5159	Aberfoyle Park	5172	**Willunga**
5138	**Basket Range**		Flagstaff Hill	5173	**Aldinga**
5140	**Greenhill**		**Happy Valley**		Aldinga Beach
5141	**Summertown**	5160	**Lonsdale**		Port Willunga
5142	**Uraidla**	5161	**Reynella**	5174	**Sellicks Beach**

Table A15: Statistical Local Areas in each Country Health Service Region

Region 1: Hills, Mallee & Southern

- Coonalpyn Downs (DC)
- Dudley (DC)
- Gumeracha (DC)
- Karoonda-East Murray (DC)
- Kingscote (DC))
- Lameroo (DC)
- Mannum (DC)
- Meningie (DC)
- Mount Barker (DC)
- Mount Pleasant ((DC)
- Murray Bridge (RC)
- Onkaparinga (DC)
- Peake (DC)
- Pinnaroo (DC)
- Port Elliot & Goolwa (DC)
- Strathalbyn (DC)
- Victor Harbor (DC)
- Yankalilla (DC)

Region 2: Yorke, Lower North & Barossa

- Angaston (DC)
- Barossa (DC)
- Blyth-Snowtown (DC)
- Burra Burra (DC)
- Bute (DC)
- Central Yorke Peninsula (DC).
- Clare (DC)
- Eudunda (DC)
- Kapunda (DC)
- Light (DC)
- Mallala (DC)
- Minlaton (DC)
- Northern Yorke Peninsula (DC).
- Ridley-Truro (DC)
- Riverton (DC)
- Robertstown (DC)
- Saddleworth & Auburn (DC)
- Spalding (DC)
- Tanunda (DC)
- Wakefield Plains (DC)
- Wallaroo (M)
- Warooka (DC)
- Yorketown (DC)

Region 3: Mid North

- Carrieton (DC)
- Crystal Brook-Redhill (DC)
- Hallett (DC)
- Jamestown (DC)
- Mount Remarkable (DC)
- Orroroo (DC)
- Peterborough (DC)
- Peterborough (M)
- Pirie (DC)
- Port Broughton (DC)
- Port Pirie (C)
- Rocky River (DC)
- Unincorp. Pirie

Region 4: Riverland

- Barmera (DC)
- Berri (DC)
- Browns Well (DC)
- Loxton (DC)
- Morgan (DC)
- Paringa (DC)
- Renmark (M)
- Unincorp. Riverland
- Waikerie (DC)

Region 5: South-East

- Beachport (DC)
- Lacepede (DC)
- Lucindale (DC)
- Millicent (DC)
- Mount Gambier (DC)
- Mount Gambier (C)
- Naracoorte (DC)
- Naracoorte (M)
- Penola (DC)
- Port MacDonnell (DC)
- Robe (DC)
- Tatiara (DC)

Region 6: Eyre Peninsula

- Cleve (DC)
- Elliston (DC)
- Franklin Harbor (DC)
- Kimba (DC)
- Le Hunte (DC)
- Lower Eyre Peninsula (DC)
- Murat Bay (DC)
- Port Lincoln (C)
- Streaky Bay (DC)
- Tumby Bay (DC)
- Unincorp. Lincoln
- Unincorp. West coast

Region 7: Whyalla, Flinders & Far North

- Coober Pedy (DC)
- Hawker (DC)
- Kanyaka-Quorn (DC)
- Port Augusta (C)
- Roxby Downs (M)
- Unincorp. Far North
- Unincorp. Flinders
- Unincorp. Whyalla
- Whyalla (C)

(C) Municipality with city status; (RC) Rural Centre; (DC) District Council; (M) Municipality

1.6: Perinatal risk factors

Table A16: Postcodes with elevated risk factors most predictive of adverse perinatal outcomes, Adelaide[1]

Postcode	1981 to 1986		1990 to 1992		1995 to 1997	
	significant	Total	significant	Total	significant	Total
Alberton	2	13	5	13	2	8
Aldinga	1	14	1	11	0	6
Basket Range	0	10	0	6	0	0
Blackwood Forward	0	8	2	3	0	11
Blair Athol	6	14	8	13	3	10
Burton	0	11	1	8	1	7
Campbelltown	0	4	3	10	1	8
Christies Beach	1	7	6	11	6	15
Christies Downs	2	10	4	8	6	11
Cowandilla	2	11	3	13	1	8
Croydon	2	12	5	9	1	9
Darlington	4	10	4	12	2	10
Eastwood	3	7	3	10	2	9
Edwardstown	2	8	3	12	2	5
Elizabeth	4	13	6	10	8	13
Elizabeth North	8	12	8	12	10	14
Enfield	4	11	8	13	3	9
Evanston	1	12	0	9	1	8
Ferryden Park	4	14	11	14	6	11
Greenacres	8	12	5	13	2	10
Henley Beach	0	10	1	3	1	2
Hindmarsh	5	11	6	11	3	9
Holden Hill	0	4	1	6	0	13
Kilkenny	0	10	4	13	2	9
Klemzig	2	9	3	16	3	10
Largs Bay	0	11	1	3	1	5
Maslin Beach	0	7	0	5	0	10
Montacute	2	12	1	8	1	4
Old Noarlunga	1	10	1	6	2	11
Osborne	7	12	5	11	6	8
O'Sullivan Beach	2	6	3	11	2	12
Parafield Gardens	2	11	2	5	4	11
Park Holme	1	10	6	12	2	8
Pooraka	0	5	1	12	1	6
Rosewater East	4	9	4	11	2	14
Salisbury	4	7	6	11	8	10
Seaton	1	11	1	9	0	6
Sellicks Beach	0	8	1	11	0	8
Semaphore	2	8	4	13	4	12
Smithfield	1	12	2	9	2	8
Thebarton	4	7	6	10	2	5
Virginia	1	10	1	2	0	5
Woodville North	5	11	5	12	7	12

[1]Numbers shown as 'significant' and 'Total' represent the number of risk factors in the postcode with adverse outcomes in comparison with the State-wide outcome – see Chapter 4, page 166.

Source: Compiled from data supplied by DHS

Table A17: Postcodes with elevated perinatal risk factors, non-metropolitan South Australia[1]

Postcode	1981 to 1986		1995 to 1997	
	significant	Total	significant	Total
Angorichina - 5730	1	10	2	3
Ardrossan - 5571	2	11	0	6
Arno Bay - 5603	0	12	0	3
Ashville - 5259	2	10	3	4
Balaklava - 5461	1	11	2	5
Baroota - 5495	0	10	1	9
Berri - 5343	3	10	2	6
Binnum - 5262	1	12	0	3
Blanchetown - 5357	0	7	0	10
Bookaloo - 5710	2	11	1	8
Caltowie - 5490	1	12	0	4
Carrieton - 5432	0	10	0	2
Ceduna - 5690	3	9	6	10
Coober Pedy - 5723	4	8	4	11
Cowell - 5602	1	4	2	12
Crystal Brook - 5523	4	11	0	2
Cudlee Creek - 5232	0	10	0	4
Culburra - 5261	0	12	1	6
Elliston - 5670	1	10	0	7
Frome - 5440	0	11	1	6
Glossop - 5344	1	8	1	12
Gumeracha - 5233	1	11	0	9
Hallett - 5419	2	10	0	5
Hawker - 5434	1	12	2	7
Iron Knob - 5601	0	10	1	7
Keith - 5267	3	11	0	1
Kielpa - 5642	0	10	0	6
Kimba - 5641	1	6	1	10
Kyancutta - 5651	1	10	1	2
Leasingham - 5452	0	10	0	1
Leigh Creek - 5731	5	11	0	10
Lenswood - 5240	0	10	0	2
Lowaldie - 5307	1	13	0	5
Mannum - 5238	0	10	0	6
Moonta - 5558	0	10	3	14
Mt Barker - 5251	4	10	1	3
Mt Pleasant - 5235	0	10	0	6
Oodnadatta - 5734	3	11	5	12
Paney - 5652	1	10	0	6
Penola - 5277	3	10	0	6
Pinkerton Plains - 5400	1	11	0	5
Pt Augusta - 5700	5	11	8	11
Pt Lincoln - 5606	2	7	4	11
Pt Neill - 5604	0	10	0	4
Ramco - 5322	2	10	0	2
Strathalbyn - 5255	1	12	0	1
Tailem Bend - 5260	3	13	0	12
Tarlee - 5411	0	10	1	4
Tungkillo - 5236	0	10	0	5
Two Wells - 5501	0	8	1	10
Victor Harbor - 5211	0	12	2	9
Wallaroo - 5556	1	6	2	11
Whyalla - 5600	4	13	5	12
Whyalla Norrie - 5608	5	11	6	8
Woodside - 5244	1	10	0	3

[1]Numbers shown as 'significant' and 'Total' represent the number of risk factors in the postcode with adverse outcomes in comparison with the State-wide outcome – see Chapter 4, page 166.
Source: Compiled from data supplied by DHS

1.7: Hospital inpatient booking lists

Table A18: Elective (non-urgent) surgery booking lists report for people aged 0 to 24 years, by selected specialty group procedure and time on list, public acute hospitals in Adelaide, 30 June 2001

Specialty & Procedure	3 to 6 months	6 to 12 months	12 months & over	Total
Cardiothoracic	**2**	**0**	**1**	**3**
Cranio-facial	**4**	**8**	**12**	**24**
E.N.T.	**259**	**85**	**200**	**544**
Myringoplasty or tympanoplasty	9	6	15	30
Myringotomy	57	6	15	78
Septoplasty	5	2	12	19
Tonsillectomy	98	37	96	231
Other	90	34	62	186
General surgery	**240**	**73**	**73**	**386**
Cholecystectomy	7	4	0	11
Circumcision	109	35	41	185
Haemorrhoidectomy	0	2	0	2
Hypospadias	7	2	1	10
Inguinal Herniorraphy	12	2	3	17
Meatotomy (urethral)	1	0	2	3
Orchidopexy	9	5	3	17
Varicose veins	2	0	2	4
Other	93	23	21	137
Gynaecology	**42**	**11**	**6**	**59**
Cystocoele & Rectocoele	1	0	0	1
Pregnancy Termination	1	0	0	1
Sterilisation	3	1	2	6
Other	37	10	4	51
Neurosurgery	**6**	**0**	**7**	**13**
Laminectomy	0	0	2	2
Other	6	0	5	11
Ophthalmology	**45**	**12**	**9**	**66**
Squint	5	3	0	8
Other	40	9	9	58
Orthopaedics	**100**	**33**	**47**	**180**
Arthroscopy	23	10	12	45
Bunionectomy	0	0	1	1
Other	77	23	34	134
Plastic surgery	**57**	**25**	**68**	**150**
Abdominoplasty	0	0	3	3
Excision of ganglion	3	2	2	7
Revision of scar	2	2	5	9
Other	52	21	58	131
Urology	**28**	**11**	**17**	**56**
Cystoscopy	5	4	3	12
Hydrocoele	7	1	2	10
Pyeloplasty	1	0	0	1
Other	15	6	12	33
Total	**783**	**258**	**440**	**1,481**

Source: DHS Booking List System

This page intentionally left blank

1.8: Supporting data

Table A19: Change in health status by quintile of socioeconomic disadvantage of area, Adelaide

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[1]
	per 1,000 live births						
Infant deaths							
1989-93	4.1	4.6	5.8	6.5	9.2	6.0	2.21
1996-99	3.5	3.3	4.5	3.2	4.9	4.0	1.38
Per cent change	-15.3	-28.7	-23.0	-50.1	-47.1	-33.2	..
	per 100,000 population						
Deaths from all causes (15-24 yrs) [2]							
1989-93	52.2	59.1	71.9	77.5	101.9	73.4	1.95
1996-99	55.2	52.4	44.7	76.8	76.9	62.7	1.39
Per cent change	5.8	-11.4	-37.9	-0.9	-24.5	-14.6	..
Deaths from injury & poisoning (15-24 yrs) [2]							
1989-93	38.1	40.4	55.2	59.1	77.6	53.0	2.04
1996-99	36.3	29.5	30.3	49.5	56.6	42.1	1.56
Per cent change	-4.7	-27.0	-45.1	-16.3	-27.1	-20.6	..
Deaths from suicide (15-24 yrs) [2]							
1989-93	14.8	12.7	11.3	12.8	21.7	15.4	1.46
1996-99	15.1	15.7	11.6	16.9	19.6	14.9	1.30
Per cent change	1.8	23.0	2.7	31.6	-9.6	-3.2	..
Low birthweight babies *(per cent)*							
1981-86	5.7	5.4	6.2	6.3	7.0	6.1	1.23
1995-97	5.6	6.1	7.0	7.1	8.2	6.9	1.48
Per cent change	-2.7	12.6	12.3	13.2	17.4	12.2	..
Child abuse and neglect (0-19 yrs) [2]							
1992-95	242.3	338.8	587.1	898.1	1,426.7	509.6	5.89
1996-99	192.2	336.0	529.2	838.4	1,545.1	528.9	8.04
Per cent change	-20.7	-0.8	-9.9	-6.6	8.3	3.8	..
	per cent						
Overweight and obese males (4 yrs)							
1995-96	8.8	10.4	10.3	12.5	11.8	10.6	1.34
2000-01	12.8	14.4	16.8	16.7	16.0	15.4	1.25
Per cent change	45.6	38.4	62.8	34.2	35.8	44.5	..
Overweight and obese females (4 yrs)							
1995-96	12.9	12.3	13.6	15.0	15.1	13.7	1.17
2000-01	17.0	19.1	18.9	20.2	21.0	19.2	1.24
Per cent change	31.2	54.6	39.6	34.4	39.1	40.2	..

1 Rate ratio is the ratio of the rate in Quintile 5 areas to the rate in Quintile 1

2 Rate is the number of deaths/substantiated cases per 100,000 population, produced by indirect age-sex standardisation.

Source: Compiled from project sources

Table A20: Change in health status by quintile of socioeconomic disadvantage of area, South Australia

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[1]
	per 1,000 live births						
Infant deaths							
1989-93	4.6	7.8	6.4	9.1	13.9	6.4	3.03
1996-99	3.5	3.3	5.0	4.1	5.7	4.4	1.63
Per cent change	-24.2	-58.0	-22.2	-55.2	-59.4	-31.4	..
	per 100,000 population						
Deaths from all causes (15-24 yrs) [2]							
1989-93	59.2	79.8	70.2	85.2	108.9	83.4	1.84
1996-99	52.9	66.0	68.8	71.0	86.6	66.0	1.64
Per cent change	-10.7	-17.3	-1.9	-16.7	-20.5	-20.9	..
Deaths from injury and poisoning (15-24 yrs) [2]							
1989-93	44.0	61.5	52.9	66.8	82.3	62.2	1.87
1996-99	34.7	46.0	49.9	47.0	66.8	45.5	1.92
Per cent change	-21.0	-25.2	-5.8	-29.6	-18.8	-26.8	..
Deaths from suicide (15-24 yrs) [2]							
1989-93	19.9	18.6	12.3	19.9	25.8	17.6	1.30
1996-99	14.8	20.1	14.4	16.7	26.1	14.8	1.76
Per cent change	-25.6	7.8	17.0	-16.1	1.0	-15.9	..
Low birthweight babies *(per cent)* [2]							
1981-86	5.6	5.6	5.7	6.2	6.8	6.0	1.21
1995-97	5.6	6.2	6.8	7.4	7.8	6.9	1.38
Per cent change	1.0	10.1	19.3	20.4	15.1	15.0	..
Child abuse and neglect (0-19 yrs)							
1992-95	259.7	434.5	617.0	944.1	1,481.1	547.8	5.70
1996-99	207.8	371.7	520.8	928.3	1,560.7	560.3	7.51
Per cent change	-20.0	-14.5	-15.6	-1.7	5.4	2.3	..
	per cent						
Overweight and obese males (4 yrs)							
1995-96	8.9	10.3	9.7	12.3	12.0	10.6	1.35
2000-01	12.4	16.0	16.2	19.3	16.8	16.2	1.36
Per cent change	39.3	56.1	66.0	56.7	40.5	53.5	..
Overweight and obese females (4 yrs)							
1995-96	12.6	12.1	12.3	13.1	14.3	12.8	1.13
2000-01	16.9	19.8	19.6	20.8	22.9	20.1	1.35
Per cent change	34.2	63.9	59.9	58.5	60.4	56.1	..

[1] Rate ratio is the ratio of the rate in Quintile 5 areas to the rate in Quintile 1
[2] Rate is the number of deaths/substantiated cases per 100,000 population, produced by indirect age-sex standardisation.
Source: Compiled from project sources

Table A21: Change in health service utilisation by quintile of socioeconomic disadvantage of area, Adelaide

Admission/service rate[1]

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[2]
Ages 0 to 14 yrs							
Total admissions							
1992	12,993	14,353	14,903	17,036	18,493	15,510	1.42
1996/7-1998/99	13,940	15,947	15,568	16,592	18,738	16,445	1.34
Per cent change	7.3	11.1	4.5	-2.6	1.3	6.0	..
Public acute hospital admissions							
1992	8,862	10,434	11,729	14,500	16,626	12,354	1.88
1996/7-1998/99	9,634	12,309	12,672	14,470	17,244	13,612	1.79
Per cent change	8.7	18.0	8.0	-0.2	3.7	10.2	..

Table A21: Change in health service utilisation by quintile of socioeconomic disadvantage of area, Adelaide ...*cont*

	Admission/service rate[1]						
	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[2]
Private hospital admissions							
1992	4,094	3,930	3,174	2,534	1,844	3,140	0.45
1996/7-1998/99	4,255	3,626	2,900	2,120	1,472	2,834	0.35
Per cent change	3.9	-7.7	-8.6	-16.4	-20.2	-9.7	..
Male admissions							
1992	15,152	17,009	17,135	19,236	22,176	18,080	1.46
1996/7-1998/99	15,623	18,779	17,854	18,631	21,706	18,849	1.39
Per cent change	3.1	10.4	4.2	-3.1	-2.1	4.3	..
Female admissions							
1992	10,731	11,562	12,559	14,726	14,626	12,815	1.36
1996/7-1998/99	12,166	12,965	13,159	14,445	15,606	13,910	1.28
Per cent change	13.4	12.1	4.8	-1.9	6.7	8.5	..
Admissions for respiratory system diseases							
1992	3,228	3,659	3,997	4,847	5,301	4,207	1.64
1996/7-1998/99	2,662	3,216	3,347	3,809	4,519	3,602	1.70
Per cent change	-17.5	-12.1	-16.3	-21.4	-14.7	-14.4	..
Admissions for bronchitis, emphysema and asthma							
1992	1,210	1,357	1,634	1,886	2,212	1,641	1.83
1996/7-1998/99	891	1,107	1,120	1,374	1,714	1,264	1.92
Per cent change	-26.4	-18.4	-31.5	-27.1	-22.5	-23.0	..
Admissions for injury and poisoning							
1992	1,708	1,662	1,715	2,018	2,123	1,838	1.24
1996/7-1998/99	1,603	1,584	1,590	1,753	2,022	1,719	1.26
Per cent change	-6.1	-4.7	-7.3	-13.1	-4.7	-6.5	..
Ages 15 to 24 yrs							
Total admissions							
1992	15,660	15,769	16,869	19,137	19,698	17,425	1.26
1996/7-1998/99	15,191	16,058	18,192	19,535	22,971	18,648	1.51
Per cent change	-3.0	1.8	7.8	2.1	16.6	6.0	..
Public acute hospital admissions							
1992	8,179	9,060	10,793	13,660	15,467	11,483	1.89
1996/7-1998/99	7,965	10,017	13,046	15,561	19,903	13,259	2.50
Per cent change	-2.6	10.6	20.9	13.9	28.7	15.5	..
Private hospital admissions							
1992	7,474	6,731	6,079	5,478	4,230	6,024	0.57
1996/7-1998/99	7,223	6,042	5,154	3,968	3,050	5,104	0.42
Per cent change	-3.4	-10.2	-15.2	-27.6	-27.9	-15.3	..
Male admissions							
1992	12,518	12,128	10,790	11,420	11,585	11,684	0.93
1996/7-1998/99	12,707	12,308	13,407	12,726	13,527	12,916	1.06
Per cent change	1.5	1.5	24.2	11.4	16.8	10.5	..
Female admissions							
1992	18,864	19,575	23,134	27,029	28,063	23,354	1.49
1996/7-1998/99	17,868	20,004	23,236	26,640	32,780	24,291	1.83
Per cent change	-5.3	2.2	0.4	-1.4	16.8	4.0	..
Admissions for injury and poisoning							
1992	2,422	2,434	2,569	2,634	2,959	2,606	1.22
1996/7-1998/99	2,041	1,967	2,265	2,300	2,566	2,225	1.26
Per cent change	-15.7	-19.2	-11.9	-12.7	-13.3	-14.6	..
Terminations of pregnancy							
1990-92	1,993	2,245	2,368	2,566	2,936	2,421	1.47
1997-99	2,367	2,621	2,937	3,359	3,852	3,009	1.63
Per cent change	18.8	16.7	24.0	30.9	31.2	24.3	..

Table A21: Change in health service utilisation by quintile of socioeconomic disadvantage of area, Adelaide ...*cont*

Admission/service rate[1]

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[2]
Ages 0 to 24 yrs							
Family & Youth Service clients							
1991/2	2,082	4,104	5,766	10,198	16,054	7,396	7.71
1999	2,978	4,505	9,790	16,210	25,943	12,271	8.71
Per cent change	43.0	9.7	69.8	59.0	61.6	65.9	..
Community Health Service clients							
1991	679	653	928	831	3,256	1,244	4.80
1997-99	496	618	1,076	1,220	2,002	1,126	4.04
Per cent change	-26.9	-5.4	16.0	46.7	-38.5	-9.5	..

[1] Rate is the number of admissions/services per 100,000 population, produced by indirect age-sex standardisation.
[2] Rate ratio is the ratio of the rate in Quintile 5 areas to the rate in Quintile 1
Source: Compiled from project sources

Table A22: Change in health service utilisation by quintile of socioeconomic disadvantage of area, non-metropolitan areas of South Australia

Admission rate[1]

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[2]
Ages 0 to 14 yrs							
Total admissions							
1992	14,277	17,149	17,688	18,530	25,089	18,476	1.76
1996/7-1998/99	13,148	17,354	16,667	19,628	21,759	17,383	1.65
Per cent change	-7.9	1.2	-5.8	5.9	-13.3	-5.9	..
Public acute hospital admissions							
1992	11,613	15,558	16,365	17,133	24,371	16,910	2.10
1996/7-1998/99	11,343	15,612	15,613	18,810	21,095	16,142	1.86
Per cent change	-2.3	0.3	-4.6	9.8	-13.4	-4.5	..
Private hospital admissions							
1992	2,733	1,622	1,346	1,685	726	1,556	0.27
1996/7-1998/99	1,806	1,759	1,062	818	647	1,245	0.36
Per cent change	-33.9	8.4	-21.0	-51.5	-10.8	-20.0	..
Male admissions							
1992	16,782	18,918	20,032	21,079	27,813	20,854	1.66
1996/7-1998/99	14,804	20,153	19,000	21,971	25,405	19,798	1.72
Per cent change	-11.8	6.5	-5.2	4.2	-8.7	-5.1	..
Female admissions							
1992	11,648	15,310	15,236	15,860	22,248	15,985	1.91
1996/7-1998/99	11,415	14,399	14,209	17,159	17,928	14,836	1.57
Per cent change	-2.0	-6.0	-6.7	8.2	-19.4	-7.2	..
Admissions for respiratory system diseases							
1992	3,993	4,543	5,536	4,977	7,694	5,349	1.93
1996/7-1998/99	2,962	4,380	3,930	4,793	5,967	4,255	2.01
Per cent change	-25.8	-3.6	-29.0	-3.7	-22.5	-20.4	..
Admissions for bronchitis, emphysema and asthma							
1992	1,288	1,651	1,814	1,696	2,573	1,789	2.00
1996/7-1998/99	849	1,197	1,116	1,356	1,285	1,157	1.51
Per cent change	-34.0	-27.5	-38.5	-20.0	-50.1	-35.3	..
Admissions for injury and poisoning							
1992	2,040	2,674	2,662	2,662	3,250	2,648	1.59
1996/7-1998/99	1,690	2,314	2,125	2,267	2,233	2,124	1.32
Per cent change	-17.2	-13.5	-20.2	-14.9	-31.3	-19.8	..

Table A22: Change in health service utilisation by quintile of socioeconomic disadvantage of area, non-metropolitan areas of South Australia ...*cont*

Admission rate[1]

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[2]
Ages 15 to 24 yrs							
Total admissions							
1992	19,575	25,851	26,633	28,515	33,213	26,885	1.70
1996/7-1998/99	18,159	24,124	24,378	31,103	31,082	25,618	1.71
Per cent change	-7.2	-6.7	-8.5	9.1	-6.4	-4.7	..
Public acute admissions							
1992	14,490	22,076	24,078	25,615	31,436	23,726	2.17
1996/7-1998/99	13,954	20,311	22,192	29,466	28,752	22,891	2.06
Per cent change	-3.7	-8.0	-7.8	15.0	-8.5	-3.5	..
Private admissions							
1992	5,184	3,801	2,650	2,900	1,802	3,231	0.35
1996/7-1998/99	4,205	3,878	2,232	1,687	2,333	2,778	0.55
Per cent change	-18.9	2.0	-15.7	-41.8	29.5	-14.0	..
Male admissions							
1992	13,657	19,305	17,795	18,151	21,217	18,008	1.55
1996/7-1998/99	14,299	17,281	17,315	20,971	20,102	17,928	1.41
Per cent change	4.7	-10.5	-2.7	15.5	-5.3	-0.4	..
Female admissions							
1992	25,622	32,374	35,777	39,219	45,597	36,064	1.78
1996/7-1998/99	22,012	31,244	31,771	41,763	42,519	33,688	1.93
Per cent change	-14.1	-3.5	-11.2	6.5	-6.8	-6.6	..
Admissions for injury and poisoning							
1992	3,571	5,616	4,743	4,820	5,328	4,813	1.49
1996/7-1998/99	3,053	4,362	3,962	4,376	3,949	3,962	1.29
Per cent change	-14.5	-22.3	-16.5	-9.2	-25.9	-17.7	..

[1]Rate is the number of admissions per 100,000 population, produced by indirect age-sex standardisation.
[2] Rate ratio is the ratio of the rate in Quintile 5 areas to the rate in Quintile 1
Source: Compiled from project sources

Table A23: Change in health service utilisation by quintile of socioeconomic disadvantage of area, South Australia

Admission/service rate[1]

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[2]
Ages 0 to 14 yrs							
Total admissions							
1992	13,323	14,611	16,071	17,716	20,267	16,398	1.52
1996/7-1998/99	14,289	15,386	16,120	17,174	19,521	16,727	1.37
Per cent change	7.3	5.3	0.3	-3.1	-3.7	2.0	..
Public acute hospital admissions							
1992	9,392	11,171	13,684	15,604	18,775	13,631	2.00
1996/7-1998/99	10,136	12,490	13,896	15,651	18,276	14,373	1.80
Per cent change	7.9	11.8	1.6	0.3	-2.7	5.4	..
Private hospital admissions							
1992	3,899	3,434	2,387	2,107	1,462	2,642	0.37
1996/7-1998/99	4,119	2,892	2,227	1,521	1,222	2,354	0.30
Per cent change	5.6	-15.8	-6.7	-27.8	-16.4	-10.9	..
Male admissions							
1992	15,730	16,982	18,155	20,106	23,575	18,910	1.50
1996/7-1998/99	16,341	17,631	18,656	19,284	22,490	19,135	1.38
Per cent change	3.9	3.8	2.8	-4.1	-4.6	1.2	..
Female admissions							
1992	10,802	12,122	13,884	15,209	16,792	13,762	1.55
1996/7-1998/99	12,125	13,021	13,446	14,950	16,390	14,188	1.35
Per cent change	12.3	7.4	-3.2	-1.7	-2.4	3.1	..

Table A23: Change in health service utilisation by quintile of socioeconomic disadvantage of area, South Australia *...cont*

Admission/ service rate[1]

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total	Rate ratio[2]
Ages 0 to 14 yrs *...cont*							
Admissions for respiratory system diseases							
1992	3,307	3,975	4,365	5,108	5,913	4,534	1.79
1996/7-1998/99	2,738	3,297	3,645	3,996	4,928	3,799	1.80
Per cent change	-17.2	-17.0	-16.5	-21.8	-16.7	-16.2	..
Admissions for bronchitis, emphysema and asthma							
1992	1,184	1,481	1,682	1,867	2,233	1,674	1.89
1996/7-1998/99	895	1,119	1,133	1,314	1,623	1,232	1.81
Per cent change	-24.4	-24.4	-32.6	-29.6	-27.3	-26.4	..
Admissions for injury and poisoning							
1992	1,672	1,806	2,234	2,264	2,468	2,066	1.48
1996/7-1998/99	1,576	1,636	1,838	2,003	2,105	1,841	1.34
Per cent change	-5.7	-9.4	-17.8	-11.6	-14.7	-10.9	..
Ages 15 to 24 yrs							
Total admissions							
1992	15,831	16,757	19,668	22,403	23,106	19,553	1.46
1996/7-1998/99	15,270	17,212	20,271	22,178	25,695	20,065	1.68
Per cent change	-3.5	2.7	3.1	-1.0	11.2	2.6	..
Public acute admissions							
1992	8,654	10,240	14,796	17,724	19,521	15,038	2.26
1996/7-1998/99	8,526	11,629	15,942	18,931	23,041	15,386	2.70
Per cent change	-1.5	13.6	7.7	6.8	18.0	2.3	..
Private admissions							
1992	7,171	6,515	4,873	4,676	3,583	5,682	0.50
1996/7-1998/99	6,745	5,580	4,330	3,247	2,638	4,582	0.39
Per cent change	-5.9	-14.4	-11.1	-30.6	-26.4	-19.4	..
Male admissions							
1992	12,193	12,339	13,603	13,810	14,012	13,191	1.15
1996/7-1998/99	12,416	13,618	14,456	14,505	15,754	14,086	1.27
Per cent change	1.8	10.4	6.3	5.0	12.4	6.8	..
Female admissions							
1992	19,555	21,308	25,934	31,247	32,488	26,106	1.66
1996/7-1998/99	18,321	20,962	26,371	30,236	36,056	26,337	1.97
Per cent change	-6.3	-1.6	1.7	-3.2	11.0	0.9	..
Admissions for injury and poisoning							
1992	2,435	2,620	3,565	3,383	3,592	3,296	1.48
1996/7-1998/99	2,016	2,320	2,874	3,014	3,009	2,625	1.49
Per cent change	-17.2	-11.4	-19.4	-10.9	-16.2	-20.3	..
Termination of pregnancy							
1990-92	2,037	2,236	2,194	2,255	2,703	2,290	1.33
1997-99	2,572	2,326	2,719	3,242	3,383	2,856	1.32
Per cent change	26.2	4.1	23.9	43.8	25.2	25.1	..
Ages 0 to 24 yrs							
Family & Youth Service clients							
1991/2	2,497	5,356	6,387	11,032	16,963	8,317	6.84
1999	3,348	6,716	10,362	20,014	29,686	14,314	8.87
Per cent change	35.1	25.4	62.2	81.4	75.0	72.1	..
Community Health Service clients							
1991	676	627	842	811	2,620	1,144	3.88
1997-99	498	551	1,044	946	1,465	823	2.94
Per cent change	-26.3	-12.1	24.0	16.7	-44.1	-28.1	..

[1]Rate is the number of admissions/ services per 100,000 population, produced by indirect age-sex standardisation.
[2] Rate ratio is the ratio of the rate in Quintile 5 areas to the rate in Quintile 1
Source: Compiled from project sources

Bibliography

Executive summary

Page xvii

Stanley F, Sanson A and McMichael T, New ways of causal pathways thinking for public health. In *Children's Health and Development: new research directions for Australia.* (Sanson A, ed.) Australian Institute of Family Studies (AIFS). Australian Institute of Family Studies: Commonwealth of Australia 2002.

Page xxvi

Australian Bureau of Statistics, *Australian Standard Geographical Classification (ASGC).* AGPS: Canberra, 1996. (ABS Cat. No. 1216.0)

Australian Bureau of Statistics, *Australian Standard Geographical Classification (ASGC).* AGPS: Canberra, 1998. (ABS Cat. No. 1216.0)

1 Introduction

Page 1

Bronfenbrenner U, The Ecology of Human Development: Experiments by nature and design. Harvard University Press: Cambridge MA, 1979.

Cynader MS and Frost BJ, Mechanisms of Brain Development: Neuronal sculpting by the physical and social environment. In *Developmental Health and the Wealth of Nations: Social, Biological and Educational Dynamics.* (Keating DP and Hertzman C. (eds.)), The Guilford Press: New York, 1999.

Frankish J, Green LW, Ratner PA, Chomik T and Larsen C, *Health Impact Assessment as a Tool for Population Health Promotion and Public Policy*. Report for the Institute of Health Promotion Research: University of British Columbia, May 1996.

Keating DP and Hertzman C (eds.), *Developmental Health and the Wealth of Nations: Social, Biological and Educational Dynamics*. The Guilford Press: New York, 1999.

Oxford English Dictionary (OED) ONLINE, 3rd Edition, Oxford University Press.
At http://dictionary.oed.com/cgi/entry/00282689, (accessed 1 October 2002).

Rutter M, Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. British Journal of Psychiatry 1985; 147: 598-611.

Shonkoff J and Phillips D (eds), *From Neurons to Neighborhoods: The science of early childhood development.* Committee on Integrating the Science of Early Childhood Development, US Board on Children, Youth, and Families. National Academy Press: Washington DC, 2000.

Stanley F, Sanson A and McMichael T, New ways of causal pathways thinking for public health. In *Children's Health and Development: new research directions for Australia.* (Sanson A, ed.) Australian Institute of Family Studies (AIFS). Australian Institute of Family Studies: Commonwealth of Australia 2002.

Page 2

Acheson D, Barker D, Chambers J, Graham H, Marmot M and Whitehead M, *Independent Inquiry into Inequalities in Health Report*. HMSO: London UK, 1998.

Gregory R, *Children and the Changing Labour Market: Joblessness in families with dependent children*. Australian National University, Centre for Economic Policy Research, Discussion Paper No. 406,1999.

Keating DP and Hertzman C (eds.), *Developmental Health and the Wealth of Nations: Social, Biological and Educational Dynamics*. The Guilford Press: New York, 1999.

McCain MN and Mustard JF, *Early Years Study Report: Reversing the real brain drain*, Canadian Institute of Advanced Research for the Government of Ontario, April 1999.

Power C and Hertzman C, Social and biological pathways linking early life and adult disease. British Medical Bulletin 1997; 53 (1): 210-221.

Shonkoff J and Phillips D (eds.), *From Neurons to Neighborhoods: The science of early childhood development.* Committee on Integrating the Science of Early Childhood Development, US Board on Children, Youth, and Families. National Academy Press: Washington DC, 2000.

Weissbourd B, Supportive Communities for Children and Families. Public Health Reports 2000; 115:167-173.

Page 3

Ambagtsheer R and Glover J, *A Social Health Atlas of Young South Australians*, Department of Human Services (SA): Adelaide, 1998.

Davis C, Martin G, Kosky R and O'Hanlon A, National Stocktake of Early Intervention Programs, 1998. In *Clinical approaches to early intervention in child and adolescent mental health*. Adelaide: The Australian Early Intervention Network for Mental Health in Young People, 1998.

Developmental Crime Prevention Consortium (DCPC), *Pathways to prevention: developmental and early intervention approaches to crime in Australia*. Commonwealth of Australia, Canberra, 1999.

Duncan GJ, Economic deprivation and early childhood development. Child Development 1994; 65:296-318.

Glover J, Harris K and Tennant S, *A Social Health Atlas of Australia (Second edition), Volume 1: Australia*. Openbook Publishers: Adelaide, 1999.

Hill MS and Sandfort JR, Effects of childhood poverty on productivity later in life: implications for public policy. Child and Youth Services Review 1995; 17:91-126.

Hugo G and Ambagtsheer R, GIS, Equity and Provision of Services for a Subgroup: the example of residential care for the elderly in Adelaide. Paper presented at the Health and GIS Symposium, Melbourne, 1998.

Jolly DL, Nolan T, Moller J and Vimpani G, The impact of poverty and disadvantage on child health. Journal of Paediatrics and Child Health 1991; 27:203-17.

Keating DP and Hertzman C (eds.), *Developmental Health and the Wealth of Nations: Social, Biological and Educational Dynamics*. The Guilford Press: New York, 1999.

Korenman S, Miller JE and Sjaastad JE, Long term poverty and child development in the United States: results from the National Longitudinal Study of Youth. Child and Youth Services Review 1995; 17:127-155.

Lichter DT, Poverty and inequality among children. Annual Review of Sociology 1997; 23:121-145.

McLeod JD and Shanahan MJ, Poverty, parenting, and children's mental health. American Sociological Review 1993; 58:351-366.

Mathers C, *Health differentials among Australian children.* Australian Institute of Health and Welfare, AGPS: Canberra, 1996. (Health Monitoring Series Number 3)

Najman JM, Health and Poverty: Past, Present and Prospects for the Future. Social Science & Medicine 1993; 36(2):157-166.

National Health Strategy, *Enough to make you sick: How income and environment affect health*. Research Paper No.1, September 1992, National Health Strategy.

Nicholson J, Sanson A, Rempel L, Smart D and Patton G, Longitudinal studies of children and youth: Implications for future studies. In *Children's Health and Development: new research directions for Australia.* (Sanson A, ed.) Australian Institute of Family Studies (AIFS). Australian Institute of Family Studies: Commonwealth of Australia 2002.

Nossar V, The Contribution of Research to Improvement in Health and Wellbeing of Children. Paper given at a Workshop in Sydney under the auspices of the NSW Parliament Committee On Children And Young People, 2002.

Schoon I, Sacker A and Bartley M, Modelling the accumulation of risk in the life course: Evidence from two British Birth Cohorts born twelve years apart. Paper presented at the SPR Conference, London, 2001.

Spencer N, *Poverty and Child Health*, Radcliffe Medical Press Ltd: Oxford, 1996.

Spicker P, *Poverty and the welfare state – dispelling the myths*. Catalyst: London, 2002.

Turrell G, Oldenburg B, McGuffog I and Dent R, *Socioeconomic Status and Health: Towards a national research program and a policy and intervention agenda*. Queensland University of Technology, School of Public Health, Ausinfo: Canberra, 1999.

Page 4

Australian Institute of Health and Welfare (AIHW), *Australia's Children: Their Health and Wellbeing*. AIHW: Canberra, 2002.

Fogel RW, *Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy*. American Economic Review June 1994; 84(3);369-95.

Fonagy P, The early social and emotional determinants of inequalities in health. Keynote and invited paper presented at the Meeting of the Australian Association for Infant Mental Health, Perth WA, August 2001.

Glover J, Harris K and Tennant S, *A Social Health Atlas of Australia (Second edition), Volume 1: Australia.* Openbook Publishers: Adelaide, 1999.

Nicholson J, Sanson A, Rempel L, Smart D and Patton G, Longitudinal studies of children and youth: Implications for future studies. In *Children's Health and Development: new research directions for Australia.* (Sanson A, ed.) Australian Institute of Family Studies (AIFS). Australian Institute of Family Studies: Commonwealth of Australia 2002.

Nossar V, The Contribution of Research to Improvement in Health and Wellbeing of Children. Paper given at a Workshop in Sydney under the auspices of the NSW Parliament Committee On Children And Young People, 2002.

Power C and Hertzman C, Social and biological pathways linking early life and adult disease. British Medical Bulletin 1997; 53 (1): 210-221.

Sawyer M, Arney F, Baghurst P, Clark JJ, Graetz BW, and Kosky RJ, *The mental health of young people in Australia*. Canberra: DHAC, 2000.

Stanley F, Sanson A and McMichael T, New ways of causal pathways thinking for public health. In *Children's Health and Development: new research directions for Australia.* (Sanson A, ed.) Australian Institute of Family Studies (AIFS). Australian Institute of Family Studies: Commonwealth of Australia 2002.

Turrell G, Oldenburg B, McGuffog I and Dent R, *Socioeconomic Status and Health: Towards a national research program and a policy and intervention agenda*. Queensland University of Technology, School of Public Health, Ausinfo: Canberra, 1999.

Page 5

Ambagtsheer R and Glover J, *A Social Health Atlas of Young South Australians*, Department of Human Services (SA): Adelaide, 1998.

Australian Bureau of Statistics (ABS) and the Australian Institute of Health and Welfare (AIHW), *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 2001*. ABS: Canberra, 2001. (ABS Cat. no. 4704.0)

Australian Bureau of Statistics (ABS), *Causes of Death, Australia*. ABS, Canberra, 1997. , (ABS Cat. no. 3303.0)

Australian Institute of Health and Welfare (AIHW), *Australia's Children: Their Health and Wellbeing*. AIHW: Canberra, 2002.

Barker DJP, *Mothers, Babies and Disease in Later Life*, BMJ Publishing Group: London, 1994.

Barker DJP, *Mothers, Babies and Health in Later Life* (2nd edn). Churchill Livingstone, London, 1998.

Jolly DL, Nolan T, Moller J and Vimpani G, The impact of poverty and disadvantage on child health. Journal of Paediatrics and Child Health 1991; 27:203-17.

Keating DP and Hertzman C (eds.), *Developmental Health and the Wealth of Nations: Social, Biological and Educational Dynamics*. The Guilford Press: New York, 1999.

Lawlor DA, Ebrahim S and Davey Smith G, Socioeconomic position in childhood and adulthood and insulin resistance: cross sectional survey using data from the British women's heart and health study. British Medical Journal 2002; 325:805-10.

Stanley F, Sanson A and McMichael T, New ways of causal pathways thinking for public health. In *Children's Health and Development: new research directions for Australia.* (Sanson A, ed.) Australian Institute of Family Studies (AIFS). Australian Institute of Family Studies: Commonwealth of Australia 2002.

Taylor A, Twisk A and Chan A, *Perinatal Risk Factors by Postcode: South Australia 1989-92*. SA Health Commission: Adelaide, 1995.

Vik T, Vatten L, Markestad T, Ahlsten G, Jacobsen G, and Bakketeig L, Morbidity during the first year of life in small for gestational age infants. Archives of Disease in Childhood 1996; 75:F33-F37.

Vimpani G, Patton G and Hayes A, The relevance of child and adolescent development for outcomes in education, health and life success. In *Children's Health and Development: new research directions for Australia*. (Sanson A, ed.) Australian Institute of Family Studies (AIFS). Australian Institute of Family Studies: Commonwealth of Australia 2002.

Page 6

Australian Bureau of Statistics (ABS), *Mental Health and Wellbeing: Profile of Adults, Australia 1997*. ABS: Canberra, 1998. (ABS Cat. No. 4326.0)

Australian Institute of Health and Welfare (AIHW), *Australia's Children: Their Health and Wellbeing*. AIHW: Canberra, 2002.

Hill D, White V and Letcher T, Tobacco use in Australian secondary students in 1996. Australian and New Zealand Journal of Public Health 1999; 23:252-259.

Margarey AM, Daniels LA and Boulton TJC, Prevalence of overweight and obesity in Australian children and adolescents: reassessment of 1985 and 1995 data against new standard international definitions. Medical Journal of Australia 2001; 174: 561-564.

Sawyer M, Arney F, Baghurst P, Clark JJ, Graetz BW, and Kosky RJ, *The mental health of young people in Australia*. Canberra: DHAC, 2000.

Vimpani G, Patton G and Hayes A, The relevance of child and adolescent development for outcomes in education, health and life success. In *Children's Health and Development: new research directions for Australia.* (Sanson A, ed.) Australian Institute of Family Studies (AIFS). Australian Institute of Family Studies: Commonwealth of Australia 2002.

Page 7

Ambagtsheer R and Glover J, *A Social Health Atlas of Young South Australians*, Department of Human Services (SA): Adelaide, 1998.

Australian Bureau of Statistics (ABS), *Disability, Ageing and Carers. Summary Tables, South Australia, 1998*. ABS: Canberra 1999. (ABS Product No. 4430.4.40.001)

Australian Institute of Health and Welfare (AIHW), *Australia's Children: Their Health and Wellbeing*. AIHW: Canberra, 2002.

Booth M, Wake M, Armstrong T, Chey T, Hesketh K and Mathur S, The epidemiology of overweight and obesity among Australian children and adolescents, 1995-97. Australian and New Zealand Journal of Public Health, 2001; 25: 162-9.

Children's Interests Bureau (SA), *Children with Disabilities*, Position Paper, August 1994.

Dollman J, Olds T, Norton K and Stuart D, The evolution of fitness and fatness in 10-11 year old Australian children: changes in distributional characteristics between 1985 and 1997. Pediatric Exercise Science 1999; 11: 108-121.

Ebbeling CB, Pawlak DB and Ludwig DS, Childhood obesity: public health crisis, common sense cure. Lancet 2002; 360:473-82.

Margarey AM, Daniels LA and Boulton TJC, Prevalence of overweight and obesity in Australian children and adolescents: reassessment of 1985 and 1995 data against new standard international definitions. Medical Journal of Australia 2001; 174: 561-564.

Peat JK, van den Berg RH, Green WF, Mellis CM, Leeder SR and Woolcock AJ, Changing prevalence of asthma in Australian children. British Medical Journal 1994; 308:1591-1596.

Robertson CF, Sennhauser F and Mallol J, The change in prevalence and severity of asthma in developed and developing countries. Phelan PD (ed). Baillieres Clin Paediatr 1995; 3: 253-275.

Toelle BG, Peat JK, Mellis CM and Woolcock AJ, The cost of childhood asthma to Australian families. Pediatric Pulmonology 1995; 19: 330-335.

Williams H, Robertson C, Stewart A, Ait-Khaled N, Anabwani G, Anderson R, Asher I, Beasley R, Bjorksten B, Burr M, Clayton T, Crane J, Ellwood P, Keil U, Lai C, Mallol J, Martinez F, Mitchell E, Montefort S, Pearce N, Shah J, Sibbald B, Strachan D, von Mutius E and Weiland SK, Worldwide variations in the prevalence of symptoms of atopic eczema in the International Study of Asthma and Allergies in Childhood. Journal of Allergy & Clinical Immunology, 1999; 103(1 Pt 1):125-38.

Page 8

Committee on Children and Young People (CCYP) NSW, The importance of education for children in out-of-home care. Fifth report from the Committee on Children and Young People of the 52nd Parliament. Sydney, NSW: Parliament of New South Wales, 2001.

CREATE Foundation, *Australian children and young people in care: Report card on education*. September 2002. Coorparoo, QLD: CREATE Foundation.

Department of Human Services (b) (DHS) South Australia, *Statistical Profile of Children & Young People*. Population and Equity Strategies Branch, August 2001.

Efron D, Sewell J, Horn M and Jewell F, *Can we stay here? A study of the impact of family homelessness on children's health and wellbeing*. Hanover Welfare Services and Royal Children's Hospital: Melbourne, 1996.

Hood M, The interplay between poverty, unemployment, family disruption and all types of child abuse. Children Australia 23(2):28-32, 1998.

Horn M, *Families and Homelessness – Prospects and Policies for the 21st Century*. Paper presented at the 5th Australian Institute of Family Studies Conference, 27-29 November 1996, Brisbane.

Jackson S, The education of children in 'out-of-home' care. NSW Committee on Children and Young People, 2001.

Kruttschnitt C, McLeod JD and Dornfeld M, The economic environment of child abuse. Social Problems 41:299-315, 1994.

Martin PY and Jackson S, Educational success for children in public care: Advice from a group of high achievers. Child & Family Social Work, 2002; 7(2):121-130.

Page 9

Australian Institute of Health and Welfare (AIHW), *Australia's Children: Their Health and Wellbeing*. AIHW: Canberra, 2002.

Department of Human Services (a) (DHS), South Australia, *Maternal, Perinatal and Infant Mortality in South Australia 2000.* DHS: Adelaide, November 2001.

Lumley J, Watson L, Watson M and Bower C, Periconceptional supplementation with folate and/or multivitamins for preventing neural tube defects (Cochrane Review) 2001. In: The Cochrane Library, Issue 1, 2002. Oxford: Update Software.

Taylor A, Twisk A and Chan A, *Perinatal Risk Factors by Postcode: South Australia 1989-92*. SA Health Commission: Adelaide, 1995.

Page 10

Australian Institute of Health and Welfare (AIHW), *Australia's Children: Their Health and Wellbeing*. AIHW: Canberra, 2002.

Barker DJ, The fetal and infant origins of disease. European Journal of Clinical Investigation, 1995; 25(7):457-63.

Department of Human Services (b) (DHS), South Australia. *Statistical Profile of Children & Young People*. Population and Equity Strategies Branch, August 2001.

Nassar N and Sullivan E, *Australia's mothers and babies 1999*. Australian Institute of Health and Welfare National Perinatal Statistics Unit (AIHW NPSU), Cat. No. PER 19. Sydney: AIHW NPSU, 2001.

Paul-Shaheen P, Clark JD and Williams D, Small area analysis: a review and analysis of the North American literature. Journal of Health Politics, Policy and Law 1987; 12:741-808.

Sommerfelt K, Andersson HW, Sonnander K, Ahlsten G, Ellertsen B, Markestad T, Jacobsen G, Hoffman HJ and Bakketeig L, Cognitive development of term small for gestational age children at five years of age. Archives of Disease in Childhood 2000; 83:25-30.

Strang H, *Homicides in Australia 1991-9*2, Australian Institute of Criminology, Canberra, 1993.

Wennberg J and Gittlesohn A, Variations in medical care among small areas. Scientific American 1982; 246:120-134.

Page 11

Department of Human Services (b) (DHS), South Australia, *Statistical Profile of Children & Young People*. Population and Equity Strategies Branch, August 2001.

Jolly DL, *The impact of adversity on child health – poverty and disadvantage*. Australian College of Paediatrics: Parkville VIC, 1990.

Mathers CD and Schofield DJ, The health consequences of unemployment: the evidence. Medical Journal of Australia 1998; 168:178-182.

Morrell S, Taylor R and Kerr C, Unemployment and young people's health. Medical Journal of Australia 1998; 168:236-240.

Wilhelm KA and Clarke SD, Eating disorders from a primary care perspective. Medical Journal of Australia, 1998; 168(9):458-63.

World Health Organization (WHO), Pregnancy and abortion in adolescence: Report of a WHO meeting. Geneva, WHO, 1975. (WHO Technical Report Series No. 583)

Page 12

Australian Bureau of Statistics (ABS), *Recorded Crime Australia.* ABS: Canberra, 1999.

Australian Bureau of Statistics (ABS), *Births around Australia 1999.* ABS: Canberra, 2000. (Catalogue no.:3301.0)

Australian Institute of Health and Welfare (AIHW), SAAP National Data Collection annual report 1999-2000 Australia, 2000. At http://www.aihw.gov.au/housing/sacs/saap/saap-stats_age.html (Accessed 24 October2002).

Australian Institute of Health and Welfare (AIHW), *Australia's Children: Their Health and Wellbeing*. AIHW: Canberra, 2002.

Delfabbro PH and Winefield AH, *Gambling and its Impact on Young People: Discussion paper.* The Breakeven Network: Adelaide, 1996.

Department of Human Services (b) (DHS), South Australia, *Statistical Profile of Children & Young People*. Population and Equity Strategies Branch, August 2001.

Mathers C, Health differentials among Australian children. Australian Institute of Health and Welfare, AGPS: Canberra, 1996. (Health Monitoring Series Number 3).

Van der Klis K, Westenberg L, Chan A, Dekker G and Keane R, Teenage pregnancy: trends, characteristics and outcomes in South Australia and Australia. Australian and New Zealand Journal of Public Health 2002; 26(2):125-131.

2 Methods

Page 14

Australian Bureau of Statistics (ABS), *Outcomes of ABS Views on Remoteness Consultation, Australia*. Information paper 2001. ABS: Canberra, 2001. (ABS Catalogue no.: 1244.0.00.001)

Commonwealth Department of Health and Aged Care, *Accessibility/Remoteness Index of Australia (ARIA)*, Canberra: DHAC, 1999. (DHAC Occasional paper Series No. 6) (Superseded by Occasional Paper New Series No. 14 below)

Page 19

Australian Institute of Health and Welfare, *Australia's Health 1998.* AGPS: Canberra, 1998.

Glover J, Rosman D and Tennant S, Unpacking analyses relying on area-based data: are the assumptions supportable? Paper presented at the *Symposium on Health Data Linkage*, 20-21 March 2002, Sydney NSW.

3 Demography and socioeconomic status

Page 23

Glover J, Shand M, Forster C and Woollacott A, *A Social Health Atlas of South Australia (Second edition).* SAHC, Adelaide, 1996.

Hugo GJ, *Australia's Changing Population*. Oxford University Press, Melbourne, 1986.

Page 24

Australian Bureau of Statistics, *1996 Census, Socio Economic Indexes for Areas: Information paper.* ABS: Canberra, 1998.

Page 98

Australian Bureau of Statistics, *Schools, Australia, 2001*. (ABS Catalogue No. 4221.0).

Rutter M and Maughan B, School effectiveness findings 1979-2002. Journal of School Psychology 2002; 40(6): 451-475.

Page 127

Senior Secondary Assessment Board of South Australia (SSABSA), *SSABSA Handbook*. SACE 2000.

4 Health status

Page 145

Mathers, C, *Health differentials among Australian children*. Australian Institute of Health and Welfare: Health Monitoring Series Number 3, AGPS, Canberra, 1995.

Mathers, C, *Health differentials among young Australian adults*. Australian Institute of Health and Welfare: Health Monitoring Series Number 4, AGPS, Canberra, 1996.

National Health Strategy, *Enough to make you sick: How income and environment affect health*. Research Paper No.1, September 1992, National Health Strategy.

South Australian Health Commission, Social Health and Policy Development Branch, *A Social Health Strategy for South Australia*, SAHC: Adelaide, 1988.

World Health Organization (WHO), Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

Page 146

Turrell G and Mathers CD, Socioeconomic inequalities in all-cause and specific cause mortality in Australia: 1985-87 and 1995-97. International Journal of Epidemiology 2000; 29:231-239.

Page 147

Australian Bureau of Statistics and the Australian Institute of Health and Welfare, *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples,* ABS: Canberra, 1999. (ABS Cat. No. 4704.0, AIHW Cat. No. IHW 3)

Page 149

Mathers C, *Health differentials among Australian children*. Australian Institute of Health and Welfare: Health Monitoring Series Number 3, AGPS, Canberra, 1995.

Page 150

Department of Human Services (a) (DHS), South Australia, *Maternal, Perinatal and Infant Mortality in South Australia 2000.* DHS: Adelaide, November 2001.

Page 164

Serafino S, Swensen G and Thomson N, *Attempted suicide in Western Australia 1981-1993,* Epidemiology Branch, Health Information Centre, Health Department of Western Australia: Perth, 1996 June. (Occasional paper 79)

Page 166

Epidemiology Branch, South Australian Health Commission. *Pregnancy Outcome Attributes by Postcode: South Australia 1981-86*. South Australian Health Commission, Adelaide, 1988.

Taylor A, Twisk A and Chan A, *Perinatal Risk Factors by Postcode: South Australia 1989-92*. SA Health Commission: Adelaide, 1995.

Page 168

Taylor A, Twisk A and Chan A, *Perinatal Risk Factors by Postcode: South Australia 1989-92*. SA Health Commission: Adelaide, 1995.

Page 173

Booth ML, Wake M, Armstrong T, Chey T, Hesketh K and Mathur S, The epidemiology of overweight and obesity among Australian children and adolescents, 1995-97. Australian and New Zealand Journal of Public Health 2001; 25(2):162-169.

Cole TJ, Bellizi MC, Flegal KM and Dietz WH, Establishing a standard definition for child overweight and obesity worldwide: international survey. British Medical Journal 2000; 320:1-6.

Cunningham J and Mackerras D, *Overweight and obesity – Indigenous Australians 1994.* Australian Bureau of Statistics 1998. (Occasional paper 4702.0)

Ebbeling CB, Pawlak DB and Ludwig DS, Childhood obesity: public health crisis, common sense cure. Lancet 2002; 360:473-82.

Lynch J, Wang XL and Wilcken DEL, Body mass index in Australian children: recent changes and relevance of ethnicity. Archives of Disease in Childhood 2000; 82:16-20.

Magarey AM, Daniels LA and Boulton TJC, Prevalence of overweight and obesity in Australian children and adolescents: reassessment of 1985 and 1995 data against new standard international definitions. Medical Journal of Australia 2001; 174:561-64.

Page 176

Kirke DK, Growth rates of Aboriginal children in central Australia. Medical Journal of Australia 1969; 2(20): 1005-9.

Rousham EK and Gracey M, Persistent growth faltering among Aboriginal infants and young children in north-west Australia: a retrospective study from 1969 to 1993. Acta Paediatrica 1997; 86:46-50.

Page 179

Australian Institute of Health and Welfare (AIHW), *Child protection Australia 2000–01*. (AIHW Cat. no. CWS 16). Canberra: AIHW, 2002. (Child Welfare Series no. 29).

Cashmore J, Child protection in the new millennium. Social Policy Research Centre Newsletter No. 79: May 2001.

Layton R, Our Best Investment – A State plan to protect and advance the interests of children. Finsbury Press: Adelaide, 2003.

__Page 182__

Australian Institute of Health and Welfare (AIHW), *Child protection Australia 2000–01*. (AIHW Cat. no. CWS 16). Canberra: AIHW, 2002. (Child Welfare Series no. 29).

Human Rights and Equal Opportunity Commission (HREOC), *Bringing Them Home* (National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from their Families). HREOC 1997.

5 Utilisation of health and welfare services

__Page 186__

Department of Human Services (b) (DHS), South Australia, *Statistical Profile of Children & Young People*. Population and Equity Strategies Branch, August 2001.

__Page 187__

Esterman A, MacHarper T, Rohrsheim R and Roder D, *Hospital admissions–a chart book supplement*, Epidemiology Branch, South Australian Health Commission: Adelaide, 1990.

__Page 191__

Australian Institute of Health and Welfare, *Australian Hospital Statistics 1996-97*. AIHW: Canberra, 1998. (Health Services Series No. 11, AIHW Cat. No. HSE 5)

Glover J, Rosman D and Tennant S, Unpacking analyses relying on area-based data: are the assumptions supportable? Paper presented at the *Symposium on Health Data Linkage*, 20-21 March 2002, Sydney NSW.

__Page 224__

Australian Institute of Health and Welfare (AIHW), *Australia's Children: Their Health and Wellbeing*. AIHW: Canberra, 2002.

__Page 257__

Australian Institute of Health and Welfare, *Australian Hospital Statistics 1995-96*. AIHW: Canberra, 1997. (Health Services Series No. 10, AIHW Cat. No. HSE 3)

National Health Data Committee, *National Health Data Dictionary, Version 6.0*. AIHW: Canberra, 1997. (AIHW Cat. No. HWI 9)

Renwick M and Sadkowsky K, *Variations in surgery rates*, Australian Institute of Health, AGPS: Canberra, 1991. (AIH Health Services Series, No. 2)

Page 276

Singh S and Darroch JE, Adolescent pregnancy and childbearing: Levels and trends in developed countries. Family Planning Perspectives 2000; 32:14-23.

Page 286

Glover J, Harris K and Tennant S, *A Social Health Atlas of Australia (Second edition), Volume 5: South Australia.* Openbook Publishers: Adelaide, 1999.

Index