

# life opportunities, social inclusion and health outcomes — an Australian atlas



# LIFE OPPORTUNITIES, SOCIAL INCLUSION AND HEALTH OUTCOMES

## An Australian Atlas

Public Health Information Development Unit  
The University of Adelaide

2012



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- John Glover managed the project and, with Sarah and Anthea, wrote the commentary in Sections 4 to 8.

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# Section 1

## Context and purpose

### **In this section ...**

Introduction

Background to the atlas

Overview of the atlas

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## Introduction

The social and economic environment is a major determinant of population wellbeing in Australia. Over the last thirty years, numerous reports and studies have highlighted substantial variations in the wellbeing of the Australian population, and the gap between those who are 'doing well' and those who are not.<sup>1-4,13</sup> These differences, or inequalities, are readily apparent across Australian capital cities, and rural and remote communities in the rest of the nation.

Those who are the most disadvantaged members of our community are more likely to experience poorer health and wellbeing, social exclusion and fewer chances of having fulfilled and healthy lives. There is mounting evidence of the significant impact of both economic and social inequalities on various groups in society, and government and community concern about the need to address them.

This atlas describes the extent and significance of inequalities in health and social inclusion across Australia, particularly those associated with wider social and economic influences. It was produced by the Public Health Information Development Unit (PHIDU) at The University of Adelaide, for the Australian Government Department of Health. The national Social Health Atlas series is now in its third edition (1992, 1999 and 2012), reflecting recognition within the federal health sector over two decades, of the impact of socioeconomic disadvantage on health and wellbeing. In other areas of government, there is also acknowledgement of the interplay of disadvantage in all its forms, and the avoidable differences in wellbeing that can result.

The atlas again highlights where further effort is needed to improve wellbeing and social inclusion within the population, both for individuals and for communities, across the life course.

## Background to the atlas

The Australian Government Department of Health commissioned this atlas in 2010 to have a focus on social exclusion and the role of the health sector in contributing towards social inclusion. However, the final publication of the atlas was delayed in the lead up to, and following the change of government in 2013. While the discussion, references, indicators and data reflect the context of this earlier period, there is much in the atlas which remains relevant, and it is now being published online for the first time.

Disadvantage is often the result of multiple, complex and interconnected barriers to participation; and certain people tend to be at higher risk of social exclusion. A number of priority groups have been identified, using evidence about the causes and consequences of social and economic disadvantage:

- jobless families with children;
- children at greatest risk of long-term disadvantage;
- people affected by homelessness;
- people living with disability or mental illness, and their carers;
- Aboriginal and Torres Strait Islander peoples;
- vulnerable new arrivals and refugees; and
- neighbourhoods and communities affected by entrenched and multiple disadvantage.

Within the health sector, there is a need to address the impact of disadvantage, social exclusion and inequality on the population's health and wellbeing, particularly in the area of chronic disease development; and to find opportunities to link social and economic policy in order to reduce differences in wellbeing and social inclusion across the population, especially for vulnerable groups.

## Overview of the atlas

Our health and wellbeing are the products of many different influences, which interact in complex ways. Some factors include individual characteristics such as the genes that we inherit from our parents, and aspects of our own beliefs, behaviours and coping abilities. Other important effects operate within the contexts of our families, friends and peers, neighbourhoods, communities, culture and kinship groups, and society as a whole.

The purpose of the atlas is to understand the impact that social, physical, environmental and economic factors can have on health, wellbeing and social inclusion, and to describe their distribution across the Australian population. This reflects the growing awareness of the multidimensional nature of both health and social exclusion.<sup>5,6</sup> There are different types and levels of exclusion; people may move in and out of disadvantage over time; and one can track the kinds of factors, which shape the different dynamics affecting various groups.<sup>5,6</sup> The domains or dimensions of social exclusion include material resources; education and skills; socioeconomic position; employment; health and disability; and social, community and personal safety.<sup>5</sup>

There is a need to understand better the complex interactions between individuals and their families, the pressures exerted by their environments and social structures over a lifetime, and how these factors influence the wellbeing, development and ultimately, the full participation of current and future generations of Australians in society. It is also important to plan for, implement and monitor effective policies and interventions to address their effects.

One way of doing this is to choose a number of indicators to describe the levels of different aspects of wellbeing of the population at the present time and, by using them, to highlight the extent of existing inequalities and the elements that influence wellbeing over the life course.

Indicators are useful for:

- informing people about social issues, including access to and outcomes in health and related sectors;
- monitoring these issues to identify change, both between groups in the population, and over time; and
- assessing progress towards goals and targets, or the attainment of policy objectives.

These purposes suggest that indicators need to:

- reflect the values and goals of those who will use and apply them;
- be accessible and reliably measured in all of the populations of interest;
- be easily understood, particularly by those who are expected to act in response to the information;
- be measures over which we have some control, individually or collectively, and are able to change; and
- move governments and communities to action.

Indicators typically used to evaluate the extent of social exclusion also relate to health, education, incomes, attachment to the labour market and access to housing and other services. It is important to measure changes in social inclusion and/or exclusion accurately so that progress in reducing social exclusion can be assessed; and to determine whether there are particular groups who are continuing to be socially excluded or whether there are groups that are becoming newly excluded. This measurement can occur at a fairly high geographic level (e.g., national; state; urban versus rural), for specific fairly small geographic areas (e.g., Statistical Local Area (SLA) or postcode), or for particular population groups (e.g., Aboriginal and Torres Strait Islander

peoples, older people, new migrants, children and young people).

The indicators of inequalities in wellbeing and social inclusion presented in this atlas and on the World Wide Web have been selected because they describe the extent of differences in service access, participation and outcomes, in the context of the demographic and socioeconomic composition of Australia. They are also indicators for which reliable data are available, in particular data that can be presented in maps and graphs to show variations by area, across capital cities and in rural and remote regions of Australia, and by the socioeconomic status of the population.

The mapping of small areas to show variations in the selected indicators geographically is used to demonstrate:

- the level of extreme, multiple disadvantage and social exclusion in a small number of geographic areas; and
- the wider distribution of socioeconomic differences in health and wellbeing (as shown by the gradient across groups in the population according to their socioeconomic position); and
- supporting evidence, which highlights the extent to which disadvantage is clustered into particular geographic areas, making the targeting of programs and services in selected geographic locations a useful approach when coupled with broad-based, population-wide strategies.

The distribution of the population, who are socially excluded with the poorest health and wellbeing, has a strong and distinct geographic pattern, both by remoteness (in particular, for Aboriginal and Torres Strait Islander peoples) and in locations with high proportions of other people who are significantly socioeconomically disadvantaged. The geographic distribution of the population under these indicators is the focus of Section 4.

The indicators represent topics where considerable inequalities and social exclusion exist; yet they provide only a partial picture of the social and economic inequalities in wellbeing in Australia. However, it is hoped that the atlas will raise awareness of the extent of many of these inequalities and their impacts on different sections of the population, and provide a basis for working towards the inclusion of all Australians in our society.

## A note about terms used in the Atlas

In the atlas, the term 'socioeconomic' refers to the social and economic aspects of a population, where 'social' includes information about the community and its level of education, welfare, housing, transport and so forth. It is not used in the context of 'social' as in 'social skills', 'social capital', 'social ability' or 'social behaviour' of community members. Therefore, an area described as having 'a high level of socioeconomic disadvantage' does not imply that the area has low cohesion or lacks strength as a community; rather, it identifies a relative lack of resources or opportunities that are available to a greater extent in more advantaged communities. Thus, this lack of resources leads inevitably to avoidable differences in health and other outcomes for disadvantaged communities.<sup>1</sup>

Identifying the communities whose residents are not faring as well as others may be perceived as stigmatising. However, the purpose of the atlas is to highlight the extent of their disadvantage in order to provide evidence upon which community members and decision-makers can rely, and which can underpin advocacy for change. If we avoid highlighting the most disadvantaged suburbs, we avoid providing the evidence that society is failing those who live there. Moreover, being complacent about their plight, and not publishing the evidence, makes us complicit in their poorer life outcomes.

<sup>1</sup>In discussing the maps, reference is also made to 'poor health outcomes for the population of the most disadvantaged areas'. This is not to imply that the same health outcomes (e.g., a high premature death rate) apply to everyone living in the named areas: clearly, the average rate for an area is comprised of a range of rates across the area.

## Sources of information

The following resources were used to underpin the information presented in this Section.

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## Section 2

### Health, inequality and social exclusion

#### **In this section ...**

A focus on health inequality and social inclusion

The impact of social and economic inequalities

Social exclusion, poverty and health

Determining health and wellbeing

Key determinants of health and wellbeing

Understanding the mechanisms of health inequality

Addressing health inequalities and social exclusion

Sources of information

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## A focus on health inequality and social exclusion

Overall, the level of wellbeing in Australia is high when compared to many other countries, as evidenced by life expectancy and infant mortality rates for the population as a whole.

However, there are substantial differences in the wellbeing of specific groups within the population. For example, compared with other Australians, Aboriginal and Torres Strait Islander peoples are disadvantaged across a broad range of social and economic factors, including education, health, employment, income and housing.<sup>1,3,118</sup> This is the result of many underlying causes, including the intergenerational effects of forced separations from family, community, land and culture, and the lasting impacts of colonisation, racism and discrimination.<sup>1,2</sup> This has placed them at greater risk of poorer life outcomes; and there has been substantial evidence for decades, that, for example, the health of Aboriginal and Torres Strait Islander peoples is significantly worse than that of the non-Indigenous population.<sup>1-3</sup>

These and other differences in health are known as 'health inequalities'. Inequality simply means 'being unequal', not the same. Many inequalities exist across the population and they tend to divide the community into different groupings, depending on the measure used.<sup>4,5</sup>

Inequalities may result from differences in age, sex, ethnicity, social and economic position, gender, ability, geographical area, remoteness, and so on. Some dimensions of inequality are unavoidable and not amenable to change, such as age. Other inequalities occur as a result of differences in access to effective services, educational opportunities, material resources, safe and satisfying work, nurturing experiences and living conditions in childhood, and so on.<sup>6</sup>

Many of these inequalities are potentially avoidable, and the fact that they exist implies a degree of unfairness, or 'inequity'. Inequities occur as a consequence of unjustifiable differences in opportunity, which result in poorer access to effective services, nutritious food, adequate housing, safe transport and so on, with consequences for population wellbeing.<sup>6</sup> Such inequities can also lead to limited opportunities for full participation as citizens in society, and thereby, to social exclusion.<sup>2</sup> A lack of opportunity can also alter people's expectations of what life offers in the future.

Social exclusion may occur as a result of a lack of the capabilities needed to participate in the

experiences that lead to social inclusion: "(social) inclusion is characterised by a society's widely shared social experience and active participation, by a broad equality of opportunities and life chances for individuals and by the attainment of a basic level of wellbeing for all citizens".<sup>7</sup> Thus, for many Australians, exclusion from the opportunities, capabilities and resources to choose a fulfilling life is reflected in their poorer health, and in potentially avoidable inequalities in wellbeing. Notions of exclusion also infer that the cumulative impact of individuals' lack of resources and capabilities can act as a critical barrier to social integration, often leading to a transfer of disadvantage and inequalities in wellbeing from one generation, to the next.<sup>8</sup>

The impact of the various domains of social exclusion also differs for individuals or subgroups of the population at certain points in the life course, and these interact with each other. For example, a certain level of income may deliver social inclusion for a young healthy person but not for an older, unwell person who has higher needs for additional resources and support.<sup>9</sup>

Thus, a social inclusion approach involves 'the building of personal capacities and material resources, in order to fulfil one's potential for economic and social participation, and thereby, a life of common dignity'.<sup>9</sup>

Tackling social exclusion, therefore, suggests a broader way of both defining and measuring poverty and disadvantage, and of describing a social policy approach that focuses on investing in people's capacity to negotiate the various challenges of life.<sup>11</sup> It also means highlighting the localised nature of inequality and disadvantage, the multiple disadvantages faced by those who are socially excluded and the process that has led to social exclusion, to facilitate the development and implementation of localised and tailored approaches to remedy the situation for affected peoples and communities.<sup>10</sup>

## The impact of social and economic inequalities

Economic inequality is evident in the uneven distribution of wealth in society. It implies an unequal distribution of the ability to purchase 'goods' such as housing, education, recreation, health care and other opportunities, and the choice to do so.<sup>12</sup>

Social inequality is the expression of the lack of access to these opportunities and represents a

degree of exclusion of people from full and equal participation in what we believe is worthwhile, valued and socially desirable.<sup>12</sup>

Thus, economic and social inequalities are inextricably linked, and their combined impact results in limited opportunities and life chances for many who are affected by them.<sup>13</sup> Such inequalities tend to stratify the community into hierarchies, with those who have the most resources, opportunities and power to choose, at the top; and those with increasingly less, in layers below them. The effect of these hierarchies is to entrench differences in wellbeing across the population, and to limit capacity to have a fulfilling life.<sup>13</sup> Those who sit at the bottom of the hierarchy are the most likely to experience social exclusion, and the poorest health and wellbeing.<sup>105</sup>

Socioeconomic disadvantage takes many forms. For some, it is the inability to obtain the essentials of life such as shelter and adequate food; for others, it is a matter of low income; for others, a problem of discrimination and exclusion from opportunities in society.<sup>13</sup> Defining disadvantage only in terms of poverty or low income minimises the importance of access to appropriate services, safe environments, and the quality of housing or level of education that is available.<sup>13</sup> A complete definition needs to extend beyond a lack of economic resources to encompass many of the serious structural, social and environmental issues faced by individuals, their families and their communities.<sup>14,15,118</sup> Examples of these include under- and unemployment, homelessness or insecure housing, discrimination and racism, unsupported sole parenthood, disability, educational under-attainment, violence and abuse, and behavioural and mental health problems.

Extending the definition of socioeconomic disadvantage beyond a lack of money to include restriction of access to opportunities, and limitations in the capabilities required to capitalise on these, reflects the wider dimensions of social exclusion.<sup>16</sup> For many disadvantaged groups within the population, the impact of inequality and social exclusion limits their ability to influence change, and makes them more vulnerable to poorer health and wellbeing. Some of these groups include Aboriginal and Torres Strait Islander peoples, people living with disability and their carers; young offenders; children living in jobless households; homeless families; people with mental health problems; and refugees from a range of cultures and ethnic backgrounds.<sup>16</sup>

Increasing inequality and social exclusion are matters for significant community concern, because they tend to unravel the fabric of society, through adverse effects on individuals' life chances and their ability to participate as active citizens in all areas of community life. These effects may be handed on from generation to generation, thus creating a cycle of disadvantage and social exclusion.<sup>17</sup> The 'hidden damage' from social and economic inequalities can affect every aspect of life: from the ability of an individual to learn and the foundations of health laid down in early childhood, the strengths of neighbourhoods and the productivity of businesses, to Australia's collective identity as an inclusive community.

Families and communities are the building blocks of society and national life.<sup>115</sup> The quality and strength of people's relationships with others - their families, friends, neighbourhoods and the wider community - are important ingredients of a cohesive and inclusive society.<sup>115</sup> An equal society protects and promotes equal freedom and substantive opportunity to live in the ways people value and would choose, so that everyone can flourish.<sup>11</sup> An equal society recognises people's different needs, situations and goals and removes the barriers that limit what people can do and be.<sup>11</sup> In a socially inclusive community, the focus is on citizens' rights not on charity, on the society as a whole, not on 'an underclass', and assumes positive government intervention in order to tackle structural inequalities.<sup>18</sup>

## Social exclusion, poverty and health

The concepts of social inclusion and social exclusion have been the subject of much discussion and review internationally and in Australia, especially with regard to how each is defined, measured and understood within the community.<sup>67-70,118</sup>

For the purposes of the atlas, social inclusion is considered a positive concept: "people having the necessary opportunities, capabilities and resources to enable them both to contribute to and share in the benefits of society".<sup>71</sup> Social inclusion is recognised as important for health and wellbeing, with good health laying the foundation for, and resulting from social inclusion.<sup>72,73</sup> It also is an acknowledgement of the broader social and economic structures that lie beyond the control of the individual or their local community in determining wellbeing.<sup>72,73</sup>

The idea of social exclusion is generally used to facilitate a broader understanding of the multiple dimensions of poverty and their impacts on wellbeing.<sup>74</sup> While poverty and social exclusion are closely related, social exclusion has been

described as ‘the existence of barriers which make it difficult or impossible for people to participate fully in society or obtain a decent standard of living’.<sup>75</sup> While income poverty is the most commonly cited cause of social exclusion, other examples of barriers include disability, lack of educational opportunity, inadequate or insecure housing, ethnic minority status, unemployment, age, gender or sexuality, and lack of transport.<sup>74</sup>

Four aspects of social exclusion are described:

- impoverishment or exclusion from adequate income or resources;
- labour market exclusion;
- service exclusion (lack of basic services within the home and outside of it); and
- exclusion from social relationships, which can be illustrated by non-participation in social activities with family and friends, isolation and lack of support, civic disengagement and confinement.<sup>76</sup>

However, the distinctions between causes or drivers and outcomes of social exclusion are often unclear.<sup>76</sup> The rationale for using a social inclusion approach is that the way of ‘including’ people with these disadvantages is not only, or even necessarily, to give them more money but also to attend to their specific sources of exclusion.<sup>74</sup>

Therefore, remedies need to deal with the “circumstances where people are prevented from participating fully in economic, social and civil life” that is, to strengthen the social connections, economic processes and political and cultural networks that bind individuals together as a

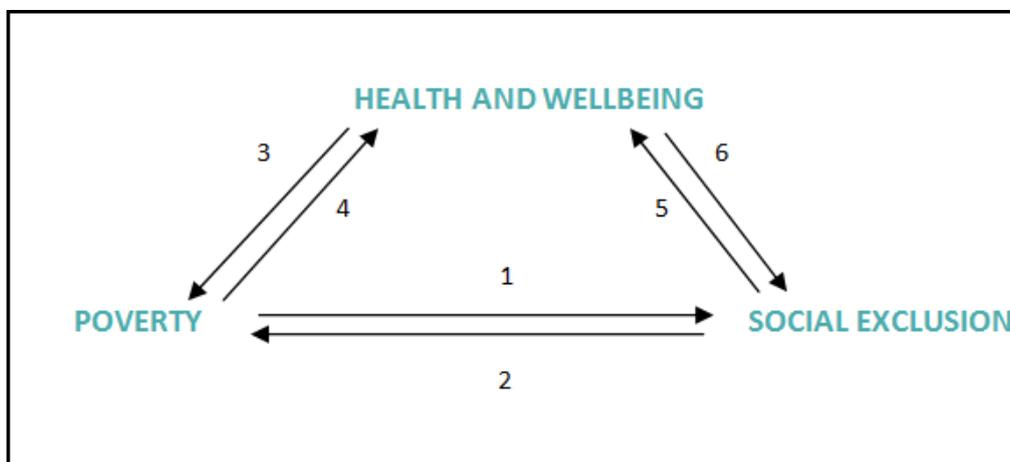
community.<sup>77,78</sup> For many Australians, exclusion from the opportunities, capabilities and resources to choose a fulfilling life is reflected in their poorer health, and in avoidable, unjustified inequalities in wellbeing.<sup>73</sup> Exclusion also suggests that the cumulative impact of individuals’ lack of resources and capabilities can lead to intergenerational inequalities in health and wellbeing.<sup>75</sup>

Exploring how the health sector can address social exclusion requires an understanding of the relationships between health and wellbeing, poverty and social exclusion.<sup>79</sup> Poverty, social exclusion, and health and wellbeing are closely inter-related. Each can be a cause or a consequence of the others and the relationships between them may be cyclical (Figure 1).<sup>79</sup> For example, many of the mechanisms leading to and perpetuating poor health across generations are related to poverty and social exclusion early in life.<sup>80</sup>

The specific population groups, who have been identified by research as more likely to face social exclusion in Australia, include people living with disability or mental illness, refugees, Aboriginal and Torres Strait Islander peoples and immigrant ethnic groups who experience racism and other forms of discrimination, unsupported sole parents, people with caring responsibilities, and children growing up in jobless households.<sup>34,80</sup> The experiences of these groups also illustrate the ways in which chronic poverty can lead to social exclusion, and how the experience of being excluded can lead to, or compound, poor health.<sup>33,79</sup>

**Figure 1: Relationships between health and wellbeing, poverty and social exclusion**

(Adapted from Stegeman & Costongs 2003)



## Poverty and social exclusion

Poverty can be a cause of social exclusion when those who are poor become increasingly marginalised due to their lack of resources and, as a result, have fewer opportunities to participate in society (Figure 1, link 1). People living in low-income households are more frequently disadvantaged in non-monetary terms than the rest of the population.<sup>77</sup>

However, poverty is not the only indicator of social exclusion. There are some people who receive income support or who own assets that place them above the relative poverty line, who may also be socially excluded. Factors such as disability, insecure employment, caring for frail aged or disabled members of their families, and so forth may lead to them not being able to participate in the community and to being socially excluded.<sup>77</sup>

Social exclusion can, in turn, lead to poverty (Figure 1, link 2). People who are discriminated against on the basis of disability, mental illness, race, gender, sexual identity or age may be unable or may not have the opportunity to engage in economic activity and thereby, be income poor.<sup>81</sup>

Although poverty and social exclusion are closely related, one does not necessarily result in the other. While poverty can lead to and may be paired with social exclusion, there are people who may be income poor, but who participate actively in their communities, and are not socially excluded.<sup>79</sup>

## Poverty and health

As discussed, health and wellbeing are important in the pathways that run from poverty to social exclusion and from social exclusion to poverty. A strong association between poverty and health is evident from the large body of research which indicates the marked correlation between socioeconomic position and health at an individual and a population level.<sup>82-84</sup> The association is a graded one: socioeconomic position is important to health across all levels of society. The conditions of poverty result in poor health and premature death ('health causation'), although unpicking the mechanisms of causation is a difficult task.<sup>79</sup> There are clearly effects at the level of an individual; and, although it is true that people who are chronically unwell may become poor, it is much more evident that poor people tend to become unwell. Socioeconomic factors have a direct bearing on how long a person lives, their wellbeing and quality of life and on the burden of disease to which they will be

exposed.<sup>83</sup> Those who occupy the lowest socioeconomic position fare the worst (Figure 1, link 4).

An individual or family's socioeconomic status reflects their relative position in society. This relative position is operationally defined by indicators such as educational attainment, occupation, income and house or car ownership. These variables are therefore considered to provide a good indication of the likelihood that individuals will be exposed to health damaging factors or possess particular health enhancing resources.<sup>85</sup> Furthermore, evidence from health research shows that social and structural conditions can be as influential on the health of a population as are the behaviours and characteristics of the individuals of which the population is comprised.<sup>85</sup>

For some people, chronic and severe health problems may preclude their employment and economic participation, and lead to downward social mobility and poverty ('health selection') (Figure 1, link 3). Reduced earnings due to an inability to work, caring responsibilities, or a change in life expectancy can play a role in pathways that run from ill health to poverty.<sup>88</sup> However, health selection usually plays a relatively minor role in contributing to the socioeconomic gradient: the effect of health selection on the gradient is variable across gender and life stage, of modest size and cannot be regarded as a major explanation for inequalities in health.<sup>89,90</sup>

## Health and social exclusion

The mechanisms described above which lead to the association between poverty and ill health are, in many cases, similar to those that link social exclusion to poor health and wellbeing.<sup>79</sup> Central to these relationships are the key determinants that influence health status and wellbeing.<sup>79</sup> For example, psychosocial factors may be significant in understanding the mechanisms that move from social exclusion to poor health, while the socioeconomic environment plays an important role in patterning health-related behaviour.<sup>79</sup> However, the underlying mechanisms behind socioeconomic differences in health and wellbeing are not yet fully understood.<sup>91</sup>

As discussed earlier, social exclusion is socially defined, and is often a characteristic of vulnerable groups within the population – the frail aged, those living with disabilities, those who are socially or geographically isolated, and those from certain minority ethnic backgrounds.<sup>79</sup> These groups are also likely to experience poorer health and wellbeing (Figure 1, link 5).

Social exclusion can also occur as a direct result of health problems, disability or physical limitations (Figure 1, link 6). Societies that enable all citizens to play a full and useful role in the social, economic and cultural life of their society will have healthier populations than those where people face exclusion and deprivation.<sup>21,78</sup>

### Determining health and wellbeing

Health is a complex phenomenon and the result of many different factors, which have collectively been called 'the determinants of health'.<sup>106</sup> They can be illustrated as 'layers of influence', starting with individual factors, and extending to aspects of families, neighbourhoods and the wider community (Figure 2).<sup>19</sup> This model links influences from various domains – including society-wide factors (e.g., socioeconomic, cultural, environmental), middle-level factors (e.g., health care) and individual factors (e.g., tobacco use, genes, age), to explain the origins of a whole population's health and wellbeing.<sup>19</sup>

While health care services make a direct contribution to the health and wellbeing of a community, the model shows that many other determinants are found in sectors such as education, housing, employment, and the physical environment.

The health effects of social conditions have been described as the 'social determinants of health'.<sup>106</sup> Many social determinants can potentially be modified to improve personal and population health outcomes.

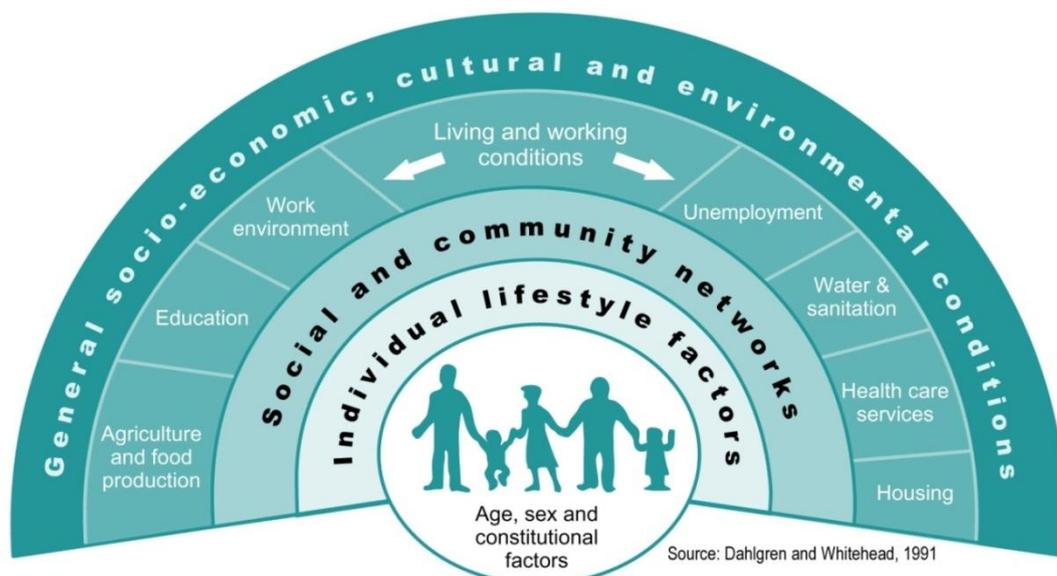
The World Health Organization (WHO) has identified the following areas as ones where

action ought to be taken to reduce inequalities in health by modifying the social determinants: stress; early life; social exclusion; the social gradient; work; unemployment; social support; addiction; food; and transport.<sup>21</sup>

As shown in Figure 2, health and wellbeing are the result of multiple determinants that operate together, within genetic, biological, behavioural, social, cultural, environmental and economic contexts, which have differing influences at various points in our lives. For example, the family context has a greater effect on the wellbeing of infants and young children early in life, while neighbourhood and peer group factors and individual behaviours become more important as older children move into adolescence and adulthood.<sup>22</sup> The life pathways that result are the product of cumulative risk and protective factors and other influences. A single risk factor (being obese or having experienced child abuse) may contribute to a wide range of problems, just as one protective factor (good nutrition or having a supportive family) may help to defend against other difficulties.<sup>23</sup> Risks and protective factors can occur independently, or may cluster together in socially patterned ways.<sup>22</sup>

Taking a life course approach to health and wellbeing means examining the long-term effects of physical, emotional and social exposures to risk and protective factors during gestation, infancy, childhood, adolescence, young adulthood and later adult life.<sup>24</sup>

**Figure 2: The Key Determinants of Health and Wellbeing<sup>28</sup>**



The path that leads to any particular outcome may be very different for different individuals

and populations. The timing and sequence of biological, cognitive, psychological, emotional,

cultural and historical events and experiences will all influence the development of health and wellbeing in both individuals and across populations.<sup>26</sup>

## Key determinants of health and wellbeing

The key determinants of health are described in more detail below and reflect many of the indicators which are included in Section 4 of the atlas. Numerous determinants overlap, and more remains to be learned about the specific ways in which determinants influence health and wellbeing.

### 1. Wealth and socioeconomic position

These are among the most important individual-level determinants, and one's overall wellbeing tends to improve at each step up the economic and social hierarchy. Thus, people with greater wealth generally enjoy better health and longer lives than people with less.<sup>4,5</sup> The rich are healthier than those with mid-level income, who are in turn healthier than those who are poor. This is known as 'the social gradient'.

In Australia, many health outcomes vary by socioeconomic position - for example, risk behaviours (such as smoking, obesity); a range of chronic diseases (such as type 2 diabetes, cardiovascular disease, some cancers); Health-Adjusted Life Expectancy (HALE); and mortality.<sup>27</sup> Furthermore, a gradient exists for other outcomes - from coping behaviours, to literacy and mathematical attainment.<sup>28</sup> The gradient is evident whether one looks at differences in current socioeconomic status or in that of family of origin. These effects seem to persist throughout the life course, from birth, through adulthood and into old age, and for some outcomes, to the next generation.<sup>25,29</sup>

For most people in Australia, this variation in health and wellbeing is not due primarily to the lack of money for food, clothing or shelter. Thus, the important factors in explaining differences appear to be not only material conditions, but also the social advantages and power attached to those conditions, such as social inclusion. In mature economies such as Australia, these are major influences on health and wellbeing.

### 2. Culture and kinship

The concept of culture reflects a shared identity based on factors such as common language, related values and attitudes, and similarities in beliefs, lived histories, and experiences. For many people, the expression of these aspects of their culture is an enabling and protective factor

for their wellbeing.<sup>30</sup> Culture, spirituality and kinship have overarching influences on beliefs and practices related to health and healing, including concepts of wellbeing and knowledge of the causes of health and illness and their remedy.

However, minority groups can face serious risks to their wellbeing because of dominant cultural values that contribute to their discrimination, loss or devaluation of language and culture, marginalisation, poor access to culturally responsive care and services, and lack of recognition of skills and training.<sup>31</sup> This results in avoidable and unfair inequalities in power, resources or opportunities across groups in society.

Racism, discrimination and social exclusion may be expressed through beliefs, prejudices, behaviours and practices; and can be based on race, ethnicity, gender, sexuality, disability, culture or religion.<sup>32</sup> Such phenomena have direct impacts on health and wellbeing, and indirect effects are mediated through various forms of social and economic inequality.<sup>31,33</sup> These concepts are clearly applicable to Australian society, and include the effects of racism and discrimination on Aboriginal and Torres Strait Islander peoples, people living with disability or mental health problems, refugees and recently arrived migrants, and others.<sup>32,34</sup>

### 3. Education and training

Education increases opportunities for choice of occupation and for income and job security, and also helps to equip people with the skills and ability to control many aspects of their lives - key factors that influence wellbeing throughout the life course. Participation in schooling and training is also a major protective factor across a range of risk factors, including substance use and homelessness for young people.

In Australia, evidence shows that health also improves with increasing levels of educational attainment.<sup>25,35</sup> Educational attainment and participation are steeply graded according to socioeconomic position.<sup>25,35</sup> The pervasive socioeconomic inequalities in adult learning outcomes (and many other markers of wellbeing) have many of their roots in socioeconomic inequalities in early child development. That is, during the earliest years of life, differences in the extent of benefit provided by children's social and living conditions lead to differences in early developmental outcomes; and the effects of early inequalities can translate into inequalities in learning, development and wellbeing in later childhood, adolescence, and adulthood.<sup>25,35</sup>

## 4. Employment and working conditions

For employed people, those who have more control over their work and fewer stress-related demands in their jobs are likely to be healthier.<sup>36,37</sup> Workplace hazards and injuries are significant causes of disability and related health problems.<sup>36</sup> Furthermore, those who do not have access to secure and satisfying work are less likely to have an adequate income; and unemployment and under-employment are generally associated with reduced life opportunities, greater likelihood of social exclusion and poorer health and wellbeing.<sup>37-39</sup>

While many of the most disadvantaged households are in Australia's remote Aboriginal communities, there are also concentrations of highly disadvantaged households within certain neighbourhoods in urban and regional communities.<sup>117,118</sup> These concentrations of disadvantage are often reinforced by the uneven distribution of access to employment and other opportunities.<sup>117,118</sup> Access to employment is critical to levels of labour force participation and to the flow-on effects for household income and wealth, and community wellbeing.

## 5. The physical environment

Another significant health determinant is the safety, quality and sustainability of the physical environment (the natural and built environments), which provides the basic necessities for life, such as clean air, water and food; and raw materials for clothing, shelter and industry. Features of the natural and built environments also offer different opportunities for social interaction, safe recreation and play, transportation, work and housing. For example, a lack of access to transport or adequate housing is a risk factor for poorer wellbeing and social exclusion of people and their communities, as is pollution of the air, water or soil.<sup>40</sup> The effects of changes in climatic conditions, altered cycles of flooding and drought, and the disruption of ecosystems on communities pose further challenges for health and wellbeing, and are likely to affect populations unequally.<sup>41-43</sup>

Physical environments that jeopardise safety, undermine the creation of social ties, and foster abuse or violence are also likely to be unhealthy and socially excluding. A healthy environment, in contrast, provides safety, opportunities for social integration, and the ability to predict and control aspects of that setting.<sup>43</sup>

## 6. Social support networks

Better health and wellbeing are associated with access to support from families, friends and

communities. Aspects of these shape people's daily experiences, and include individual and neighbourhood socioeconomic characteristics, a sense of connectedness, community norms, and spiritual and cultural beliefs and practices. Such sources of support help people to deal with crises and difficulties as they arise, to maintain a sense of control over their lives, enhance their resilience to life challenges, and to feel able to contribute as members of a community.<sup>44,45</sup>

Researchers also describe the quality of the social context of everyday life ('social quality') as having four conditional factors: socioeconomic security, social cohesion, social inclusion and social empowerment.<sup>108</sup> These factors are underpinned by the rule of law, human rights and social justice, social recognition/respect, social responsiveness and the individual's capacity to participate as a citizen.<sup>108</sup>

## 7. Early life factors

Early life is a time when people are particularly vulnerable to risk and protective influences.<sup>25</sup> Experiences at the beginning of life are reflected in health and wellbeing outcomes during the middle and end of life. There is strong evidence of the effects of supportive, early experiences on cognitive function, growth, the ability to learn, physical and mental health, and resilience in later life.<sup>25</sup> Exposure to neglect, trauma, violence and abuse in childhood and beyond, carries a risk of poorer physical and mental health throughout life, with adverse consequences for later learning, development, relationships and wellbeing.<sup>46</sup>

A life course view highlights the sequencing of events across an entire lifetime. There is also evidence for intergenerational effects: for example, the socioeconomic status of a child's grandfather may predict the child's cognitive and emotional development at 14 years of age.<sup>47</sup>

## 8. Individual behaviours and practices

Personal behaviours, practices, and coping mechanisms can promote or compromise health and wellbeing. Factors such as physical inactivity, tobacco smoking, use of drugs and excessive alcohol, food habits, exposure to violence and trauma, and gambling have obvious impacts. However, many of these health behaviours reflect decisions that are patterned by an individual's and community's economic and social circumstances.<sup>48</sup> Policy in this area therefore also needs to focus on these wider contexts, if individuals are to be truly able to be responsible for their own health.<sup>49</sup>

People with low incomes have access to fewer alternatives to help reduce stress and cope with

life's challenges. As a result, they may be more likely to take up readily available and more economically accessible options, such as tobacco smoking.<sup>50</sup> Not surprisingly therefore, smoking behaviour is steeply graded according to socioeconomic status, resulting in those who are the most disadvantaged having the poorest smoking-related health outcomes.<sup>51,52</sup> Not only does prevalence of smoking increase with socioeconomic disadvantage, but the average number of cigarettes smoked per week also increases with growing disadvantage.<sup>53</sup>

Personal attributes and risk conditions interactively shape wellbeing and health. However, people who suffer from adverse social and material living conditions can also experience high levels of physiological and psychological stress.<sup>54</sup> Stressful experiences arise from coping with conditions of low income, homelessness or poor quality housing, food insecurity, unsafe communities, inadequate working conditions, unemployment or under-employment, and various forms of discrimination based on Aboriginal and Torres Strait Islander status, mental illness, disability, religion, gender, sexuality or race.<sup>54,55</sup> A lack of supportive relationships, social isolation, and a mistrust of others further increases stress and reduces wellbeing.<sup>54,55</sup>

## 9. Access to effective and timely services

The use of effective services is a determinant of health and wellbeing, especially the accessibility of preventive and primary health care services that are universally available, high quality, safe, and culturally responsive. For certain populations who are socially marginalised or geographically remote, lack of access to and availability of appropriate services continue to be important influences on their health.<sup>66</sup> For example, in Australia, people living in isolated rural and remote areas may have lower incomes; less education and employment; poorer life expectancies (particularly in remote Aboriginal and Torres Strait Islander communities); higher rates of risk-taking behaviour, such as smoking and excessive alcohol consumption; greater risks of workplace and road-related injury and death; increasing physical and social isolation; as well as limited access to health and other services.<sup>103</sup> This requires the targeting of resources and services specifically to address their greater need.<sup>56</sup>

## 10. Gender and sexual identity

A gendered approach, while not excluding biological differences, considers the critical roles that social and cultural factors, and power

relations between men and women play in promoting and protecting or impeding health and wellbeing.<sup>57</sup> Understanding gender in this way involves addressing and analysing the social distribution and exercise of power and its consequences. This includes not only the distribution of socially valued resources, but also the social inclusiveness of the processes that determine what are considered socially valued resources.<sup>58</sup> The aim is to contribute to the attainment of equitable resource distribution, population wellbeing, social inclusion and participation.

Gender- and sexuality-specific health needs include the adequacy and appropriateness of health care and other service provision; and the wellbeing of both males and females is shaped by the distribution of available social and economic resources. For some people within the population, such as many gay, lesbian, bisexual, transgendered and intersex Australians, inequalities in health and wellbeing also arise as a result of the considerable stress of experiencing stigma, discrimination, trauma and social exclusion from the wider community.<sup>59,60</sup>

## 11. Disability

Understanding the distinction between individual and social models of disability is critical to recognising disability as a key determinant of wellbeing.<sup>61</sup> When disability is thought of only as a personal tragedy or a form of biological deficit, action tends to focus on medical responses of care, cure or prevention. By contrast, social model approaches focus not on presumed deficiencies within an individual, but on the social processes that cause people with perceived impairments to experience inequalities and social exclusion as a minority group in society.<sup>62</sup> A social model of disability acknowledges that the causes of social inequalities operate beyond the level of the individual, and both structural and cultural forces play a part in the collective experience of inequality and the social exclusion of those living with disability.<sup>62</sup> When the experience of disability is identified as discrimination, exclusion or injustice, policy responses are more likely to focus on human rights and the removal of barriers to inclusion.

People with disabilities experience significantly poorer health outcomes than their non-disabled peers; and these negative health outcomes extend to aspects of health unrelated to the specific health conditions associated with their disability.<sup>101</sup> Poorer health outcomes are also experienced by family members who care for

disabled children and adults, and they are also at risk of social exclusion.<sup>102</sup>

People with certain impairments may be more likely to die at a younger age than the average for the population as a result of the biological impact of the impairment on the body's capacity for survival. However, inequalities in access to health care, fulfilling employment, safe and supportive environments, and welfare resources can also affect survival chances adversely.<sup>62,101</sup> These broader inequalities, including those linked to socioeconomic background, underlie the social patterning of the health and life experiences of people who live with disability and their families.<sup>101</sup>

## 12. Biologic factors and genetic inheritance

Genetic inheritance, the functioning of individual body systems, gender, and the processes of growth and ageing are powerful determinants of health and wellbeing. A person's genetic endowment was once thought to be pre-determined and not amenable to change. However, recent evidence indicates that the ways that genes are expressed are shaped by a person's particular physical, psychological and social environment; and social relationships and environments may influence the expression of DNA throughout life.<sup>65</sup>

A growing body of research is revealing that external factors affect wellbeing and development not only via psychosocial mechanisms, but through epigenetics as well. Epigenetics refer to the mechanisms that can change a gene's function, without changing its sequence.<sup>63</sup> New research has shown that early life experience can produce changes in the genes that affect brain development; and these changes may help explain, for example, why abuse and neglect early in life result in a high risk for suicidal behaviour many years later.<sup>64,116</sup>

To summarise, these factors play important roles in the health and wellbeing of populations. For example, it has been estimated that the determinants broadly contribute to premature deaths at a population level in the following proportions: genetic predisposition, about 30 per cent; socioeconomic circumstance, 15 per cent; environmental exposures, 5 per cent; behavioural patterns, 40 per cent; and shortfalls in medical care, 10 per cent.<sup>110</sup> However, the health of each individual is determined by the influence of factors acting where determinants interconnect. Whether a gene is expressed can be determined by environmental exposures and also by behavioural patterns. The nature and

consequences of behavioural choices are affected by socioeconomic and cultural circumstances. Genetic predisposition and behaviour determine the health care that will be needed, and one's socioeconomic circumstances may affect the health care one receives.<sup>110</sup>

## Understanding the mechanisms of health inequality

Evidence of effective interventions and policies is needed to address the inequalities in health which are evident across society. Tackling the social influences on health is recognised as one way to reduce health inequalities.<sup>94</sup> However, the social factors promoting or undermining the health of individuals and populations should not be confused with the social processes underlying their unequal distribution.<sup>94</sup> The distinction is important because, despite better health and improvement in health determinants, social and economic inequalities in health have persisted.<sup>94</sup>

In considering how to remedy inequalities in health, it is necessary to distinguish between:

- the social determinants of health – which generally include the non-genetic and non-biological influences on health – meaning individual behavioural risk factors such as diet and smoking as well as wider influences such as wealth, education, housing and the environment; and
- the social determinants of health inequalities, which include inequalities in these health determinants and, particularly, inequalities in people's positions in the social hierarchy.<sup>94</sup>

Using a single model to explain both health and health inequalities can 'blur this distinction'; and lead to the policy assumption that tackling "the layers of influence" on individual and population health will reduce health inequalities.<sup>94</sup> Models are needed which recognise that unequal social positions carry with them unequal probabilities of being exposed to health hazards along the social context/risk factors/illness and disease pathway.

While not all determinants are equally important in the development of inequalities in health outcomes, the most significant appear to be those that produce stratification within a society – 'structural' determinants - such as the distribution of wealth, or discrimination according to gender, sexuality, ability or ethnicity.<sup>106</sup> These determinants establish a set of socioeconomic positions within hierarchies of power, prestige and access to resources.<sup>94,105, 106</sup> Mechanisms that produce and maintain this stratification include governance; education

systems; labour market structures; and the presence or absence of redistributive welfare policies.<sup>106, 107</sup> These structural mechanisms, which affect the differential social positions of individuals, are the root cause of inequalities in health.

These differences shape individual health status and outcomes through their impacts on intermediary determinants such as living conditions, psychosocial circumstances, social inclusion, behavioural and/or biological factors, and the health system itself.<sup>106</sup>

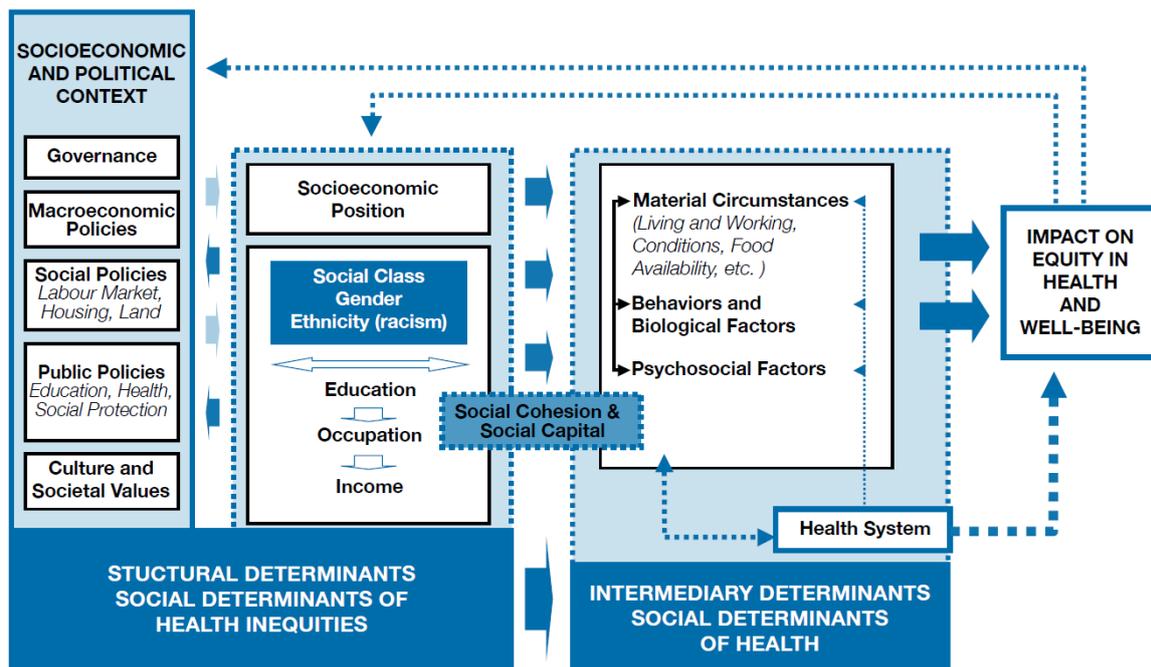
In 2005, the World Health Organization (WHO) established a Commission on the Social Determinants of Health (CSDH) to provide international advice on how to reduce avoidable differences in population health and wellbeing. The Commission's final report in 2008 contained three key recommendations for governments:

- improve daily living conditions;
- tackle the inequitable distribution of power, money, and resources; and
- measure and understand the problem, and assess the impact of action.<sup>98</sup>

The CSDH developed a conceptual framework to bring together recent theoretical perspectives and evidence of the social production of disease (Figure 3).<sup>106</sup> The framework aims to show “how social, economic and political mechanisms give rise to a set of socioeconomic positions, whereby populations are stratified according to income, education, occupation, gender, race/ethnicity and other factors; these socioeconomic positions in turn shape specific determinants of health status (intermediary determinants) reflective of people’s place within social hierarchies; based on their respective social status, individuals experience differences in exposure and vulnerability to health-compromising conditions.”<sup>106</sup>

In the framework, structural mechanisms are those ‘that generate stratification and social class divisions in society, and define socioeconomic position and are rooted in the key institutions and processes of the socioeconomic and political context’ of a community.<sup>106</sup> As such, they are the social determinants of health inequalities.

**Figure 3: The WHO Commission on the Social Determinants of Health Conceptual Framework<sup>106</sup>**



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The underlying social determinants of health inequalities shape health outcomes via a group of intermediary determinants, which include material circumstances, psychosocial circumstances, behavioural and biological factors, and the health sector itself as a social determinant.<sup>106</sup> The role of the health sector is influential through the issues of access to effective health services, population-focused

health promotion and public health strategies, and leading intersectoral action.<sup>106</sup>

The CSDH emphasises that interventions and policy approaches to reduce health inequalities need to address ‘the structural determinants by focusing on the structural mechanisms that produce an inequitable distribution of the determinants of health among population groups, and not limit their efforts to the

intermediary determinants'.<sup>106</sup> Notably, the participation of civil society groups and affected populations in the design, planning and implementation of policies to tackle the SDOH is seen as essential to success, and critical for providing an ethical and sustainable basis to underpin such efforts (refer to the WHO Discussion paper for further detail of the framework and its development).<sup>106</sup>

## Addressing health inequalities and social exclusion

In thinking about health inequalities and social exclusion and what each means in terms of policy design and direction, there are a number of different approaches which can be taken.<sup>78,92-94</sup>

The CSDH framework asks 'at what point(s) along the chain of social production of health/illness is it desirable (and feasible) to intervene in a given context: through broad increased exposure to health threats; or by redistributive policies that aim to alter fundamental social inequalities; through less ambitious, intermediate policies that seek to shield members of socially disadvantaged groups against the worst health consequences of their providing fairer medical care at the end of the social production chain'?<sup>109</sup>

There are three types of strategy that have been described to reduce health inequalities, and thereby, improve social inclusion:

- focusing solely on the most disadvantaged;
- reducing the gap between the poor and the affluent; and
- levelling the social gradient.<sup>92</sup>

Such a typology can be useful in thinking about different policy approaches, and for measuring

and monitoring the absolute and relative sizes of inequalities and progress over time in addressing them.<sup>92,93</sup> These approaches are described below, (and represented in summary form in Figure 4).

**Focus A:** The impact of social disadvantage on the health of the poorest groups in the population, such as those who are homeless, may be a priority policy goal.

**Focus B:** The gap between the health of those at the outer ends of the socioeconomic hierarchy (those with the poorest health and those with best health) can be a priority, with the narrowing of the gap as the goal.<sup>89,95</sup>

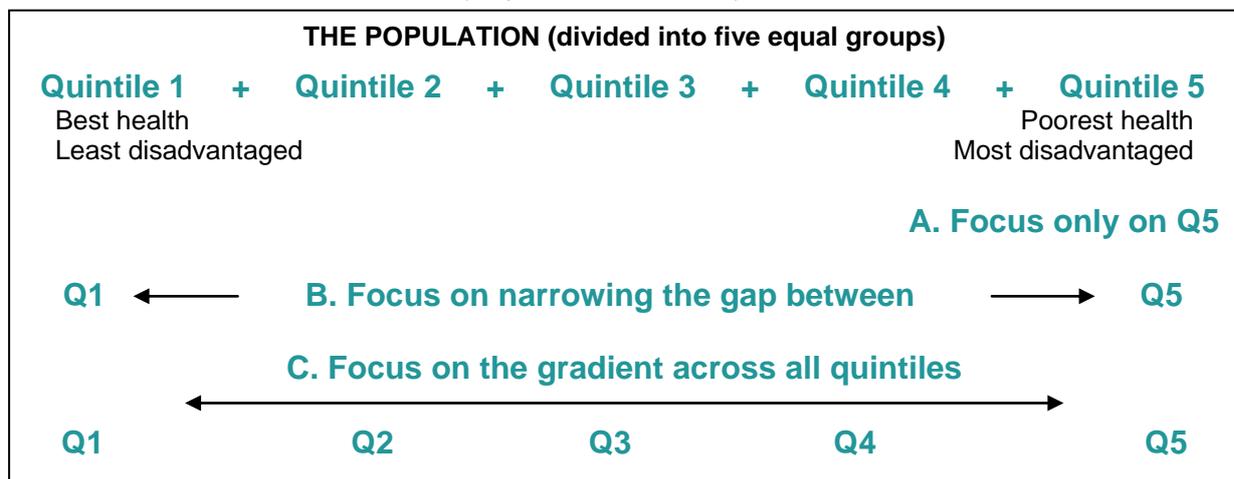
**Focus C:** The socioeconomic gradient in health, which runs across the whole population, can also be a focus. Australia's universal health care system which offers safe, affordable health care across the population (and which also has targeted efforts for priority groups) works towards this outcome.

Improving the health of disadvantaged groups and improving their position relative to other groups are necessary elements in a strategy to reduce the socioeconomic gradient in health and wellbeing. However, neither on its own is sufficient: to reduce the socioeconomic gradient, health of the lower socioeconomic groups also needs to improve at a faster rate than health of the highest socioeconomic group.<sup>92</sup>

As an example, the last approach (Focus C) can widen the frame of health inequality policy in three ways.<sup>92</sup> Firstly, it looks for the causes of health inequality in the systemic and structural differences in life chances and opportunities, living standards and behaviours that are associated with people's unequal positions across the socioeconomic hierarchy, and for the pathways through which they influence health.<sup>96</sup>

**Figure 4: Conceptualising health inequality and possible policy approaches**

(Adapted from Graham 2004)



Secondly, as a result, 'addressing health inequalities' becomes a population-wide goal that includes every citizen. Thirdly, 'reducing health gradients' provides a comprehensive policy goal: one that encompasses remedying disadvantages and narrowing health gaps within the broader goal of equalising health chances across all the socioeconomic groups.<sup>78,92</sup>

Therefore, a mix of different approaches, policies and programs should be mounted to address socioeconomic inequalities in health, both within the health care sector and beyond it. Approaches can include more precise targeting, but with greater attention to community-based dimensions of 'interdependence' between individual behaviours, key determinants, and community and institutional resources. Focusing solely on the most disadvantaged group is unlikely to reduce inequalities sufficiently.<sup>97</sup> Evidence shows that to reduce the steepness of the social gradient, actions should be universally framed, but applied with a scale and intensity that is proportional to the level of disadvantage, and culturally and locally responsive in approach.<sup>97</sup>

In many industrially developed countries, the widening differences in socioeconomic status, which enhance inequalities in health outcomes and entrench social exclusion, are a growing concern.<sup>98</sup> The resultant loss of educational and economic competences in sections of the population reduces the economic and social prosperity of the nation. Tackling health inequalities and social exclusion, and implementing health equity strategies, are objectives of public policy internationally.<sup>98</sup>

In 2010, the Strategic Review of Health Inequalities in England identified that reducing health inequality in that country required action in six policy areas:

- 'give every child the best start in life (the highest priority area);
- enable all children, young people and adults to maximise their capabilities and have control over their lives;
- create fair employment and good work for all;
- ensure healthy standards of living for all;
- create and develop healthy and sustainable places and communities; and
- strengthen the role and impact of ill health prevention'.<sup>97</sup>

These six objectives were underpinned by two policy mechanisms: equality and health equity in all policies across government (not only the health sector); and effective interventions and

delivery systems (based on evidence that they work).<sup>97</sup>

The report concluded that actions to reduce the steepness of the social gradient in health needed to be universal, but with a scale and intensity proportionate to the level of disadvantage. This approach was described as 'proportionate universalism'.<sup>97</sup> It identified that greater intensity of action was likely to be needed for those with greater social and economic disadvantage, but that a focus solely on the most disadvantaged would not reduce the health gradient sufficiently, and would only address part of the problem.<sup>97</sup>

Strategies to remediate socioeconomic inequalities in health and social exclusion need to advance together. In Norway, the government has adopted a broad, long-term approach to reduce social inequalities in health by 'levelling up rather than down'.<sup>78</sup> It operates with the following four priorities:

- reduce social inequalities that contribute to inequalities in health (strategies to reduce social inequalities in income, childhood conditions and work);
- reduce social inequalities in health-related behaviour and the use of health services;
- target initiatives to promote social inclusion; and
- develop knowledge and cross-sectoral tools (use policy instruments to advance knowledge, and raise awareness about social inequalities in all social sectors by establishing a review and reporting system for monitoring progress in reducing social inequalities in health).<sup>78</sup>

Thus, policies to remedy health disadvantages, to close health gaps and to reduce health gradients are pursued together, and not at the expense of each other.<sup>78,92</sup>

In Australia, within the health sector, the extent of socioeconomic inequalities in health has been the focus of research funded by governments and non-government agencies over many years (for example, the Social Health Atlas series has documented health and social inequalities over the last two decades in its published editions and online data repository).

The delivery of universal health care via free public hospital care, subsidised medical services and medications, and preventive health and early intervention services help ensure Australians can receive the services they require and that the financial impacts of these services can be contained.<sup>104</sup> However, inequalities in health have persisted despite the benefits of universal

health care systems, although such systems are likely to have had some protective effect, when the health of populations in countries where such systems do not operate, is compared.<sup>112,114</sup> Furthermore, mainstream health care services may be less effective for very disadvantaged communities who are socially excluded, have greater health risks and disease incidence, and experience barriers in accessing appropriate health care services; and further efforts are required to address their needs more specifically.<sup>104,111</sup>

While reducing health inequalities are considered one of the most important public health challenges, we do not yet have sufficiently robust knowledge of which interventions are effective, in which locations and for which populations, to 'level up' the gradients in specific health inequalities. Further work is needed to monitor and evaluate alternative policies and their impacts and determine if, how and why particular populations from different socioeconomic groups respond to such policies.<sup>111</sup> Causes of unintended, differential impacts of current and new public policies also need to be determined.<sup>111</sup>

However, there is a growing body of knowledge that can provide some direction for developing policies to reduce the determinants of health inequalities in modern societies.<sup>78,100,111</sup> The socioeconomic environment is a powerful and potentially modifiable factor, and public policy is a key instrument to improve this environment, particularly in areas such as housing, taxation and social security, work environments, urban design, pollution control, educational attainment, and early childhood development, as well as health care.<sup>22</sup> By considering health impacts across all policy sectors such as agriculture, education, the environment, fiscal policies, housing and transport, population health can be improved and the growing economic burden of the health care system reduced.<sup>113,114</sup> The health sector's role is to support other sectors to achieve their goals in a way which also improves health and wellbeing.

A focus on the social and economic contexts of life in no way implies that other factors such as genetics, behaviours or use of health services do not figure in determining health and wellbeing; rather, this highlights a greater understanding in recent years of the hidden social factors that underpin differences in the likelihood of having a healthy and fulfilling life, both for individuals and for populations. Investing in a population-focused approach to addressing socioeconomic inequalities in health and social exclusion offers a

number of benefits: increased prosperity, because a well-functioning and healthy population is a major contributor to a vibrant economy; reduced expenditures on health, education and social problems; and overall community stability and wellbeing for Australians.

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## Section 3

### Health, inequality and social inclusion over the life course

#### **In this section ...**

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## Social inclusion and the promotion of health and wellbeing

Health inequalities, an ageing population and changing patterns of disease present challenges that require new responses from the Australian health care system, its workforce and its ways of delivering services.<sup>2,4-6</sup> To achieve good health for every segment of the population, the factors that determine health must also be addressed in order to shift from a narrow focus on illness, to a broader focus on health and wellbeing, and full participation in society.<sup>1,4</sup>

Health is a human right; and the 'capabilities approach' to eradicating inequality, social exclusion and poverty focuses on achieving positive 'freedoms', such as being able to access health care and education, enjoy recreational activities, own property, and seek employment.<sup>7,8</sup> These freedoms enable people to have a level of control or agency over their lives, that is, by having the ability to freely make choices regarding their life.<sup>8</sup> From a social inclusion perspective, escaping poverty is not just having material wellbeing, but also the opportunities and choices to lead a fulfilling life.

As freedom from poverty involves more than freedom from insufficient income, so positive health transcends mere freedom from illness.<sup>9,39</sup> The WHO adopted this perspective when it defined health in 1948 as "a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity".<sup>10</sup> This emphasised people's personal and social resources and ability to make choices in life, identify and realise aspirations, satisfy needs and change and cope with their environment, although some researchers have claimed that to achieve such a state is more ideal than realistic for most of the population.<sup>39</sup> The WHO's prerequisites for health for all include equal opportunities for all, satisfaction of basic needs (adequate food and income, basic education, safe water and sanitation, decent housing, secure work, a satisfying role in society), peace and freedom from fear of war - and incorporate current perspectives on sustainability.<sup>41</sup>

The 1986 Ottawa Charter for Health Promotion, moved beyond the original WHO definition, which regarded health as a state, towards viewing it as a dynamic process.<sup>11</sup> It defined health as "a means to an end which can be expressed in functional terms as a resource which permits people to lead an individually, socially and economically productive life." This definition also holds that "health is a resource for everyday life, not the object of living"; and it explicitly ties

health to capabilities and positive attributes of freedom, thus underpinning its relationship with social inclusion.<sup>12</sup>

The Charter describes health promotion as the process of enabling people to increase control over, and to improve their health.<sup>11</sup> It not only entails actions directed at strengthening the skills and capabilities of individuals, but also involves efforts aimed towards changing social, environmental and economic structures and conditions, in order to alleviate their impact on population and individual health. Health promotion is the process of enabling people to increase control over the determinants of health and thereby, to improve their health and that of the community. Community participation is essential to sustain health promotion action.<sup>12</sup>

## Life course influences on health and wellbeing

To appreciate fully the impact of inequality on the wellbeing of individuals, it is necessary to consider the whole of their lives.<sup>3,13</sup> The concept of 'life course' examines how people's health is shaped over their lifetime, by exploring the processes through which social inequalities and exclusion during gestation, infancy, childhood, adolescence, adulthood and older age play their part in the socioeconomic gradient in health and wellbeing.<sup>14,15</sup> For example, a life course approach can assist the understanding of how underlying determinants of health, experienced at various life stages, differentially influence the development of chronic diseases, as mediated through specific biological processes.<sup>3,16</sup> Using a life course approach, pathways to health and disease may be elucidated at a level of detail that identifies how and when optimal outcomes can be promoted.<sup>17</sup> Thus, findings from life course research offer important background information to underpin more effective health promotion and disease prevention work, aimed at reducing the risk of ill health and health inequalities in today's children and young adults and tomorrow's middle-aged and elderly populations.<sup>3,18</sup>

In life course research, which is aimed at understanding the relationship between socioeconomic inequalities and health, two main research streams have concerned:

- the links between early conditions and later health, morbidity and mortality; and
- the age-specific variation in health risks by social position, education, and income.<sup>19</sup>

Research outcomes show that, not only are the relationships among socioeconomic position and health complex, but also that the complexity is

increased by the fact that the interrelationships are dynamic across age, generations and time.<sup>20</sup> However, while the borders between childhood, youth, adulthood and old age in the life course are defined by different times, places and cultural contexts, the notion of life course is a useful advance in understanding the development of health and wellbeing for individuals and for populations.<sup>18, 19</sup>

A number of interrelated models have been described to explain ways in which various factors may act to influence the development of chronic diseases over the life course:

1. The critical period model – where an insult during a specific period of growth or development has a lasting, lifelong effect on physical functioning or structure that results in disease later on. Examples include the effects of certain infections early in life (such as recurrent rheumatic fever, which damages heart muscle and valves, and is prevalent in Aboriginal and Torres Strait Islander peoples), deficiencies in beneficial or exposures to toxic substances (such as iodine, and lead) or maternal ingestion of particular drugs (such as thalidomide and diethylstilboestrol) on fetal development.<sup>37</sup>
2. Critical period influences with later modifiers of their effects, that is, the later factors modify a risk incurred earlier (childhood-acquired *H. pylori* infection may result in stomach cancer in later life, which may be avoided if the infection is treated effectively).<sup>22,35-37</sup>
3. Accumulation of risk with correlated results – where risk factors cluster in socially or biologically patterned ways, and hence raise the risk of disease through social and/or biological chains or pathways of risk where one adverse (or protective) experience will tend to lead to another adverse (or protective) experience in a cumulative way. This is exemplified by the effects on cardiovascular mortality when clustered early-life and adult socioeconomic and behavioural factors (such as smoking and poor nutrition) are combined.<sup>17,37</sup>
4. Accumulation of risk with independent and uncorrelated results – where separate and independent risk factors at each stage of life combine to raise disease risk.<sup>14,15,17,21,37</sup>

The interplay of the accumulation of risk and critical-period exposures in generating health inequalities differs in relation to a particular health outcome.<sup>17,21</sup> For example, deprivation in early life is thought to play a role in the occurrence of haemorrhagic stroke.<sup>22</sup> For certain lung cancers, exposure during adult life to

carcinogens such as tobacco smoke is important. For coronary heart disease and breast cancer, exposures acting across the life course are influential, yet even in these cases, some periods are more sensitive to exposures than others. For coronary heart disease, for example, the intrauterine environment may be a critical time, while for breast cancer, the period between puberty and the first pregnancy appears to be significant.<sup>17</sup>

An appreciation of time is particularly important in societies such as Australia, where chronic diseases are the major causes of mortality and morbidity. These are diseases with complex aetiologies where multiple factors are often involved and where there can be time lags of years or even decades between exposure and evidence of effect.<sup>44</sup> If life course matters – for example, if disadvantage in early life has life-long effects on life chances and health outcomes – then policies, which tackle inequalities in people's circumstances across their lives, are an essential part of equity-oriented public health and social inclusion strategies.<sup>14</sup>

## Health inequalities across the life course

A consistent theme, throughout the discussion above, is that the problems of ill health, poverty and social exclusion compound one another. In this sense, accumulated problems can be exacerbated over the course of an individual's life and may be passed on across generations.<sup>14</sup> The life course concept draws attention to how social inequality influences the paths people track through childhood, across adulthood and into old age, paths which shape their access to health promoting resources and their exposure to health damaging risks.<sup>13,15</sup>

Childhood is a particularly important life stage since it is the period when the foundations of future wellbeing are established.<sup>1,2</sup> Numerous studies show that childhood circumstances have long term effects on both adult health and socioeconomic circumstances.<sup>1,2</sup> Longitudinal research following a group of people born in 1958 indicated that experiences in childhood often led to social exclusion in adulthood: social housing was more common if an individual's parents had lived in local authority housing, and those who were poor as children generally had lower incomes as adults.<sup>23</sup> It also revealed that parental interest in schooling was a powerful predictor of educational success. Furthermore, anxious children faced a higher risk of depression as adults, while low educational test scores

correlated powerfully with, amongst other things, a doubling of the risk of depression.<sup>23</sup>

However, wellbeing in adulthood is not solely determined during childhood, for living and working conditions in adult life also influence health.<sup>24</sup> No stage of the life course is particularly privileged; and interventions that improve living and working conditions are likely to be beneficial regardless of the stage of the life course they target.<sup>25</sup>

Examples of Australian health inequalities across the life course from the atlas (Section 5) include:

- the results of the AEDI, which show there are high proportions of children assessed as being developmentally vulnerable on one or more domains – 86% more children in the most disadvantaged areas in the major urban centres are in this category than in the least disadvantaged areas, and 64% more in the rest of state areas;
- children in families where the mother has low educational attainment, with much larger differentials, of almost two and three-quarter times (2.72) higher in the most disadvantaged areas in the major urban centres, and 73% higher in the rest of state areas;
- high rates of long-term unemployment, with a differential of 4.11 in rates in the major urban centres, and 2.60 in the rest of state areas;
- premature death rates (deaths before 75 years of age) in the major urban centres which are 55% higher for people from the most disadvantaged areas, and 38% higher in the rest of state areas.

The experience of earlier or current disadvantage can influence interlinked pathways through childhood, during which resources may be accumulated or lost, and health and development optimised or compromised. These pathways relate to physical and emotional health, health behaviours, social identities, and cognition and learning.<sup>13</sup>

Differences in educational attainment have been identified as one of the main determinants of socioeconomic inequalities in health; and tackling educational inequalities remains one of the most politically acceptable policy solutions to communities.<sup>13,26</sup>

## The role of the health sector

As outlined in Section 2, there are different pathways by which the experience of poverty and social exclusion can lead to ill health, while ill health can also lead to and compound poverty

and social exclusion. Addressing the interrelated problems of social exclusion and health inequalities requires an integrated approach which involves a range of policy sectors.

The extent of the contribution that the health sector – particularly the public health and health promotion fields – can make to reducing poverty and social exclusion is increasingly recognised, as is the need for greater cooperation between health and other sectors such as housing, transport, community services and education.<sup>11,43</sup> Many initiatives aimed at addressing health inequalities may also have the indirect objective of reducing poverty and social exclusion; and there are other ways in which closer collaboration between sectors can strengthen efforts being taken in each area individually.<sup>11,43</sup>

As discussed, socioeconomic inequalities in health are directly or indirectly generated by social, economic and environmental factors and structurally influenced health risk behaviours; and these determinants are all potentially amenable to change.<sup>27</sup> For the purpose of taking action, the health status of groups of people who are better off can be used as a practical indicator of the standard of health theoretically attainable for any society, and as the standard to which policies that address inequalities in health should strive.<sup>14,28</sup> Indeed, the only way to narrow the health gap in an equitable way is to bring the level of health of the groups of people who are worse off, up to that of the groups who are better off – that is, improve the health of the most disadvantaged groups more quickly, and aim to reach the level of wellbeing of the middle- and high-income groups.<sup>14,28</sup>

Initiatives to address health inequalities, and thereby to reduce poverty and social exclusion, have been classified depending on the level of focus.<sup>5,29</sup> The role of the health sector in intervening to address socioeconomic inequalities in health and social exclusion can also be examined using this framework.

Structural interventions and policies include global forces and government policies, which can target socioeconomic disadvantage and thereby address the root causes of inequalities in health.<sup>29</sup> These interventions involve improving living standards through the social security system as well as education policy, employment policy, disability policy, housing policy and so forth. While poverty and social exclusion can only be tackled by addressing the root causes that lead to these conditions, health policymakers do not usually make decisions about basic socioeconomic distributions. They need to liaise

with other policy areas to ensure effective action in this area.<sup>11</sup>

Whole of government approaches to policy development, implementation and service delivery are increasingly being examined and implemented in Australia. One such approach is Health in All Policies (HiAP), which takes as its starting point, the need for whole-of-government or inter-sectoral action, by integrating health considerations into other (non-health) policies.<sup>42</sup> HiAP is the focus of new research and interest internationally and in Australia; and requires governments to work in partnership with civil society and the private sector to harness health, wellbeing and social inclusion.<sup>43</sup>

Tackling intermediate factors, such as health-related behaviours and social support, may involve actions which have public health and health promotion goals.<sup>29</sup> Addressing the root causes of socioeconomic inequalities will not in itself improve the health status of those who are poor and those experiencing social exclusion. This is because improving individual health status implies changing day-to-day health risk behaviours, which may have been passed down over generations, developed across a lifetime, and patterned by a culture with which the person identifies.<sup>29</sup> These interventions and policies therefore aim to reduce exposure to, and the effects of, unfavourable specific material conditions, psychosocial factors and health risk behaviours in more disadvantaged groups. Such interventions can help prevent and alleviate adverse conditions for those living in poverty and experiencing social exclusion.<sup>11</sup>

Strategies that address the person level, (as well as the effects of structural and intermediate factors on individual physiological and biological functioning), clearly involve the health care sector.<sup>3,5,29</sup> However, health care interventions cannot prevent or eliminate the problems of people facing poverty and social exclusion, because people have to fall ill before medical care can attempt to address the damage.<sup>11</sup> Health care, nevertheless, can play an important role in improving certain aspects of the lives of socially excluded people and in generating an overall improvement in their health and quality of life.<sup>11</sup>

A comprehensive health strategy that includes a combination of solutions and the relationships between them, as they are often closely interlinked, is required to assist in addressing socioeconomic inequalities in health. Analyses of unhealthy economic and social determinants of health need to be linked to individual causes of certain diseases and health problems.<sup>27</sup>

Conversely, determinants of health, such as unhealthy behaviours, should be seen in the context of their patterning by wider socioeconomic influences.

As an example, the efficacy of tobacco control programs in Australia can be attributed to policies that include actions on both upstream determinants (such as legislation and the taxation of tobacco products) and midstream health education and smoking cessation programs.<sup>27</sup> Following this success, more explicit equity-oriented strategies in these public health programs are now needed.<sup>29</sup> For example, while overall smoking rates have been declining, socioeconomic inequalities in the use of tobacco have often increased. This has occurred because the prevalence of smoking has mainly reduced among high- and middle-income groups, while staying the same or increasing among low-income groups, particularly low-income women.<sup>27</sup> An equity-oriented tobacco strategy needs to address the gender-specific determinants of the social inequalities of smoke-related conditions, such as negative stress related to living and working conditions.<sup>27,38</sup> Substantial inequalities in smoking are also evident for Aboriginal and Torres Strait Islander peoples. These highly disadvantaged populations require culturally-appropriate, broadly-based solutions that also recognise that that social and individual health is founded on wellbeing, and 'health is dependent on creating the conditions that enable people to take control of their lives'.<sup>40</sup>

Therefore, while the health sector has limited control over structural interventions, it can try to influence other health-relevant policy areas; and it plays an important role with respect to intermediate and person-level measures.<sup>29</sup> Occupational health practitioners can, for example, introduce initiatives to reduce the effects of poor health on socioeconomic position by adapting the working conditions for chronically ill and disabled people to increase work participation. They can also take initiatives that involve improving workplace conditions or introducing health promotion programs, to reduce the effects of exposure to the adverse conditions that are often related to low socioeconomic status. Public health professionals can initiate health promotion programs in educational settings which provide poor children with opportunities to have a healthy lunch or to engage in sports, or offer greater support to their families.<sup>29</sup>

Finally, health practitioners can reduce the health effects (including the consequences of illness) of being in a lower socioeconomic position through

improved geographic, economic and cultural access to effective health care. For example, this might occur by reinforcing primary health care in disadvantaged areas through the employment of practice assistants, nurse practitioners, culturally-specific workers and peer educators.<sup>29</sup> A focus only on access to health care interventions may draw attention away from preventive actions, which can be taken to break the links between poverty, social exclusion and ill health.<sup>11,29,38</sup> Nevertheless, access issues are important to consider, since failure to get necessary and adequate care, or the inability to pay for medical treatment can exacerbate poverty and social exclusion. In addition, health care services are an important point of intervention to improve individual wellbeing.<sup>11</sup>

Therefore, to be effective in tackling socioeconomic inequalities in health, policy-makers and practitioners need a sound understanding of the current evidence about the key determinants and ways in which health systems can confront them in different contexts.<sup>27,38</sup> In the last two decades, our knowledge about what to do to address these differences has advanced considerably, particularly in terms of:

- the actions that are required (policy and programs);
- the focus of such actions (levelling up as well as reaching vulnerable groups); and
- the principles to be applied in the design, implementation and evaluation of such actions (e.g., active engagement of all stakeholders from the beginning).<sup>27</sup>

While there is a distinction between actions that aim to promote health across the population and those that aim to reduce inequalities, population health policies should have the dual purpose of promoting health gains in the population as a whole and reducing socioeconomic and other avoidable inequalities in health.<sup>27,38</sup>

Population-wide approaches to health promotion and disease prevention are often designed with the requirement for individuals to opt in, such as taking up appointments or attending group sessions. These types of actions have been shown to benefit those that are willing and able to take them up, but there is strong research evidence that individuals with the poorest health or greatest disadvantage are least likely to take part.<sup>30,38</sup> Consequently, such approaches may contribute to increasing rather than reducing inequalities in health, and do little to remedy social exclusion.<sup>38</sup>

Furthermore, focusing on high-need groups as an approach to addressing inequalities should be informed by local information from these communities themselves, and wider research. Without detailed analysis of population demographics and full consideration of the implications of a proposed intervention, there is the potential for certain groups or individuals who are already vulnerable, to be further disadvantaged by the redistribution of resources away from them, to target another priority group.<sup>30</sup>

Barriers and discrimination that lead to differences in access to the resources and opportunities for health and wellbeing and full participation in society between social groups are both avoidable and unfair.<sup>31,32</sup> Health holds a primary position in human rights, as everyone has the right to enjoy the highest attainable standard of health in their society.<sup>10,27</sup> Health is also “a unique resource for achieving other objectives in life, such as better education and employment” and is a way of promoting the freedom of individuals and societies.<sup>27,33</sup> It is, therefore, important for a society to organise its health resources equitably, so that those resources are accessible economically, geographically and culturally, to every citizen - for the existence of clear social and economic inequalities in health and in their determinants and social exclusion which can result, goes against accepted community values of fairness and justice in Australia.<sup>27,34</sup>

To conclude, there is now substantial evidence that health wellbeing is the result of complex interactions of the social, biological and ecological contexts in which people live.<sup>1,2</sup> If these are supportive, they provide a foundation for the development of competence and skills that underpin health, learning, and behaviour throughout life.<sup>1,25</sup> However, a lack of enabling social conditions results in poorer life outcomes for people, and may adversely influence the wellbeing of subsequent generations, and the overall productivity and social cohesion of the nation.<sup>2,25</sup>

## Sources of information

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## Section 4

### Indicators of health and wellbeing for Priority Areas

#### **In this section ...**

Introduction

The value of indicators

Quality and availability of indicators

Selection of indicators

Caveats, data sources and notes on data

How to use the maps and charts in this section

A summary of socioeconomic disadvantage across Australia

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## Introduction

Information is presented in this section to describe key health and wellbeing outcomes for children, young people and adults in Australia, at a geographic level. In particular, the aim is to identify inequalities that exist in these outcomes between different population groups, including Aboriginal and Torres Strait Islander Australians, in capital cities and regional and remote Australia.

In the absence of individual-level data on social background, the approach often taken to describe the association between the health and wellbeing of the population, their socioeconomic status and aspects of social inclusion employs an area-based measure of socioeconomic disadvantage (see Section 6 for further details).

The information, presented as a series of indicators, highlights these inequalities and draws attention to the influence of social, economic and environmental factors on health outcomes, and the influence of these factors on wellbeing. The ensuing picture is one of significant differences across the population, both in health and wellbeing, and in geographic location, and the social inclusion or exclusion of sub-population groups.

In brief, the indicators included in this atlas aim to describe variations across Australia for:

- vulnerable populations represented by the Priority Areas at risk of social exclusion; and
- a set of indicators more specifically related to health and wellbeing.

More detail as to the particular indicators that we were able to represent geographically, and to the selection of the set in this atlas, is provided under the heading 'Selection of Indicators', below.

## The value of indicators

One way to gauge the impact of social, economic and environmental factors on the wellbeing of the population is through the use of indicators, both at a point in time, and by tracking their movement over time. Indicators are summary measures of chosen events (for example, the percentage of children under 15 years of age living in families where no parent has a job) derived from data collections that record all cases, or a representative sample, of the events in a population.

Describing the geographic variation in indicators of inequality provides information which can be used to support progress towards reducing inequalities.

## Terminology

Information is presented in maps, charts and tables to describe inequalities in health and other outcomes.

In referring to the charts in Section 5, we use the terminology 'highest and lowest socioeconomic status areas', which refers to the way areas have been grouped, using the Australian Bureau of Statistics' Index of Relative Socio-economic Disadvantage (IRSD).<sup>3</sup>

The term 'socioeconomic' refers to the social and economic aspects of the population, where 'social' includes information about the population and their health, education, welfare, housing, transport etc.

It is not used in the context of 'social' as in 'social skills', 'social capital', 'social ability' or 'social behaviour' of community members. Therefore, an area described as having 'a high level of socioeconomic disadvantage' does not imply that the area has low cohesion or lacks strength as a community; rather it identifies a relative lack of resources or opportunities that are available to a greater extent in more advantaged communities.

The indicators included in this atlas are also those for which reliable data are available which can be mapped to show variations, by area, across the capital cities and rural areas of Australia.

## Selection of indicators

As noted above, the indicators presented in this section aim to highlight inequalities and draw attention to the influence of social, economic and environmental factors on health outcomes, and the influence of these factors on wellbeing and social inclusion.

There are two sets of indicators. The first set draws on the available data to describe the following vulnerable populations:

- jobless families with children;
- children at greatest risk of long-term disadvantage;
- people affected by homelessness;
- people living with disability or mental illness and their carers;
- Aboriginal and Torres Strait Islander Australians; and
- those living in entrenched and multiple disadvantage in particular neighbourhoods.

The approach is to present the available geographically-referenced data which seem most appropriate to illustrate the indicators, thereby describing facets of the socioeconomic status and health and wellbeing of the population. The

indicators developed from the available data are listed in Table 1.

The second set adds an additional number of indicators specifically describing the health and wellbeing of the population. These are chronic disease (circulatory system disorders and diabetes); risk factors (smoking and obesity, both by sex) and premature mortality (total, and suicides). Information on screening for breast cancer is also included. This set is in a sub-section titled 'Indicators of health status, risk factors, outcomes and use of services'.

In order to keep this atlas to a manageable size, a limited number of the indicators are included in this atlas (these are shown in bold typeface in Table 1); the remainder, together with the specific health-related and many other indicators, are available on the PHIDU website at [www.adelaide.edu.au/phidu/](http://www.adelaide.edu.au/phidu/).

## Caveats, data sources and notes on data

Each indicator presented here is accompanied by a brief definition and any notes considered critical to interpretation. More extensive notes are provided in Appendices A and B. The majority of the indicators will be updated on the PHIDU website as more recent data become available.

As noted in Section 1, the majority of data sourced from the Population Census conducted by the Australian Bureau of Statistics is from the 2011 Census. The exceptions are the data for homeless people, for whom the 2011 Census data were not coded to the level of geography mapped here (the Statistical Local Area – see below for details of this area).

See the note below (under *Areas mapped*, on page 45), about the particular geographical level mapped in this atlas.

Table 1: Selected indicators

| Priority Area  | Indicators: <b>bolding</b> indicates inclusion in this report – other indicators are online at <a href="http://www.adelaide.edu.au/phidu/">www.adelaide.edu.au/phidu/</a> |   |   |  |   |   |
|--|---|---|---|--|---|---|
| <b>Jobless families with children</b>                                    | Jobless families with dependent children under 15 years of age  | <b>Children under 15 years of age living in jobless families</b>  | <b>Long-term unemployment</b>   |  |   |   |
| <b>Children at greatest risk of long-term disadvantage</b>               | <b>Children in low income, welfare-dependent families</b>   | <b>Children in families where the mother has low educational attainment</b>   | <b>AEDI: children assessed as being developmentally vulnerable on one or more domains</b> | <b>Women smoking during pregnancy</b>                                  | Low birth weight babies                     | Total Fertility Rate                      |
| <b>People who are affected by homelessness</b>                           | <b>Homelessness</b>   | <b>Dwellings rented from the government housing authority</b>   |   |  |   |   |
| <b>People living with disability or mental illness, and their carers</b> | People aged 0 to 64 years and living in the community who have a profound or severe disability  | <b>People aged 15 to 59 years and living in the community who have a profound or severe disability and are not employed</b> | People who provide assistance to people with a disability                                 | <b>People with long-term mental health problems who are unemployed</b> | <b>Prevalence of psychological distress</b> |   |
| <b>Aboriginal and Torres Strait Islander Australians</b>                 | Indigenous population: number   | <b>Indigenous population: % of total population</b>   | <b>Indigenous participation in secondary education</b>                                    | <b>Indigenous women smoking during pregnancy</b>                       | <b>Indigenous median age at death</b>       | <b>Non-Indigenous median age at death</b> |
| <b>Entrenched and multiple disadvantage in particular neighbourhoods</b> | <b>See Section 6</b>  |   |   |  |   |   |

## How to use the maps and charts in this section

For each indicator, there is an introductory statement as to its relevance and a brief definition of the indicator. This is followed by:

- a table comparing the capital cities for the indicator (repeated for the non-metropolitan areas);
- a description of the distribution of the indicator within the capital cities (repeated for the non-metropolitan areas); and
- a description of the distribution of the indicator by remoteness.

The introductory statement for each indicator is necessarily brief, because of limited space. However, the notes appended to each indicator in the online mapping software may be more extensive, as is the information presented in the earlier sections of the Atlas.

The following notes provide an overview of how the atlas may be used. Additional details of the indicators, including definitions and data sources, are on the pages describing each indicator, as well as in Appendices A and B.

It is important to use not only the maps and graphs in the atlas, but also to access the online maps and datasheets, which show the number of events, or individuals represented by the rates, as well as the percentages and rates in the maps.

### Geographic variation

Two pages of maps are shown for the majority of the variables in the atlas. The first page displays maps of the capital cities, generally at the Statistical Local Area (SLA) level, and the second shows the whole of Australia, with the capital cities depicted as a single area (not mapped by SLA). In brief, SLAs represent whole, or parts of Local Government Areas (LGAs), and also cover areas of Australia not incorporated into LGAs; as such they form one level in the statistical geography hierarchy under the Australian Standard Geographic Classification (ASGC).<sup>1</sup>

As noted, the maps are generally at the SLA level. The exceptions are Brisbane, Gold Coast, Townsville, Canberra and Darwin, where SLAs are based on suburbs rather than LGAs. As such, many of the SLAs are very small, and frequently have too few cases to be mapped with reliability. For these capital cities and major urban centres, SLAs have been grouped together to provide more strength to the data. Details of the groupings are provided in Appendix C.

The rate or per cent for the other major urban centres of Newcastle, Wollongong, Geelong, Gold

Coast and Townsville are also shown on the capital cities' map page. The capital cities and other major urban centres are collectively referred to as 'major urban centres'.

The distribution by remoteness of each indicator is shown in a graph using the Australian Standard Geographic Classification - Remoteness Areas, a geographic classification system developed by the Australian Bureau of Statistics (ABS) as a statistical geography structure, which allows quantitative comparisons between 'city' and 'country' Australia (see box).<sup>1,2</sup>

#### Remoteness Areas

The purpose of the structure is to classify data into broad geographical categories, called Remoteness Areas (RAs). The RA categories are defined in terms of 'remoteness' - the physical distance of a location from the nearest Urban Centre (access to goods and services) based on population size.

For each variable in the atlas, details were calculated of the average percentage or rate for each of five ASGC Remoteness classes, as follows:

- MC: Major Cities of Australia
- IR: Inner Regional Australia
- OR: Outer Regional Australia
- R: Remote
- VR: Very Remote

For example, for children in low income families, the average percentage of all such people in SLAs in remoteness class one (Major Cities) was calculated and shown in a graph, with the average percentage in each of the other four categories.

The ASGC Remoteness classification 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.<sup>1,2</sup>

The second map is of the whole of Australia, again by SLA, but with each capital city mapped as a single area. This enables comparisons to be made of the percentages, rates etc. in these major urban centres overall, with those in the non-metropolitan areas of Australia. Here, the term 'non-metropolitan' is used to refer to the area in each State or Territory outside of the capital city (or capital city and other major urban centres, where the latter exist).

Key maps are located at the back of the report. They are at A3 size and show each major urban centre and non-metropolitan area, enabling the identification of the areas mapped for each indicator. It can also be helpful to refer to the online version of the atlas, where the areas are

able to be ranked in the data table by their rate or per cent, and highlighted in the table and on the map to assist in understanding variations in the data.

Readers should note that the maps reflect the distribution of the population for whom the particular event (e.g., death from a road traffic accident) is recorded, showing the location (at the SLA level) of their usual residence, as coded from the address information in the various statistical data collections. That is, the maps are not of the location of a road traffic accident death, or of a hospital to which a person was admitted.

In many cases, the ranges to which data are mapped in the capital cities and whole-of-Australia maps will vary, as they do between indicators, because of the different prevalence of conditions, or rates of death, etc. This should be taken into account when using the maps.

### Areas mapped

The data are mapped to the 2006 version of the ASGC – that is, the boundaries are those in place at 1 July 2006. The reason for using these boundaries is that all of the data, other than the Census data, were coded to geographical areas before the 2011 boundaries were known. In addition, the data, maps and text were finalised before the 2011 Census results were available and the Census data included were from the 2006 Census. As approval for release had not been received when the 2011 Census results became available, these data were updated to reflect the 2011 Census results.

The major variations between the 2006 boundaries and 2011 boundaries are in Queensland and in the Northern Territory. For information on the changes, see *Australian Standard Geographical Classification (ASGC), Appendix 2, Changes to Geographical Areas 2006-2011, July 2011* (ABS Cat. no. 1216.0) at: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailedPage/1216.0July%202011?OpenDocument>.

The latest interactive SLA atlas at [www.adelaide.edu.au/phidu/](http://www.adelaide.edu.au/phidu/) are, however, based on the 2011 boundaries. Data which had been coded to boundaries from earlier years have been converted to approximate the 2011 boundaries. Of note is that the online version includes data for later years than have been published in this atlas.

In addition, readers should refer to the spreadsheets available on the PHIDU website, as some areas with relatively high percentages or rates may have a relatively small number of cases

(e.g., deaths); and others with similar, but lower, rates may have substantially more cases.

## Cautions

The comparisons made in the report are between SLAs. Readers should note that there are also variations, and sometimes substantial variations, within SLAs, both in capital cities and in the non-metropolitan areas of Australia. As such, the figures for an SLA represent the average of the different population groups within the SLA.

## How best to read the data and maps

How can I best find out about the population in the area where I live or work? Some readers will want to identify a particular area to see how it compares with other areas across the indicators. The key maps at the end of the report fold out to allow a particular geographic area to be identified. Although the maps are small, the areas in the capital city maps are large enough to follow from page to page, noting the location and size of variations. However, many of the urban centres (towns) do not show up on the map as the towns cover very small geographic areas relative to the rural and remote SLAs. The latest spreadsheets and interactive atlas at [www.adelaide.edu.au/phidu/](http://www.adelaide.edu.au/phidu/) which include these data can be used to show these differences.

## What are the predominant patterns across Australia?

Other readers will want an overview of the distribution of the population across all indicators, or across a particular range of indicators. Again, the key map at the end of the report will be useful.

Throughout the atlas, the geographic distribution at the SLA level in the capital cities and whole-of-Australia maps generally highlights, using the darker shades, areas with socioeconomically disadvantaged populations, or poorer outcomes.

Mapping data for some areas of Australia poses a number of challenges, mainly arising from the relatively small populations and, in the non-metropolitan areas, substantial numbers of large but sparsely settled SLAs. For example, areas in country Western Australia are often mapped in a grey shade, and footnoted to show why the data have been withheld.

In addition, the large size of some SLAs in remote areas can distort the message that the map is presenting. This is particularly so where an area is mapped in the darkest shade, thereby dominating the map – even though the number of events might be relatively small. Section 6

includes a discussion about using data at the SLA level to identify disadvantaged populations.

## A summary of socioeconomic disadvantage across Australia

In order to provide a reference point for the maps in the following sub-sections, the Index of Relative Socio-economic Disadvantage (IRSD) is presented following this description. The IRSD is one of four Socio-economic Indexes for Areas developed by the Australian Bureau of Statistics following the 2011 Population Census. It is an area-based, summary measure of socioeconomic disadvantage and is calculated from variables characterising individuals and families, including those that relate to education, occupation and labour force participation. Note that although it is referred to as an 'area-based' measure, it is not a measure of the features of the area, but of the population living in the area, and of the dwellings in which they live.

The IRSD is expressed as a number with a base for Australia of 1000: scores above 1000 indicate relative lack of disadvantage and those below indicate relatively greater disadvantage.

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## Index of Relative Socio-economic Disadvantage, capital cities

*The ABS Index of Relative Socio-economic Disadvantage (IRSD) is a powerful indicator of the socioeconomic disadvantage faced by numerous sub-population groups across Australia. It is based on the social and economic characteristics of the population in each area, and is a useful summary measure, reflecting the patterns of disadvantage seen in many individual indicators of social inequality.<sup>3</sup>*

**Indicator definition:** The IRSD is one of four socioeconomic indexes for areas compiled by the ABS, using data from the 2011 Census about the population and their characteristics. The index has a base of 1000 for Australia: scores above 1000 indicate relative lack of disadvantage and those below indicate relatively greater disadvantage.

**Table 2: IRSD, by capital city, 2011**

| Index score |           |          |          |       |        |        |          |       |
|-------------|-----------|----------|----------|-------|--------|--------|----------|-------|
| Sydney      | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
| 1011        | 1020      | 1022     | 991      | 1036  | 983    | 1030   | 1076     | 1018  |

### Capital cities

IRSD scores showed little variation between the capital cities, other than for the lowest scores in Hobart and Adelaide, and the highest score in Canberra. Although the ABS indicates comparison with previous indexes is not recommended, it is of note that there has been a marked increase in the index score for Darwin since the 2006 Census when it was 955, to a score of 1030 in 2011. A major change to the construction of the 2011 index was the exclusion of the variable relating to the proportion of people identifying as Indigenous in an area: this change may explain, at least in part, the movement discussed here.

The geographic distribution of the population in **Sydney** showed a strong socioeconomic pattern, with relatively high scores (least disadvantaged areas) in a number of SLAs on the north shore and in the eastern suburbs, and relatively low scores (most disadvantaged) to the west and south-west of the city, and in some outer northern areas. The lowest score was in Fairfield - East (805) and the highest in Ku-ring-gai (1121).

In **Melbourne**, scores of 1000 or higher were predominant in SLAs spanning a broad area from the city centre to the east, north-east and south-east. The most socioeconomically disadvantaged areas were clustered in locations to the west, north and outer south-east of the city, with the lowest score in Hume - Broadmeadows (860) and the highest in Manningham - East (1115).

A large number of the SLA groups across **Brisbane** had scores above the Australian score of 1000. The majority of SLAs with relatively low scores were located largely in the south and south west of the city (and including Stretton-Karawatha/Kingston, with the city's lowest score (843)), as well as in the outer north.

**Adelaide's** social geography was also clearly described by the IRSD, with the most

disadvantaged areas located in three main clusters – in the outer north, the north-west and the outer south, and including the three lowest of the capital city scores, in Playford - Elizabeth (748) and - West Central (809), and Port Adelaide Enfield - Park (847). SLAs to the east and south-east of the city centre had the highest socioeconomic status populations.

In **Perth**, inner and near-city SLAs comprised the bulk of the most advantaged areas, along with a small number of outer suburban SLAs. No areas had very low scores, with the lowest in Kwinana (968).

The range in **Hobart** was from a low of 867 index points in Brighton and 878 in Derwent Valley - Part A, to high scores of 1046 in the inner city of Hobart, 1042 in Hobart - Remainder and 1043 in Kingborough - Part A.

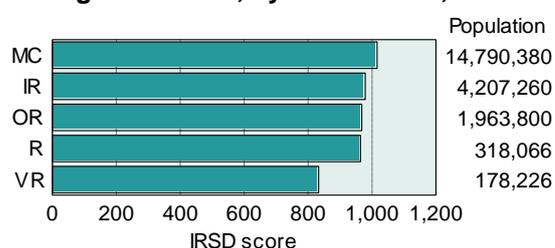
The SLAs in **Darwin** were grouped into six areas for mapping. The IRSD scores were all relatively high, ranging from 999 in Litchfield - Part A to 1063 in Darwin South West.

The small, suburb-based SLAs in **Canberra** were also grouped to larger areas. All but one area (Eastern Fringe, with a very small population and covering a number of SLAs) had scores well above the national average.

### Remoteness

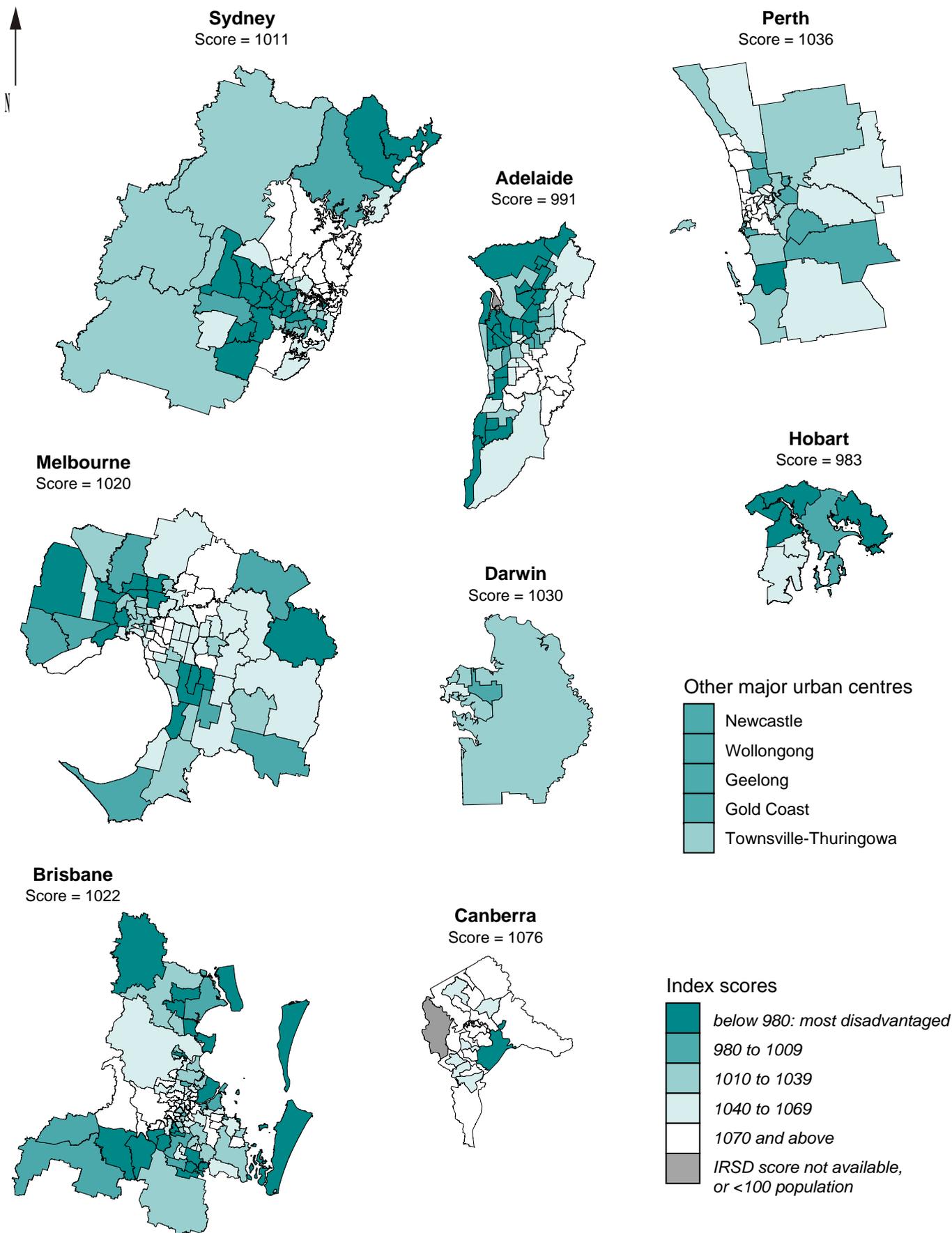
IRSD scores decreased with increasing remoteness, from a score of 1016 in the Major Cities areas to 964 in the Remote Areas, before a more substantial decline to a score of 833 in the Very Remote areas.

**Figure 5: IRSD, by remoteness, 2011**



# Map 1: Index of Relative Socio-economic Disadvantage, major urban centres, 2011

Index scores by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data from ABS SEIFA, 2011 Census

## Index of Relative Socio-economic Disadvantage, Australia

**Notes:** See comments on previous text page for details of this indicator. ‘Non-metropolitan’ refers to the area of the State or Territory outside of the capital city. ‘Total’ refers to the whole State or Territory.

**Table 3: IRSD, by State/ Territory, Australia, 2011**

| Area             | Index score |      |      |     |      |      |     |      |       |
|------------------|-------------|------|------|-----|------|------|-----|------|-------|
|                  | NSW         | Vic. | Qld  | SA  | WA   | Tas. | NT  | ACT  | Total |
| Non-metropolitan | 969         | 980  | 983  | 962 | 982  | 945  | 786 | ..   | 973   |
| Total            | 996         | 1010 | 1001 | 983 | 1022 | 961  | 926 | 1076 | 1000  |

### Remainder of State/Territory

The IRSD scores in the non-metropolitan areas are relatively similar, other than for the very low score (relatively disadvantaged) for the Northern Territory. The index score in the Northern Territory is notably higher in 2011 (a score of 786) than in 2006 (753), with the second largest increase in Western Australia (963 in 2006, to 982 in 2011). As noted on the previous text page, a major change to the construction of the 2011 index was the exclusion of the variable relating to the proportion of people identifying as Indigenous in an area: this change may explain, at least in part, the movements discussed here. Scores in the non-metropolitan areas of the other States showed little variation.

Note that many of the low scores at the SLA level in the Northern Territory and Queensland relate to relatively small Aboriginal and Torres Strait Islander communities; for the most part, communities of this size are not separate SLAs in other jurisdictions. There are also often differences in scores between urban centres (towns) and surrounding rural areas; these differences do not show on the map as the towns cover small geographic areas.

Areas of relatively high socioeconomic disadvantage cover much of **New South Wales** (outside of Sydney), with the largest concentration of SLAs in large areas across the north of the State. The lowest index score was in Brewarrina (788), with low scores also in the adjacent SLA of Walgett (856), in Central Darling (824) and in the outer north-east in Richmond Valley - Casino (870). The majority of SLAs of least socioeconomic disadvantage were in the eastern part of the State, in particular inland and to the south of Sydney, through to and along the border with Victoria.

In non-metropolitan **Victoria**, index scores were lowest in Swan Hill - Robinvale (881) and Central Goldfields - Maryborough (882), and in Latrobe - Morwell and Greater Bendigo - Eaglehawk (both 885). The highest scores were recorded in Surf

Coast - East, Greater Bendigo - Strathfieldsaye and Macedon Ranges Balance.

A majority of the SLAs in **Queensland** (outside of Brisbane) had scores below 1000; and eleven of the 41 SLAs, with the lowest non-metropolitan scores (below 600) in Australia were in Queensland. These areas were almost exclusively located in the coastal regions and islands in the north of the State, with the exceptions being the SLAs of Cherbourg and Woorabinda. Yarrabah (441, the lowest index score in Australia), Cherbourg (452) and Aurukun (483) had the lowest index scores. SLAs with scores above 1000 were largely located in a group to the west and south of Mackay.

Low scores prevailed across much of **South Australia**, particularly in the north of the State. The lowest score was in Anangu Pitjantjatjara (593), with low scores also recorded for Unincorporated Whyalla (775) and Peterborough (798). Scores above the Australian average were recorded largely in three areas: one adjacent to, one on Eyre Peninsula, and another in the south-east of the State

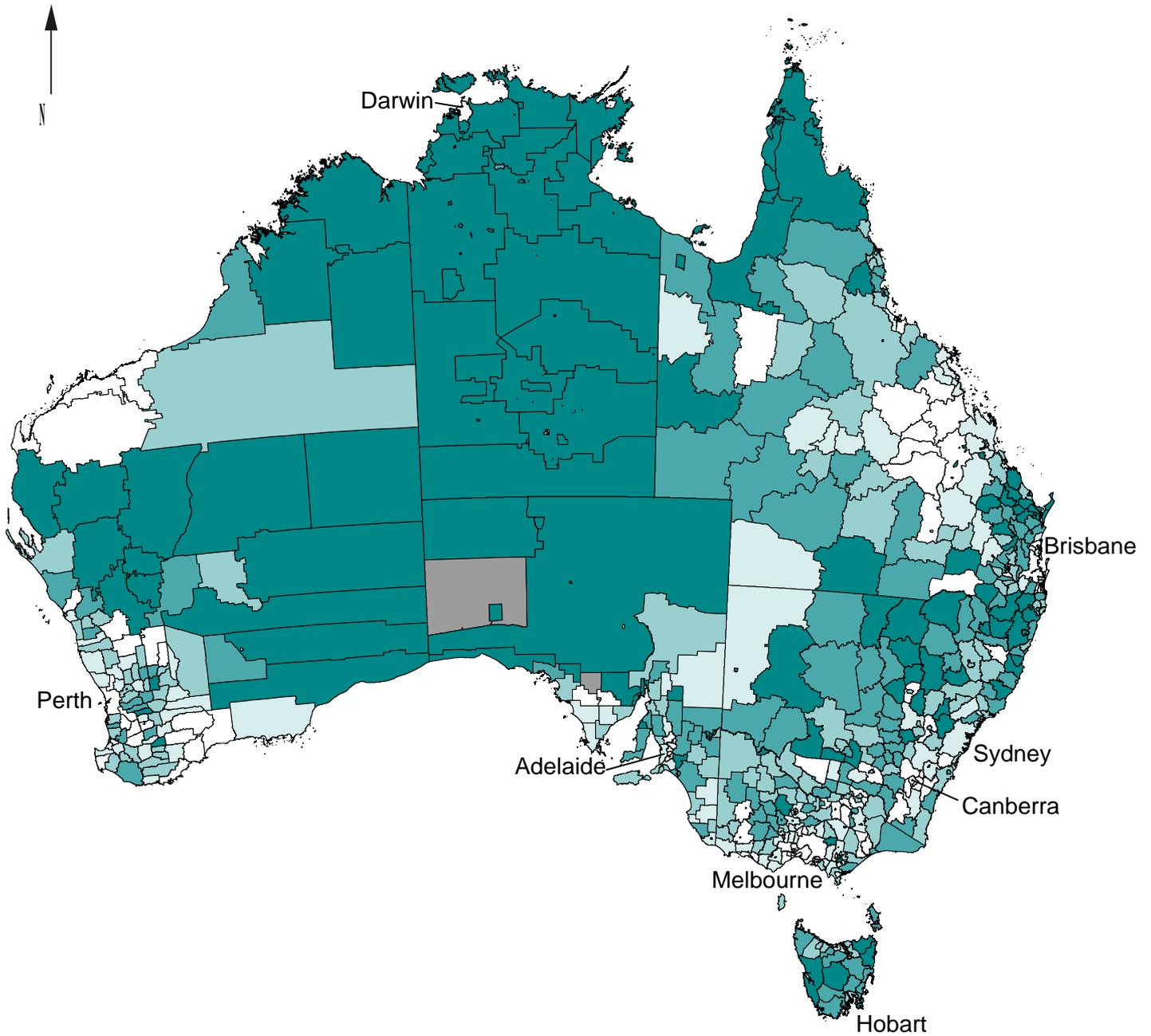
Much of the remote SLAs of **Western Australia**, had low scores, with those above the 1000 located closer to the coast, particularly to the north and south-east of Perth, and further north in Exmouth, Ashburton, Roebourne and Port Hedland. The lowest scores were in Ngaanyatjarraku and Halls Creek (both 607), Menzies (612) and Upper Gascoyne (717).

In **Tasmania**, the three lowest scores were in Georgetown - Part A (852) and Break O’Day (891) in the north, and in the Central Highlands (894). Index scores above the Australian average were in SLAs located around Hobart, and in Launceston and several areas to the west.

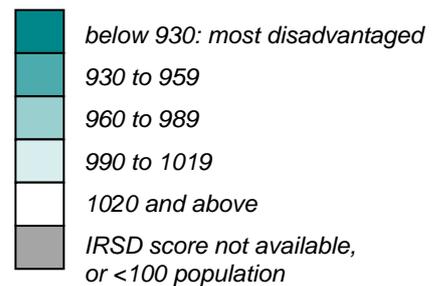
The lowest index score in the **Northern Territory** was recorded for Thamarrurr (460), with another 28 SLAs recording scores below 600; over half of this group are also small, remote Indigenous communities. The only areas with index scores above 1000 were in Nhulunbuy, the SLAs in Alice Springs, and in Jabiru.

# Map 2: Index of Relative Socio-economic Disadvantage, Australia, 2011

Index scores by Statistical Local Area/ Statistical Local Area group



### Index scores



Source: Compiled in PHIDU based on data from ABS SEIFA, 2011 Census

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## Jobless families with children

For jobless families, vocational and non-vocational barriers to employment may include inadequate education and skills; poor literacy and numeracy; poor physical and mental health; disability; substance use; family stress and violence; homelessness and insecure housing; financial management problems; social and/or cultural isolation; language difficulties; lived experiences of torture and trauma; and unresolved grief and loss of land and/or culture.<sup>4-11</sup>

The impact of long-term parental joblessness on the wellbeing of families and children can be substantial.<sup>12</sup> A child's future development may depend significantly on access to economic and other resources during the first fifteen years of life; and long spells of parent joblessness can have consequences for children that extend well beyond childhood, with future income, social position and relative economic success being at risk of adverse effects.<sup>4</sup> There can also be critical periods in a child's development when a lack of resources and the stress of parent joblessness are detrimental. Finally, protracted adult unemployment may lead to poor health, family violence and relationship breakdown, substance use and social exclusion.<sup>12</sup>

Such consequences of family unemployment can have important effects on other aspects of children's wellbeing. For example, parental ill health may be a barrier to social and workforce participation and, consequently, reduce resources for their children. Such difficulties represent stressors that can harm relationships, and inhibit or limit access to resources that are protective to children's wellbeing.<sup>13</sup> Many adversities (e.g., parental unemployment resulting in financial hardship and family breakdown) occur together and can affect children's emotional health, as well as their families' experience of broader social exclusion.<sup>14,15</sup> The effects of co-occurrence are often cumulative, leading to a more entrenched position of disadvantage and social exclusion.<sup>13</sup>

Governments recognise this and provide additional unemployment benefits for families with dependent children. However, jobless families' relative disadvantage across many life domains remains evident; and children in these families are more likely to enter a cycle of intergenerational disadvantage and welfare dependency than children living in working families.<sup>4,18</sup> This underscores the importance of having macro-economic policies that limit or reduce the level of joblessness during economic downturns, and policies and services to minimise the potentially negative effects on children living in jobless families.<sup>16,20</sup>

The indicators listed in bold type are included in this sub-section. The remaining indicators listed below and other indicators which are relevant can be found online at [www.adelaide.edu.au/phidu/](http://www.adelaide.edu.au/phidu/).

- Jobless families with dependent children under 15 years of age
- **Children under 15 years of age living in jobless families**
- **Long-term unemployment**

## Children living in jobless families, capital cities

*Families with no employed parent (“jobless families”) not only experience substantial economic disadvantage, but also reduced opportunities which may affect the wellbeing of their members.<sup>4,20</sup> Children in jobless families are at risk of experiencing financial hardship and other disadvantages in the short to medium term. They may have no role model of employment to follow, and the joblessness of the parent(s) may mean that such children are more likely to be welfare-dependent in the longer term. The majority of children in these families live in lone-parent households with limited resources.<sup>17,18,20</sup>*

**Indicator definition:** Children aged less than 15 years living in families in which no parent is employed, as a proportion of all children aged less than 15 years.

**Table 4: Children under 15 years of age living in jobless families, by capital city, 2011**

| Per cent |           |          |          |       |        |        |          |       |
|----------|-----------|----------|----------|-------|--------|--------|----------|-------|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
| 13.4     | 11.8      | 12.6     | 15.2     | 10.8  | 16.9   | 10.5   | 7.5      | 12.6  |

### Capital cities

The proportion of children under 15 years of age living in jobless families varied considerably between the capital cities, from 7.5% in Canberra, to 15.2% in Adelaide and 16.9% in Hobart. There is a very strong association at the SLA level with socioeconomic disadvantage (see Section 7).

The majority of SLAs in **Sydney** with the highest proportions of children in jobless families were in a cluster to the west and south-west of the city centre, with the highest proportions in Fairfield - East (35.0%), Parramatta - South (32.6%), Blacktown - South-West (29.7%) and Bankstown - North-East (28.3%). The lowest proportions were in a band of SLAs largely situated on the north shore.

In **Melbourne**, SLAs with a high proportion of children in jobless families were to the north, in Hume - Broadmeadows (with by far the highest proportion, of 35.7%), in the west in Brimbank - Sunshine (26.1%) and south-west of the city, in Dandenong (24.9%). Low proportions were evident in the east, north-east and inner south.

SLAs in the outer south and outer north of **Brisbane** comprised the majority of areas with high rates of children living in jobless families and included Redland Balance (41.3%), Stretton-Karawatha/Kingston (36.2%), and Darra-Sumner/Wacol (31.2%). Rates below the city average were generally in the inner and middle suburbs.

In **Adelaide**, very high proportions of children under 15 in jobless families were in a majority of outer northern SLAs, with Playford - Elizabeth (50.1%) and - West Central (41.4%), the two highest capital city rates; north-west in the SLAs of Port Adelaide Enfield - Inner (28.7%) and - Park (28.0%); and in the outer south. Most other SLAs had below-average proportions, with the lowest being to the east, north-east and south-east of the city centre.

No SLAs in **Perth** had SLAs with proportions of children in jobless families in the highest range mapped, with the largest proportions in Kwinana and Belmont (both 17.3%). A cluster of SLAs surrounding the city centre and extending along the coast to the north had the lowest scores.

There was a substantial difference in the distribution of children in jobless families in **Hobart**, with the highest proportion in Brighton (31.5%) being over three times that of the three SLAs with the lowest proportions (Hobart - Remainder and - Inner, and Kingborough - Part A).

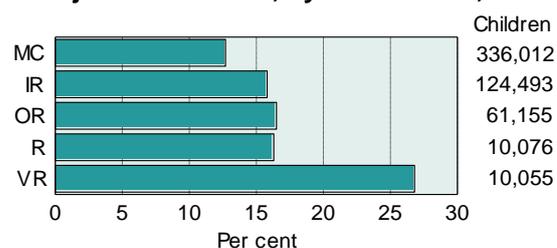
Four of the SLA groups in **Darwin** had proportions above the city average, with low proportions only in the city centre, and in the rural SLA of Litchfield - Part B.

There were relatively low proportions of children living in jobless families across **Canberra**, with all but two SLA groups with proportions in the two lowest ranges mapped.

### Remoteness

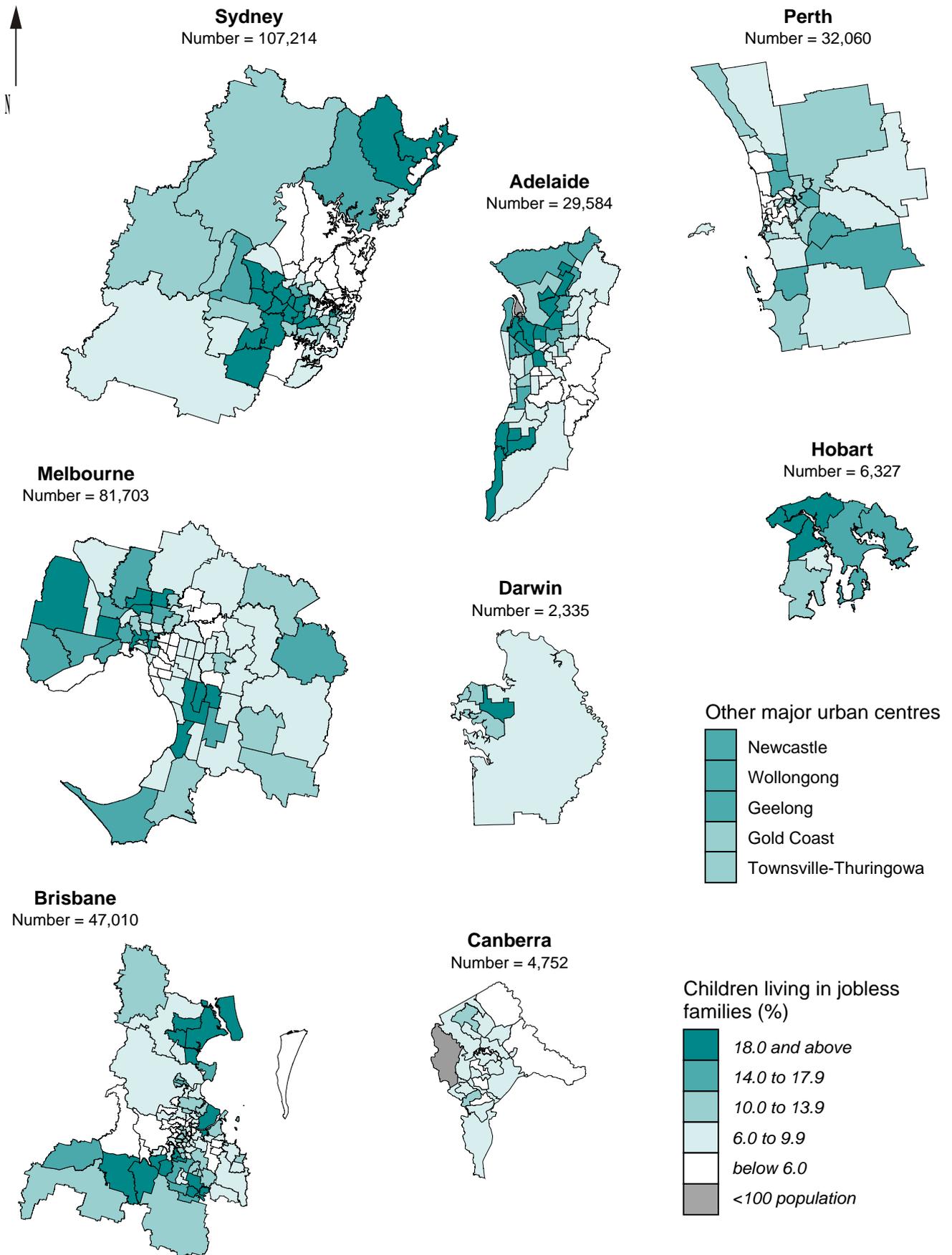
The majority (62.0%) of children living in jobless families were in the Major Cities remoteness class. However, by far the highest proportion of children in these families (26.8%) was in the Very Remote areas.

**Figure 6: Children under 15 years of age living in jobless families, by remoteness, 2011**



# Map 3: Children under 15 years of age living in jobless families, major urban centres, 2011

per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data from ABS 2011 Census

## Children living in jobless families, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 5: Children under 15 years of age living in jobless families, by State/ Territory, Australia, 2011**

| <i>Per cent</i>  |      |      |      |      |      |      |      |     |       |
|------------------|------|------|------|------|------|------|------|-----|-------|
| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT | Total |
| Non-metropolitan | 17.0 | 14.8 | 15.6 | 15.2 | 14.6 | 19.5 | 31.2 | ..  | 16.2  |
| Total            | 14.7 | 12.7 | 14.3 | 15.2 | 11.8 | 18.4 | 20.6 | 7.6 | 13.9  |

### Non-metropolitan areas

Readers should note that people receiving wages under the Commonwealth Development Employment Program scheme (CDEP, the Indigenous unemployment scheme operating in remote areas of Australia, and commonly called a 'work-for-the-dole' scheme) were categorised by the ABS in the 2011 Census as being employed, and would not therefore be included as jobless. The result of this practice is to understate the number of children in jobless families in remote areas. Since 2009, new CDEP participants have been required to apply for income support payments.

By far the highest proportion of children living in jobless families in areas outside of the capital cities was recorded in the Northern Territory (31.2%). The lowest proportions were in the non-metropolitan areas of Western Australia (14.6%) and Victoria (14.8%).

SLAs with above average proportions of children under 15 years living in jobless families formed a band across much of the north and west of **New South Wales**, including many regional centres and towns. The highest proportion was recorded for Brewarrina (44.9%), with Coonamble, Clarence Valley Balance, Walgett, Kempsey and Central Darling all having approximately one third of their children in this category.

Above-average proportions of children in jobless families were generally found in central and western **Victoria**, in some SLAs along the State's northern border, and in the eastern part of the State; many regional centres and towns were included in this group. SLAs with the highest proportions of children under 15 in jobless families included Latrobe - Morwell (32.1%) and Moe (27.3%), Greater Bendigo - Eaglehawk (29.1%), Central Goldfields - Maryborough (26.3%) and Benalla - Benalla (25.9%).

In **Queensland** (outside of Brisbane), two groups of SLAs with high proportions of children in jobless families were evident: one covering an area from Brisbane to north of Bundaberg, and including Cherbourg (60.1%), Woorabinda

(51.1%) and Mount Morgan (45.8%); and the other in the far north, in coastal areas on Cape York Peninsula. Far northern areas in this category included Yarrabah (71.5%, the second highest proportion in Australia), Aurukun (58.0%), Doomadgee (57.6%), Napranum (54.3%), Lockhart River (45.5%) and Pormpuraaw (45.4%). Further south, Palm Island had a proportion of 47.2%, with a further seven SLAs in the non-metropolitan area having more than one third of their children in this category.

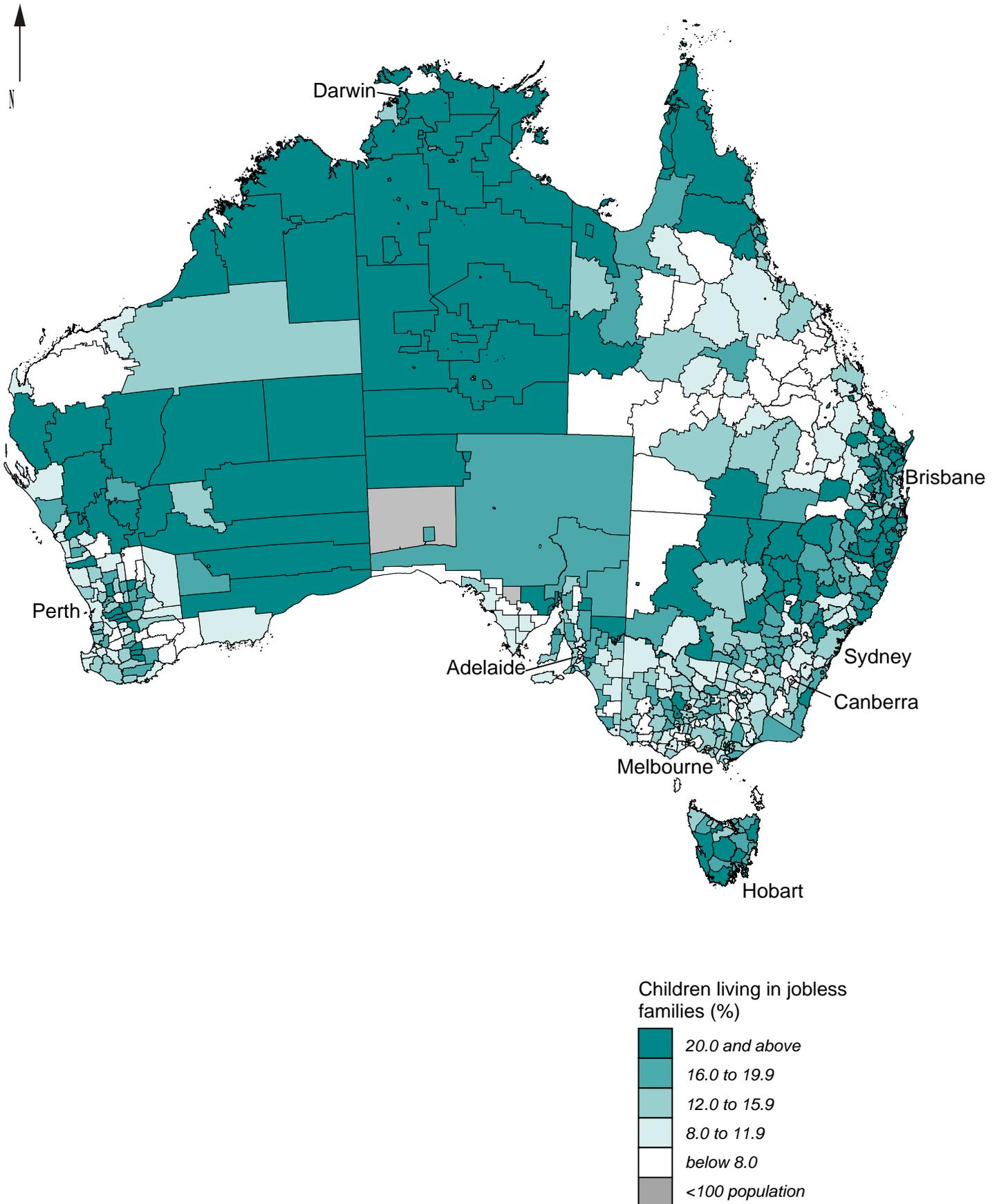
In **South Australia**, regional centres and country towns prevailed among the SLAs with above-average proportions of children living in jobless families. Other SLAs in this category were somewhat scattered, in the far north, mid-north, Riverland area and south-east of the State. Of SLAs with larger numbers of children, the highest proportions were recorded for Anangu Pitjantjatjara (41.6%) and Peterborough (40.5%).

Much of **Western Australia** was covered by SLAs with above-average proportions of children living in jobless families, including many in the populous south-west, such as Quairading (34.0%) and Trayning (33.8%); across central Western Australia, SLAs with larger numbers of children in this category included Wiluna (61.5%), Mount Magnet (53.8%), Upper Gascoyne (49.3%), Ngaanyatjarraku (42.5%) and Menzies (35.4%); and, in the far north, Halls Creek (57.8%). Only a handful of areas outside of the south-west had proportions below the State average.

SLAs in **Tasmania** (outside of Hobart) with proportions of children in jobless families above the State average included several of the regional centres, such as Launceston and Devonport, although a number of the highest proportions were in the smaller, coastal SLAs of George Town - Part A (34.7%) and Break O'Day (28.8%), and in the Central Highlands (26.2%).

A majority of SLAs in the **Northern Territory** had rates above the Territory average. Rates of 50% or higher of children in jobless families were recorded in Thamarrurr (63.9%), Belyuen (59.5%), and in Tennant Creek - Balance, Alpurrurulam, Tableland and Elliott District (all 53.5%).

Map 4: Children under 15 years of age living in jobless families, Australia, 2011  
per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data from ABS 2011 Census

## Long-term unemployment, capital cities

People who are unemployed on a long-term basis are much more likely than those who are employed or short-term unemployed to have low education and skill levels, a chronic illness or disability, to live in a region of high unemployment, and to have an unstable employment history.<sup>17,18</sup> Increasing casualisation of the work force and decreasing numbers of full time jobs for low skilled workers over recent years have contributed to the difficulties many face if they have been unemployed for longer than six months.<sup>18</sup>

**Indicator definition:** Recipients of a Newstart Allowance or Youth Allowance (other) from Centrelink for six months (182 or more days), as a proportion of the population aged 16 to 64 years – as a proxy for long-term unemployment. Further information is provided in Appendix A.

**Table 6: Long-term unemployment, by capital city, June 2011**

| Per cent |           |          |          |       |        |        |          |       |
|----------|-----------|----------|----------|-------|--------|--------|----------|-------|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
| 2.6      | 2.6       | 2.8      | 3.6      | 1.9   | 3.9    | 2.0    | 1.3      | 2.6   |

### Capital cities

Among the capital cities, the highest rate of long-term unemployment at these ages was recorded in Hobart, and the lowest in Canberra. There is a very strong association at the SLA level with socioeconomic disadvantage (see Section 7).

Long-term unemployment rates within **Sydney** varied from 0.5% in Mosman to 6.9% in Fairfield - East. Other SLAs recording high levels of long-term unemployment were generally located to the west and south of the city centre, and included Blacktown - South-West (5.6%), Parramatta - South (5.4%), Bankstown - North-West and - North-East (both 4.9%); and in the north, the Wyong SLAs of - North-East (5.2%) and - South and West (4.8%). Most areas with low rates were on the north shore, extending up the coast and westwards.

High rates of long-term unemployment were largely concentrated in SLAs situated in the north, north-west, west and south-east of **Melbourne**, with the highest rates in Hume - Broadmeadows (6.6%), Greater Dandenong - Dandenong (5.7%) and Brimbank - Sunshine (5.5%). The lowest levels were to the east and south of the city and in the outer north-east, and included the SLAs of Melbourne - Southbank Docklands, Manningham - East, Bayside - Brighton and Nillumbik - South.

The distribution of the long-term unemployed population was generally concentrated in the outer northern and southern areas of **Brisbane** and in smaller clusters in inner areas south of the river. The highest rates were in Stretton-Karawatha/ Kingston (8.4%), Redland Balance (7.9%), Caboolture - Central (6.1%) and Rocklea (6.0%). Areas with low levels of long-term unemployment were mainly in the inner west, or scattered across the south and east of the city.

The long-term unemployment rate under this measure was well above average throughout the

outer northern and southern areas of **Adelaide**, and in the north-west. By far the highest rate was in Playford - Elizabeth, with a proportion of 11.3%. Rates were also high in Salisbury - Inner North (7.4%) and - Central (6.6%), Playford - West Central (7.3%) and - East Central (6.6%); and in Onkaparinga - North Coast (6.7%). A number of SLAs in the east recorded the lowest rates.

Long-term unemployment rates were relatively low across **Perth**, with Fremantle - Inner (4.2%), and Fremantle - Remainder and Armadale (both 3.1%) having the highest rates.

In **Hobart**, more than 5% of the population aged 16 to 64 years in the SLAs of Derwent Valley - Part A (6.9%), and Glenorchy and Brighton (both 5.8%) had been unemployed long-term. The lowest rate was in Kingborough - Part A (2.3%).

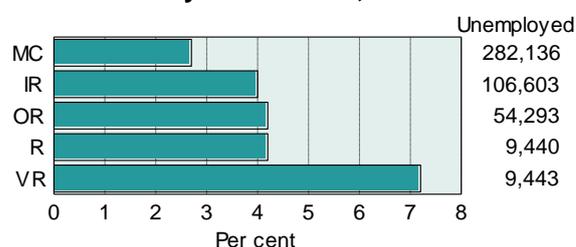
Long-term unemployment rates in **Darwin** were relatively low, and ranged from 1.7% in Darwin North East to 3.6% in Litchfield - Part B. Rates for the three remaining areas were below 2%.

All SLA groups in **Canberra**, apart from the Eastern Fringe (2.7%), had less than 2% of people at these ages who were unemployed long-term.

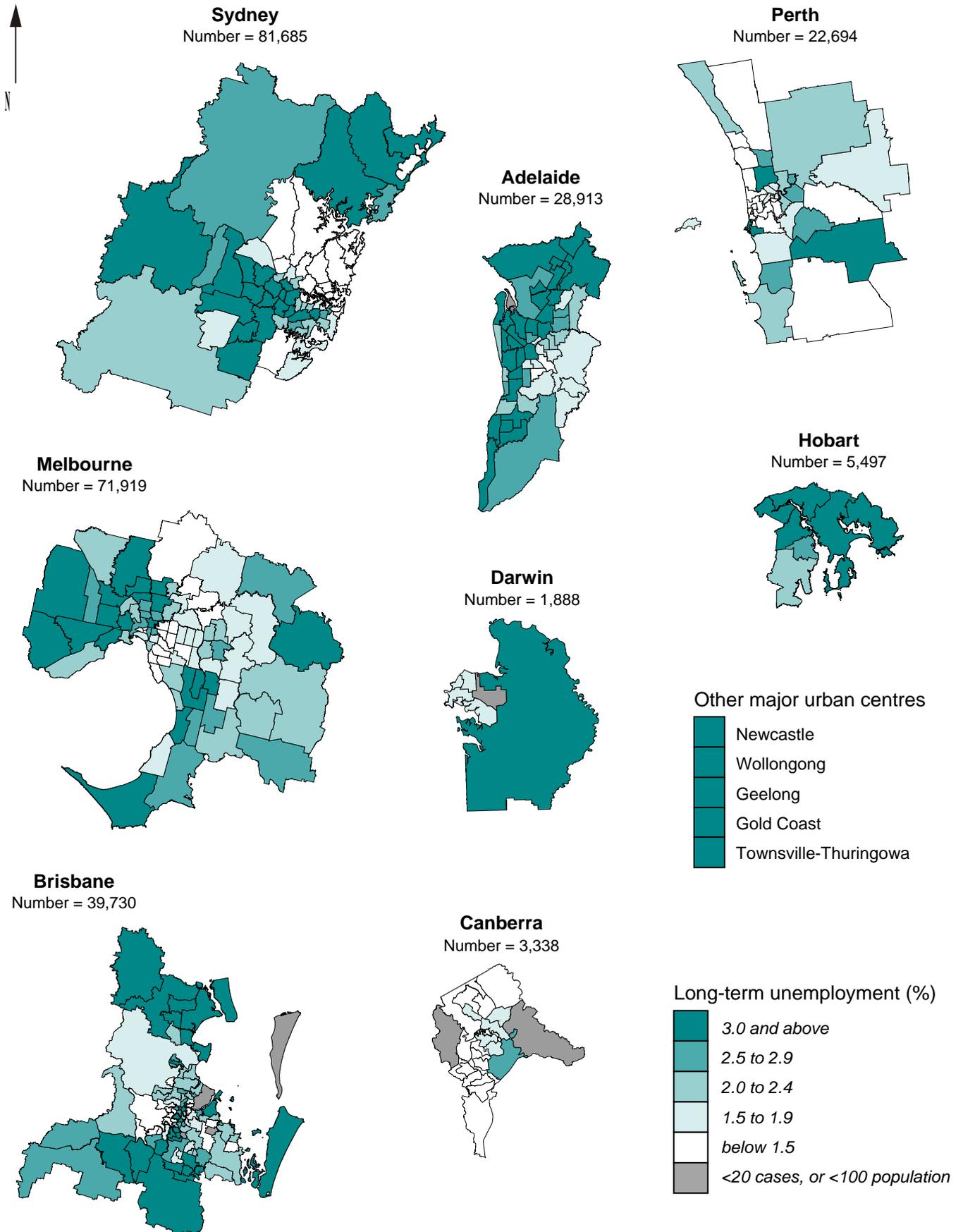
### Remoteness

Long-term unemployment increased in a step-wise fashion with increasing remoteness, with rates ranging from 2.7% in the Major Cities areas to 4.0% to 4.2% in the middle remoteness classes, before rising to 7.2% in the Very Remote areas.

**Figure 7: Long-term unemployment, by remoteness, 2011**



Map 5: Long-term unemployment, major urban centres, June 2011  
 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by Centrelink

## Long-term unemployment, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 7: Long-term unemployment, by State/ Territory, Australia, June 2011**

*Per cent*

| Area             | NSW | Vic. | Qld | SA  | WA  | Tas. | NT  | ACT | Total |
|------------------|-----|------|-----|-----|-----|------|-----|-----|-------|
| Non-metropolitan | 4.4 | 3.8  | 4.0 | 4.5 | 3.1 | 5.3  | 9.5 | ..  | 4.2   |
| Total            | 3.2 | 2.9  | 3.4 | 3.9 | 2.2 | 4.7  | 5.3 | 1.3 | 3.1   |

### Non-metropolitan areas

People living in remote areas who receive wages under the Commonwealth Development Employment Program scheme (CDEP, the Indigenous unemployment scheme, and more commonly called a 'work-for-the-dole' scheme) are not included in these data, as they are not in receipt of a Newstart or Youth Allowance from Centrelink. As a result, the extent of long-term unemployment, as measured by this indicator, is understated in remote areas.

In June 2011, long-term unemployment rates in the non-metropolitan areas of Australia ranged from 3.1% in Western Australia to 9.5% in the Northern Territory. In all States and the Northern Territory, rates were higher in the non-metropolitan areas than in the capital cities.

Walgett (10.6%), Brewarrina (10.5%), Central Darling (9.2%) and Bourke (8.4%), located in the far western and northern areas of **New South Wales**, recorded the highest long-term unemployment rates, with the northern and inner northern coastal areas of Nambucca (8.7%) and Kyogle (8.5%) recording similarly high rates. Rates below 2% were recorded in the south-eastern SLAs of Palerang - Part A, Yass Valley, Queanbeyan and Snowy River and, just north of Sydney, in Singleton.

The rates in **Victoria** were generally low, with the highest in the La Trobe SLAs of - Morwell (7.0%) and - Moe (6.3%). Other SLAs with long-term unemployment rates of 6% or above were in central Victoria in the Central Goldfields SLAs of Balance (6.6%) and - Maryborough (6.2%), and Loddon South (6.0%). Rates below 2% were recorded in Macedon Ranges Balance, Horsham Balance, Queenscliffe, Surf Coast - East, Towong - Part A and Golden Plains - South-East.

In 2011, 10% or more of the population aged 16 to 64 years were unemployed long-term in the **Queensland** non-metropolitan SLAs of Woorabinda (29.3%), Wujal Wujal (18.4%), Doomadgee (16.6%), Lockhart River (14.8%), Yarrabah (13.6%), Etheridge (13.4%), Mornington (13.3%), Hope Vale (12.4%), Kowanyama (12.3%), Cook (11.9%), Burke and Croydon (both 11.4%),

Pormpuraaw (11.3%), Murgon (11.1%), Mount Morgan and Aurukun (both 10.7%), New Mapoon (10.1%) and Cherbourg (10.0%). The next highest rates (of 7% or more) were recorded in Carpentaria, Kolan, Herberton, Injinoo, Cairns - Part B, Perry, Mareeba, Napranum, Hervey Bay - Part B, Townsville - Part B, Maryborough and Palm Island.

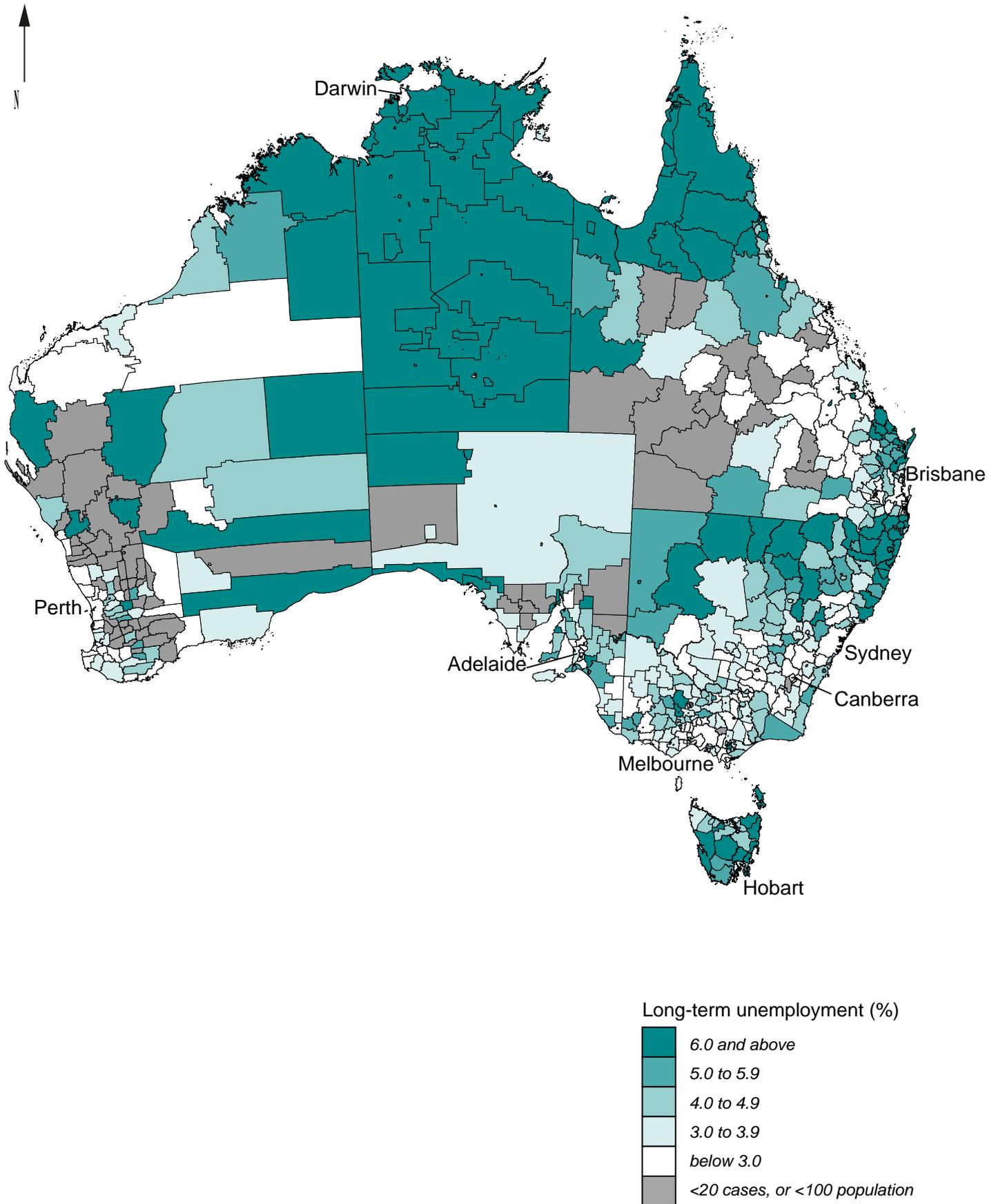
In **South Australia**, long-term unemployment rates were highest in the remote SLAs of Anangu Pitjantjatjara (12.7%), Coober Pedy (9.0%) and Ceduna (8.5%); and in Peterborough (8.0%). The lowest rates were in SLAs situated closest to the metropolitan area, and included Barossa - Tanunda, Adelaide Hills - North and Balance, and Mount Barker Balance.

The highest long-term unemployment rates in the non-metropolitan areas of **Western Australia** were largely in the more remote areas of the State, with the highest in Kalgoorlie/Boulder (16.5%), Ngaanyatjarraku (12.1%), Meekatharra (10.5%), Halls Creek (8.0%) and Mount Magnet (7.5%). Harvey - Part A and Capel - Part B in the south-west recorded the lowest long-term unemployment rates.

In the non-metropolitan areas of **Tasmania**, the highest levels of long-term unemployment in 2011 were recorded in the SLAs of Break O'Day (7.7%, located on the east coast) and George Town - Part A (6.8%, in the north). A majority of areas with the lowest levels of long-term unemployment were also in the north of the State, with King Island, Northern Midlands and Circular Head recording the lowest. Of the southern SLAs, Kingborough - Part A had the lowest rate.

The majority of SLAs in the **Northern Territory** were mapped in the highest range, with long-term unemployment rates of 5% or above. The highest rates were recorded in Watiyawanu (15.5%), Tapatjatjaka (15.5%), Thamarrurr (15.4%) and Tanami and Ltyentye Purte (both 15.2%). Only the SLA of Jabiru recorded a rate below 3%.

Map 6: Long-term unemployment, Australia, June 2011  
 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by Centrelink

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## Children at greatest risk of long-term disadvantage

Children who are at greatest risk of long-term disadvantage include those living in poverty, especially in jobless families; those living with a disability or life-limiting chronic disease, and their siblings; those who identify as Indigenous; those who are subjected to neglect, abuse, family violence and other forms of trauma; those who are socially and/or geographically isolated; those with experience of the care and protection system; those who have a history of juvenile detention; those who suffer ongoing racism, discrimination and social exclusion; many young carers; and those who are refugees, including recently arrived, unaccompanied minors.<sup>19-21,136</sup>

In Australia, it has been argued that 'poverty is the single greatest threat to child and community health and wellbeing'.<sup>22</sup> There are many research studies on the issue of socioeconomic disadvantage, its long-term implications for the wellbeing of children and their families, and the eventual high costs to society.<sup>16,23,24,127,136</sup> The relationship between significant disadvantage and health and wellbeing is particularly crucial for younger children as they are more developmentally vulnerable, and can experience deleterious circumstances that are beyond their control.<sup>25,26</sup>

The short and long term consequences of poverty for children, and for society, are significant and well documented.<sup>22,26,27,70,127</sup> Childhood poverty can impair physical growth, cognitive development and social and emotional functioning.<sup>16,23,26,28</sup> At a population level, the incidence, duration and chronicity of childhood poverty may also have multiple negative effects on children's educational ability and attainment, social inclusion and later adult productivity (as measured by wage rates and hours worked), while increasing the likelihood of adult welfare dependency.<sup>23,25,26</sup> Research also indicates that being born into a relatively disadvantaged family can increase the probability of accumulating risks associated with that disadvantage. Adversity experienced early in the life course (before age five or seven) has the strongest impact on the formation of individual resources in later life.<sup>26,29</sup> Subsequent experiences of adversity then may add to the deterioration of already reduced resources.<sup>28</sup>

However, this does not mean that all children whose parents are socioeconomically disadvantaged will experience these problems. Many children from disadvantaged backgrounds are able to learn and develop well, despite adverse circumstances.<sup>30,31</sup> Such resilience is predicted by attributes of a child's disposition (e.g., temperament, cognitive abilities, self-belief), family characteristics (such as warmth, closeness and safety), and the availability and use of external support systems by family members.<sup>32,33</sup> A complex relationship exists between the risk factors that contribute to poverty (such as low socioeconomic status, low income or occupational class), protective factors (such as positive role models and relationships), and the resulting implications for children and families.<sup>34,136</sup> These inter-relationships are yet to be fully understood.

The indicators of poverty are numerous and are associated with factors such as infant and maternal mortality and morbidity, low birth weight and poor physical growth, developmental delay, discrimination and racism, disability, learning and behavioural problems, mental health issues, parental smoking habits and parental disability.<sup>20,21,136</sup> They also include lack of parental education, lack of safety of the home environment, harsh or indifferent parenting, and difficulties with families' access to and use of services. An individual's chance of encountering multiple adverse health risks throughout life is influenced powerfully by social and economic position.<sup>34,35,136</sup> Adult-disease risk factors do not emerge exclusively in mid-life, but can accumulate over decades. Investment early in educational and emotional development helps to strengthen prevention strategies relating to health behaviour, work-place environment, and income inequality.<sup>30</sup>

The indicators listed in bold type are included in this sub-section. The remaining indicators listed below and other indicators can be found online at [www.adelaide.edu.au/phidu/](http://www.adelaide.edu.au/phidu/).

- **Children in low income, welfare-dependent families**
- **Children in families where the mother has low educational attainment**
- **AEDI: children assessed as being developmentally vulnerable on one or more domains**
- **Women smoking during pregnancy**
- Low birth weight babies
- Total Fertility Rate

## Children in low income, welfare-dependent families, capital cities

*Low income limits the opportunities parents can offer their children, and may cause significant stress on family relationships.<sup>19,136</sup> Families with children living on disposable incomes, which are below the estimated Henderson Poverty Line (HPL), are considered to be living in poverty. The HPL is a relative measure of poverty, which rises as real incomes in the community rise (see Appendix A).<sup>36</sup>*

**Indicator definition:** Children aged less than 16 years living in families with incomes under \$31,786 p.a. in receipt of the Family Tax Benefit (A) (at the maximum level), as a proportion of all children aged less than 16 years.

**Table 8: Children in low income, welfare-dependent families, by capital city, June 2011**

| Per cent |           |          |          |       |        |        |          |       |  |
|----------|-----------|----------|----------|-------|--------|--------|----------|-------|--|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |  |
| 20.3     | 19.3      | 19.3     | 23.0     | 16.7  | 25.4   | 17.9   | 11.5     | 19.5  |  |

### Capital cities

The proportion of children under 16 years of age living in low income, welfare-dependent families in June 2011 was highest in Hobart (25.4%) and Adelaide (23.0%), and lowest in Canberra (11.5%). There is a very strong association at the SLA level with socioeconomic disadvantage (see Section 7).

A large group of SLAs in **Sydney's** west and south-west had the highest proportions of children in these families. They include Fairfield - East (47.2%) and - West (33.4%), Bankstown - North-East (41.3%) and - North-West (39.2%), Parramatta - South (40.4%), Blacktown - South-West (39.4%), Auburn (35.0), Campbelltown - North (33.3%) and - South (33.2%).

The SLAs of Hume - Broadmeadows (50.0%), Whittlesea - South-West (40.3%), Brimbank - Sunshine (37.8%), Melton Balance (34.6%) and Melbourne - Remainder (33.1%), north and west of the city centre; and Greater Dandenong - Dandenong (35.6%) and Balance (32.9%), and Frankston - West (31.3%), in the south-east, recorded the highest proportions in **Melbourne**.

SLAs with the highest proportions of children in these low income families in **Brisbane** were in two main locations: one to the south (and south-west and south-east) of the Brisbane River, and the other in the outer north. The southern areas with the highest proportions included Redland Balance (52.7%), Stretton-Karawatha/Kingston (49.6%), Waterford West (35.2%), Loganlea (35.1%), Marsden (34.3%) and Inala/Richards (33.0%); those to the north were Deception Bay (39.4%), Caboolture - Central (34.5%) and - East (34.0%), and Bribie Island (33.0%).

In **Adelaide**, more than 50% of children under 16 years in Playford - Elizabeth (56.6%) were living in these families, with relatively high rates also in Playford - East Central (40.9%), - Hills (39.1%) and - West Central (36.5%); Salisbury - Central (40.8%) and - Inner North (37.5%); Port Adelaide Enfield - Park (39.5%), - Port (37.4%) and - Inner

(36.8%); and Onkaparinga - Hackham (37.4%) and - North Coast (37.3%).

Rates were lower in **Perth**, with no areas mapped in the highest range. Rates above 25% were recorded in Belmont (27.2%), Bassendean and Kwinana (both 27.0%), Stirling - Central (25.8%) and Armadale (25.1%). The inner city areas of Nedlands, Cottesloe, Cambridge and Claremont recorded the lowest rates.

In **Hobart**, the SLAs of Glenorchy (36.6%), Derwent Valley - Part A (36.3%) and Brighton (36.1%) recorded the highest proportions of children in low income families.

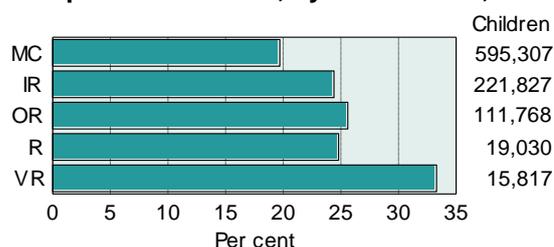
Children living in low income families in **Darwin** comprised 21.9% of children in Litchfield - Part B and 20.5% in Litchfield - Part A, with the lowest proportion, of 11.0%, in Darwin South West.

There were low proportions of children in these low income families across **Canberra**, with the highest rates in Belconnen West (17.3%), and Tuggeranong North West and Tuggeranong South East (both 15.0%), and the lowest in Woden North (6.2%) and Woden South (8.0%).

### Remoteness

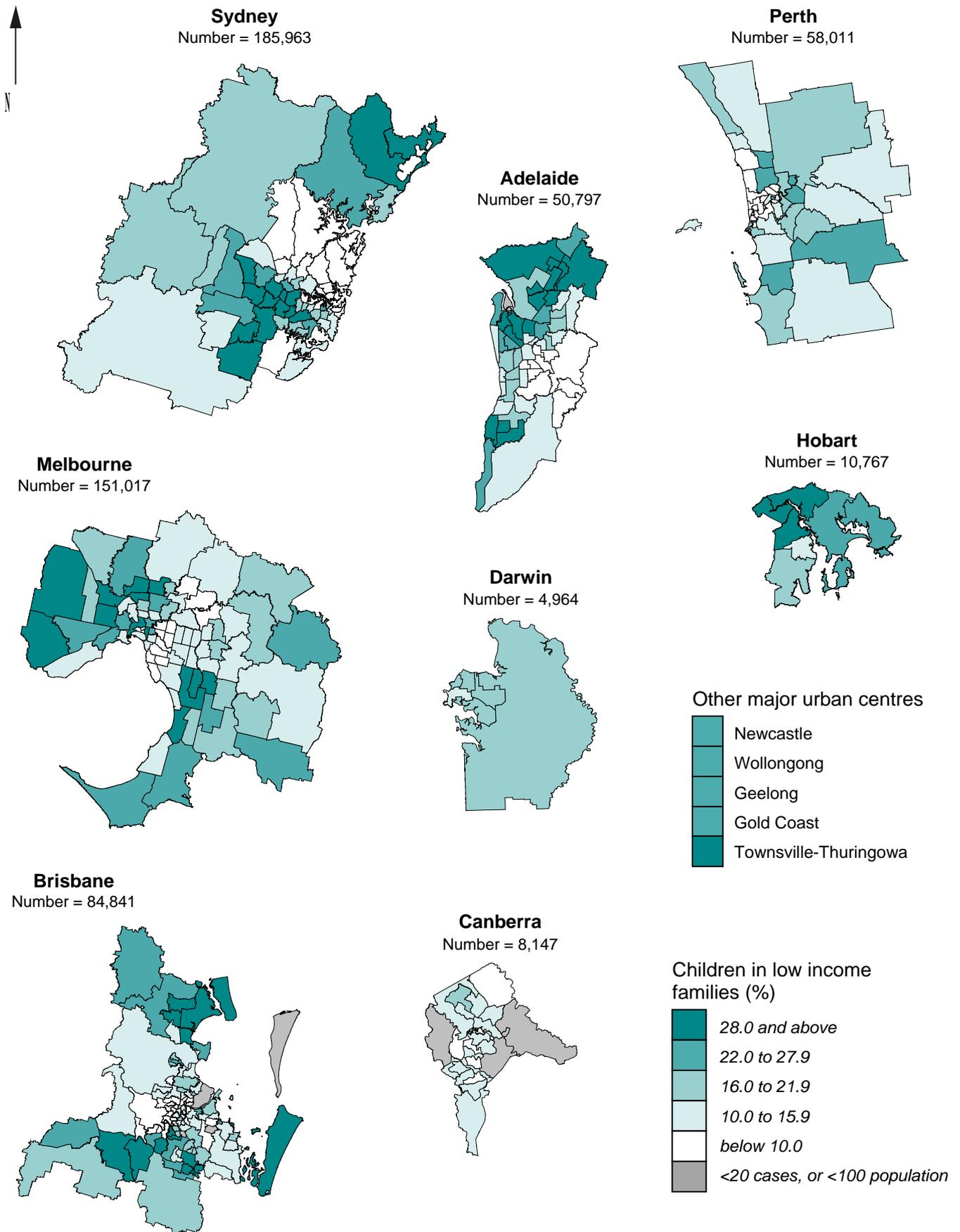
There is a clear gradient in the proportion of children in low income families when viewed by remoteness, increasing from 19.7% in the Major Cities to 24.0% to 26.0% in the middle remoteness classes, before increasing substantially, to 33.3%, in the Very Remote areas.

**Figure 8: Children in low income, welfare-dependent families, by remoteness, 2011**



# Map 7: Children in low income, welfare-dependent families, major urban centres, June 2011

per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by Centrelink

## Children in low income, welfare-dependent families, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 9: Children in low income, welfare-dependent families, by State/ Territory, Australia, June 2011**

| <i>Per cent</i>  |      |      |      |      |      |      |      |      |       |
|------------------|------|------|------|------|------|------|------|------|-------|
| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT  | Total |
| Non-metropolitan | 26.1 | 24.2 | 23.8 | 23.9 | 23.2 | 27.0 | 34.9 | ..   | 24.9  |
| Total            | 22.5 | 20.7 | 21.8 | 23.0 | 18.6 | 26.4 | 26.3 | 11.7 | 21.5  |

### Non-metropolitan areas

By far the highest proportion of children in low income families was recorded in the non-metropolitan area of the Northern Territory (34.9%), with the next highest rates in Tasmania (27.0%) and New South Wales (26.1%). In all States and the Northern Territory, rates were higher in the non-metropolitan areas than in the capital cities.

In 2011, a number of SLAs across the north of **New South Wales** had above-average proportions of children in low income families; the highest of these were in Brewarrina (48.8%), Walgett (47.9%), Coonamble (47.7%), Kempsey (45.4%) and Wellington (43.0%). Central Darling (41.7%), Nambucca (41.1%) and Bourke (40.6%) had similarly high proportions. The SLAs of Palerang - Part A, Yass Valley, Queanbeyan and Snowy River, in the south east, and Kiama on the coast, recorded the lowest proportions, with fewer than 14% of children in this category.

The majority of areas across **Victoria** are mapped in the lowest three classes, with proportions below 30%. The highest proportions of children in low income families were recorded in the SLAs of Latrobe - Morwell (43.6%) and - Moe (36.1%), Yarra Ranges - Part B (42.5%), Central Goldfields - Maryborough (40.2%) and Balance (37.9%), Greater Bendigo - Eaglehawk (40.1%), Corio - Inner (35.0%), Loddon - South (34.9%), Greater Shepparton - Part A (33.5%) and Swan Hill - Robinvale (33.0%).

Some of the highest proportions of children in low income families were recorded in the non-metropolitan areas of **Queensland**, with more than half of the children in Burke (86.2%), Woorabinda (69.1%), Etheridge (66.3%), Mount Morgan (59.7%), New Mapoon (57.7%), Murgon (54.1%), Lockhart River (53.6%), Boigu (51.7%) and Cairns - City (50.6%) living in these families. A cluster of SLAs south-west of Mackay recorded proportions below 14%.

Coober Pedy (53.5%) and Peterborough (50.7%) recorded the highest rates of children in welfare-dependent, low income families in the non-metropolitan areas of **South Australia**. The next

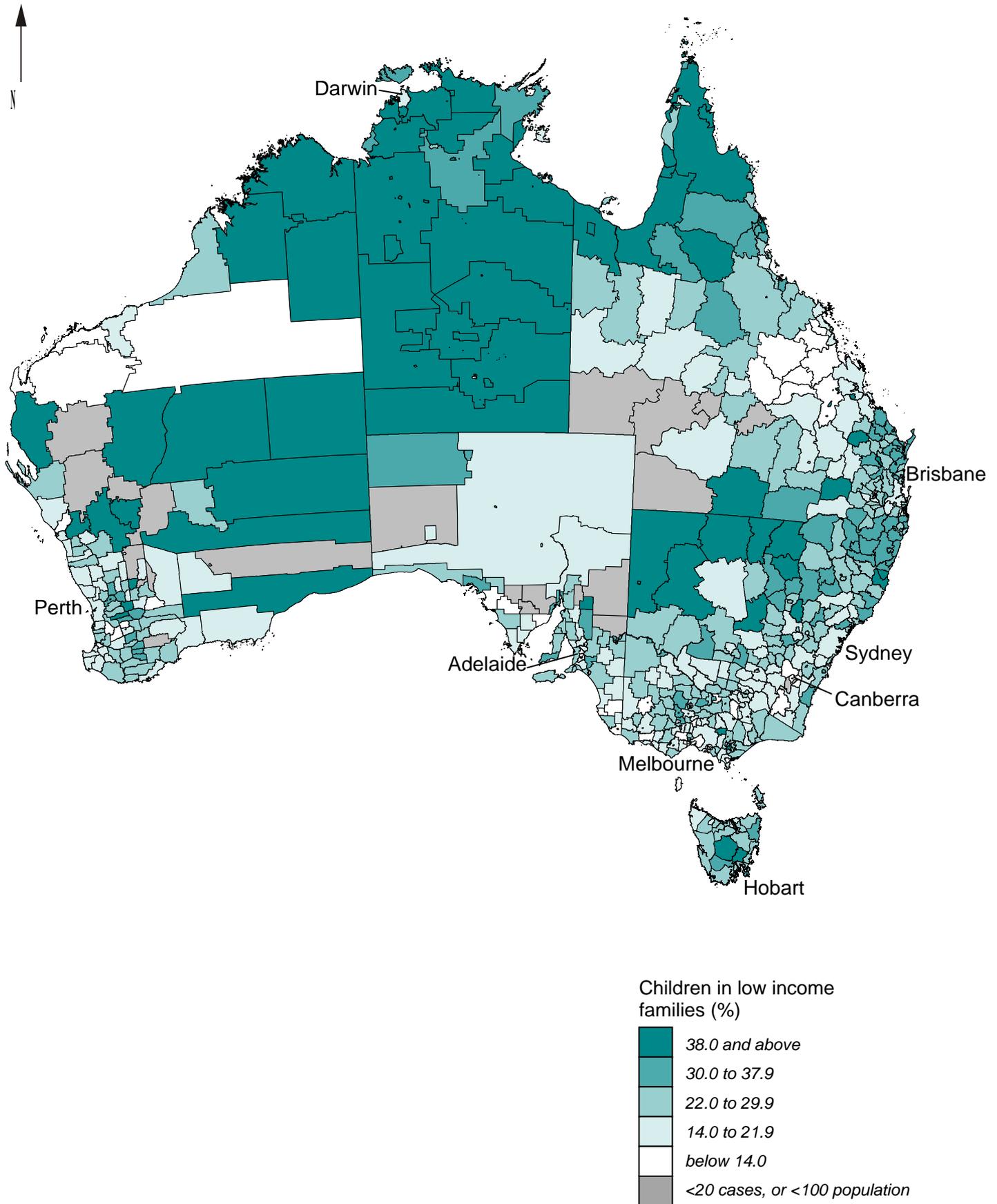
highest rates were in Whyalla (36.3%), Port Augusta (36.1%) and Port Pirie Central Districts - City (35.3%). Other than Murray Bridge (33.6%), other areas with rates of 30% or higher were largely in the north and far west of the State. Few children in Roxby Downs (4.4%) were living in families with low incomes, with rates below 14% also in a number of areas to the east of Adelaide, in the south-east and along the Eyre Peninsula.

Many of the more remote non-metropolitan areas of **Western Australia** recorded high proportions of children in low income families, with proportions of 50% or more recorded in the SLAs of Meekatharra (88.4%), Yalgoo (79.0%), Mount Magnet (61.7%), Mullewa (58.6%), and Halls Creek (50.0%). High rates were also recorded in Laverton (48.6%), Trayning (48.5%), Ngaanyatjarraku (47.2%), Derby-West Kimberley (45.6%), Menzies (44.6%), Wiluna (44.1%), Dundas (42.9%) and Wyndham-East Kimberley (40.1%). The lowest rate was recorded in Ashburton (8.6%), just north of Exmouth, with rates below 12% in Dardanup - Part B, Capel - Part A, Cuballing and Chapman Valley.

The SLAs of Central Highlands (48.6%), George Town - Part A (42.1%) and Southern Midlands (41.0%) recorded the highest proportions of children living in low income families in **Tasmania**. The SLAs of Tasman, Devonport, Burnie - Part A, Break O'Day and Derwent Valley - Part B were in the next highest grouping, with rates of 30% to 33%. The lowest rate was recorded in King Island (13.3%) followed by George Town - Part B (14.9%).

As suggested by the overall high proportion of children in low income, welfare-dependent families in the **Northern Territory**, the majority of SLAs were mapped in the highest range: the highest of these was in Coomalie (83.5%), Petermann-Simpson (76.5%), Cox Peninsula (71.4%), Ltyentye Purte, Watiyawanu and Tapatjatjaka (all 55.6%), Tanami (54.7%) and Sandover (51.3%), with another six SLAs having rates around 50%. The lowest rates were recorded in the SLAs of Groote Eylandt, Jabiru and Alice Springs - Larapinta.

Map 8: Children in low income, welfare-dependent families, Australia, June 2011  
 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by Centrelink

## Children in families where the mother has low educational attainment, capital cities

*Strong relationships between education and health outcomes exist in many countries, favouring the survival and health of children born to educated parents, especially mothers; but the pathways are culturally and historically complex and vary between and within countries.<sup>37-39, 136</sup> A lack of successful educational experiences of parents may lead to low aspirations for their children; and may be related to parents' attitudes, their ability to manage the complex relationships which surround a child's health and education, and their capacity to control areas of their own lives.<sup>40-42,136</sup>*

**Indicator definition:** Children aged less than 15 years living in families where the female parent's highest level of schooling was year 10 or below, or where the female parent did not attend school, as a proportion of all children aged less than 15 years.

**Table 10: Children in families where the mother has low educational attainment, by capital city, 2011**

| Per cent |           |          |          |       |        |        |          |       |
|----------|-----------|----------|----------|-------|--------|--------|----------|-------|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
| 22.8     | 15.2      | 21.2     | 17.1     | 21.9  | 30.9   | 23.3   | 14.4     | 19.8  |

### Capital cities

In 2011, the proportion of children aged less than 15 years living in families where the mother had low educational attainment was highest in Hobart (30.9%) and lowest in Canberra (14.4%) and Melbourne (15.2%). Of note is the marked decline in these proportions since the 2006 Census, down by 16% in Darwin, 17% in Adelaide, and by 25% and over in the other capital cities. There is a strong to very strong association at the SLA level with socioeconomic disadvantage (see Section 7).

In **Sydney**, high proportions in this population group were recorded in the outer north, in Wyong - North-East (44.5%) and - South and West (39.9%), Hawkesbury (38.4%), and Gosford - West (34.6%); and in the west and south-west, in Fairfield - East (38.8%), Penrith - East (38.6%) and - West (34.6%), Wollondilly (37.7%), Campbelltown - South (36.6%) and - North (33.4%), Blacktown - South-West (35.1%) and Parramatta - South (33.6%). The lowest proportions were in inner areas.

In **Melbourne**, high rates for this population group were found in the SLAs of Hume - Broadmeadows (33.3%), Greater Dandenong Balance (30.8%) and - Dandenong (28.9%), Cardinia - South (29.4%), Brimbank - Sunshine (27.3%) and Melton Balance (27.1%). Several inner eastern areas had low proportions.

In **Brisbane**, the highest proportions were recorded east of the city, in Pinkenba-Eagle Farm (39.1%); in the outer north-east, in Caboolture - Central (37.6%), - Hinterland (35.1%) and - East (33.7%), Morayfield (37.1%) and Deception Bay (34.7%); and with high rates also in the south and south-west, in Ipswich - West (36.9%) and Central (33.1%), Stretton-Karawatha/Kingston (36.7%), and Redland Balance (35.8%).

In **Adelaide**, the highest proportions of this population group were recorded in the outer north, in Playford - Elizabeth (40.9%) and - West Central (36.3%). A large cluster of eastern and inner southern SLAs had low rates.

The highest proportions in Perth were recorded to the south, in Kwinana (34.1%) and Serpentine-Jarrahdale (32.8%). The lowest proportions were in a cluster of inner city SLAs.

In **Hobart**, proportions were high, with 47.9% in Derwent Valley - Part A, 45.2% in Brighton, 39.6% in Sorell - Part A and 39.4% in Glenorchy.

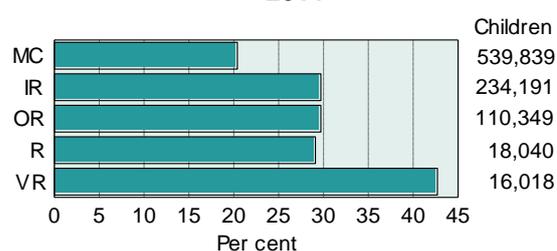
The proportion of children in families with mothers with low educational attainment in **Darwin** ranged from 17.2% in Darwin South West, to 27.9% in Litchfield - Part A.

Rates in **Canberra** were generally lower, with by far the highest rate recorded in the Eastern Fringe (33.3%). Rates were lowest in Woden North and Canberra Central.

### Remoteness

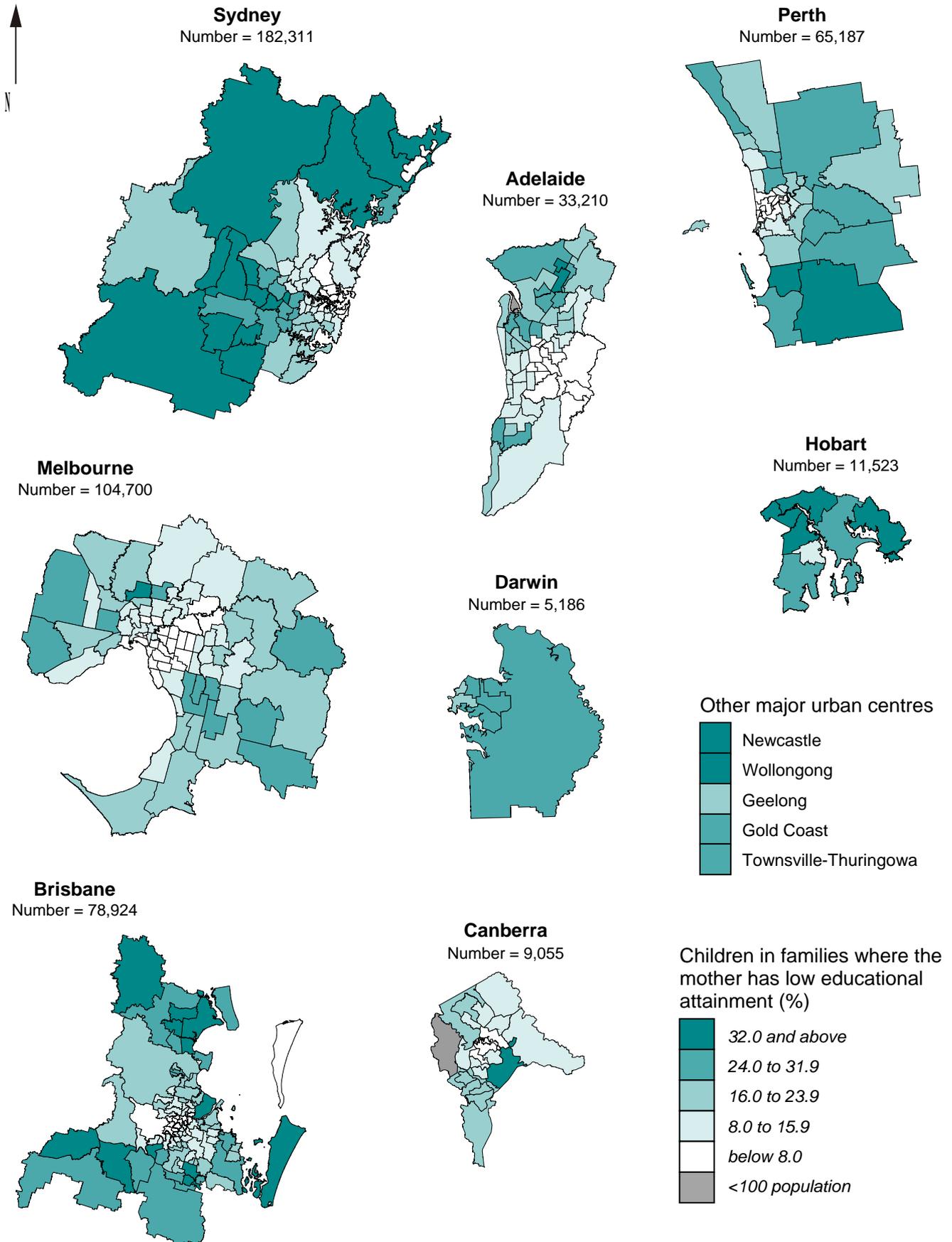
The highest proportion of children in these families (42.7%) was in the Very Remote areas, with proportions of around 30.0% in the Inner and Outer Regional, and Remote classes, and 20.4% in the Major Cities areas.

**Figure 9: Children in families where the mother has low educational attainment, by remoteness, 2011**



# Map 9: Children in families where the mother has low educational attainment, major urban centres, 2011

per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data from ABS 2011 Census

## Children in families where the mother has low educational attainment, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 11: Children in families where the mother has low educational attainment, by State/ Territory, Australia, 2011**

| <i>Per cent</i>  |      |      |      |      |      |      |      |      |       |
|------------------|------|------|------|------|------|------|------|------|-------|
| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT  | Total |
| Non-metropolitan | 36.0 | 22.0 | 27.9 | 20.1 | 30.7 | 41.9 | 47.5 | 25.0 | 30.0  |
| Total            | 27.6 | 17.0 | 24.9 | 17.9 | 24.3 | 37.3 | 35.1 | ..   | 23.5  |

### Non-metropolitan areas

The highest proportions of children aged less than 15 years in families where the mother had low educational attainment were in the non-metropolitan areas of the Northern Territory (47.5%) and Tasmania (41.9%), with the lowest in South Australia (20.1%) and Victoria (22.0%).

The proportions in the non-metropolitan areas were higher than those in the capital cities. Although the decline in these proportions since the 2006 Census is less than in the capital cities, it is still notable, ranging from 24% (Queensland) to 12% (South Australia).

In **New South Wales**, the highest proportions were in SLAs in the far west in Central Darling (55.2%), Brewarinna (53.4%) and Broken Hill (50.9%); to the north of Sydney, in Richmond Valley Casino (51.0%), Cessnock (49.5%), Greater Taree and Kempsey (both 45.7%), Clarence Valley Balance (44.8%) and Mid-Western Regional - Part B (44.3%) and Great Lakes (44.0%); and just west of Sydney, in Lithgow (45.0%). The lowest proportions were in SLAs in the south of the State, in Jerilderie, Palerang - Part A and Snowy River; and in the north, in Armidale Dumaresq Balance.

The rates in non-metropolitan **Victoria** were generally low, with the highest proportions of children in families where the mother had low educational attainment in the third highest map range. Areas with the highest proportions included Greater Bendigo - Eaglehawk (35.7%), Latrobe - Morwell (34.7%) and - Moe (32.7%), and Northern Grampians - St Arnaud (30.1%). The lowest proportions, of below 12%, were in the south and south coastal areas of Newtown, Queenscliffe, and Surf Coast - East; and just north of Melbourne, in Macedon Ranges Balance.

Children in these families in non-metropolitan **Queensland** were generally located in the far north and in other scattered areas across the State. SLAs with proportions above 50% included Doomadgee (76.0%), Pormpuraaw (74.5%), Aurukun (68.7%), Boulia (63.7%),

Cherbourg (63.2%), Woorabinda (60.9%), Lockhart River (57.0%), Palm Island (54.8%), Boigu (53.1%), Kowanyama (52.5%), Mornington (51.4%) and Yarrabah (50.2%). Proportions below 15% were recorded in Poruma, Diamantina, Hammond, Warraber and Tambo.

There were relatively few of these children in **South Australia**, and proportions at the SLA level were below 35%, except in Unincorporated Riverland (79.2%), Anangu Pitjantjatjara (73.3%) and Unincorporated Whyalla (63.2%), areas with relatively large Indigenous populations. Low proportions were recorded for many SLAs in the south-east, to the north and east of Adelaide, and on the Yorke and Eyre Peninsulas. Areas with the lowest proportions, of below 12%, included Robe, Kimba, Cleve, Tumbay Bay and Elliston.

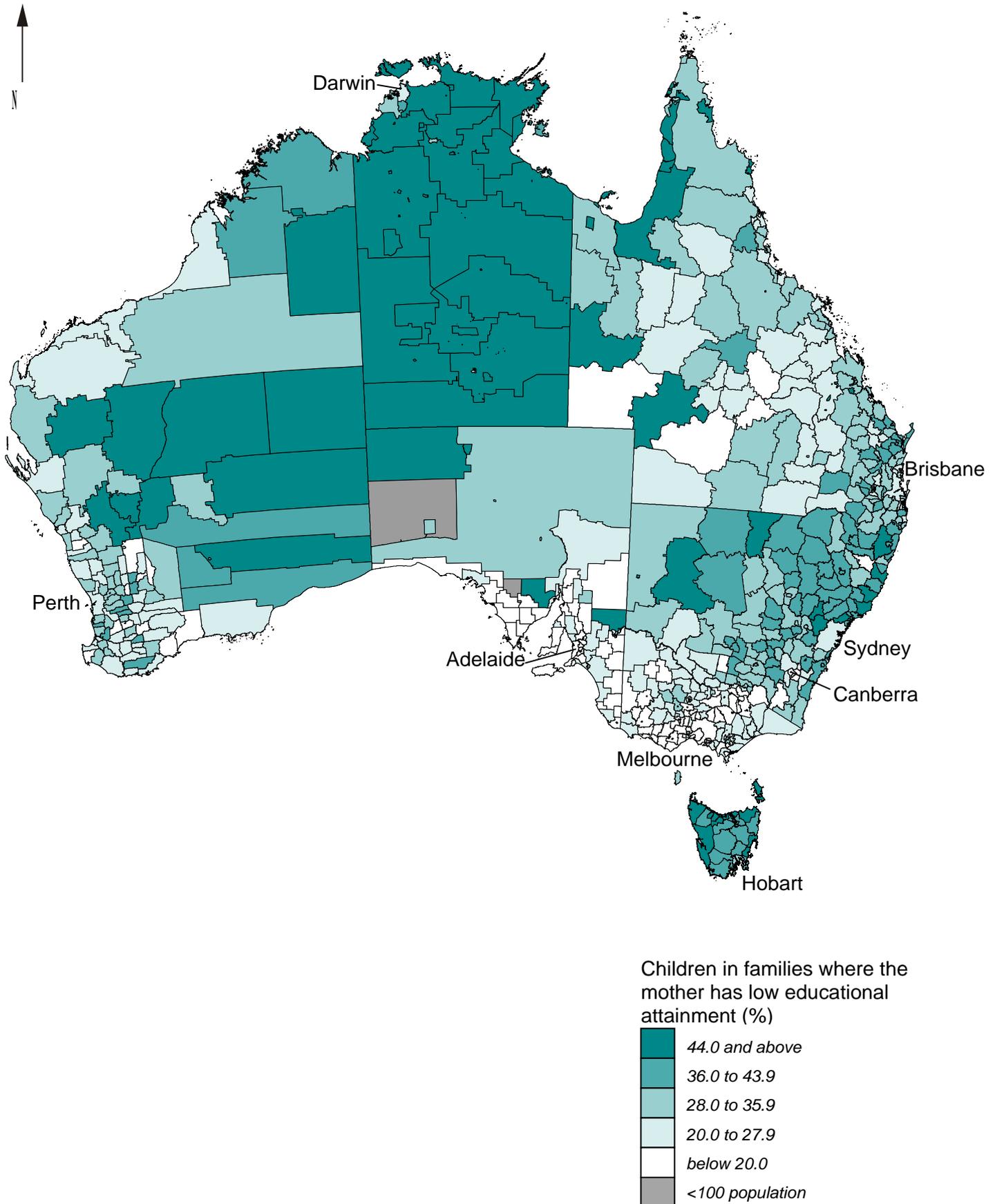
Non-metropolitan areas in **Western Australia** with the highest proportions of the population aged less than 15 years in families where the mother had low educational attainment were Sandstone (75.0%), Laverton (71.3%), Ngaanyatjarraku (66.3%), Upper Gascoyne (61.2%), Mount Magnet (50.4%) and Wiluna (50.0%), in central Western Australia; and Halls Creek (58.4%), in the far north. The lowest proportions were generally found in SLAs in the south-west of the State.

Proportions were high in **Tasmania**, with the highest being in the coastal areas of Burnie - Part B (51.2%), Glamorgan/Spring Bay (50.0), West Coast (48.8%), Kentish (48.1%), Latrobe - Part A (47.9%) and - Part B (47.6%), George Town - Part B (47.8%) and - Part A (46.3%), Dorset (47.3%) and Devonport (46.5%).

In the **Northern Territory**, proportions above 70.0% were recorded in Belyuen (83.3%), Alpurrurulam (72.3%); Tennant Creek - Balance, Tableland and Elliott District (all 72.3%); Tapatjatjaka, Ltyentye Purte and Watiyawanu (all 72.2%); Sandover (71.5% and Tanami (70.7%). The lowest proportions, of below 30.0%, were recorded in Nhulunbuy (the lowest, with 18.4%), all the Alice Springs SLAs and Jabiru.

# Map 10: Children in families where the mother has low educational attainment, Australia, 2011

per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data from ABS 2011 Census

## The Australian Early Development Index, capital cities

The Australian Early Development Index (AEDI) program collects information on Australian children in their first year of full-time school, using a teacher-completed checklist. The results from the AEDI provide communities and schools with information about how local children are faring by the time they start school, across five areas of early childhood development: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), and communication skills and general knowledge.<sup>43</sup>

**Indicator definition:** AEDI results are presented in this report as the proportion of children assessed who are considered to be 'developmentally vulnerable' (score in the lowest 10%) on one or more domains.

**Table 12: Children assessed as being developmentally vulnerable on one or more domains, by capital city, 2009**

| Per cent |           |          |          |       |        |        |          |       |
|----------|-----------|----------|----------|-------|--------|--------|----------|-------|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
| 20.9     | 20.1      | 29.3     | 23.0     | 23.5  | 20.8   | 25.3   | 22.3     | 22.5  |

### Capital cities

The proportion of children assessed as being developmentally vulnerable on one or more domains under the AEDI varied little between capital cities, other than Brisbane (29.3%) and Darwin (25.3%). With the exception of Canberra, where the association was weak, there is a strong to very strong association at the SLA level with socioeconomic disadvantage (see Section 7).

The distribution in **Sydney** of children with these characteristics was strongly associated with socioeconomic disadvantage, with above-average proportions in Sydney - Inner (32.8%) and in western SLAs, including Fairfield - East (31.9%), Blacktown - South-West (31.2%), Auburn (30.8%), Bankstown North-East (30.8%) and North-West (28.7%), Parramatta - Inner (29.6%), and Strathfield (29.4%). The lowest proportions were found in the SLAs on the north shore.

There was a similarly strong association with socioeconomic disadvantage in **Melbourne**, with high proportions in SLAs in the inner city and to the west, north and south-east of the city centre, including Hume - Broadmeadows (40.3%), Greater Dandenong - Dandenong (31.5%) and Balance (33.8%), and Casey - Cranbourne (31.8%) and - Hallam (30.9%).

A cluster of areas in the outer south of **Brisbane** recorded high proportions of children in this category, the highest being in Marsden (50.1%), Stretton-Karawatha/Kingston (48.8%), Logan Balance (46.2%), Rocklea (43.8%) and Inala/Richlands (42.4%), the four highest capital city rates.

In **Adelaide**, the distribution of children in this category showed a very strong socioeconomic pattern, with high proportions in the outer north, in Playford - Elizabeth (43.5%) and Salisbury - Inner North (37.3%); north-west, in Port Adelaide Enfield - Inner (39.1%); and the outer south, in Onkaparinga North - Coast (39.4%).

In **Perth**, the distribution was similar to that of the IRSD, with the highest proportions of children considered to be developmentally vulnerable on one or more domains under the AEDI in Kwinana (32.5%); Belmont (32.3%), Stirling - Central (31.8%), Armadale (30.9%) and Bassendean (30.7%). Areas surrounding the city centre recorded the lowest proportions.

Derwent Valley - Part A recorded the highest proportion (36.2%) of children in this category in **Hobart**. Rates below 20% were recorded in Hobart - Remainder, Kingborough - Part A, and Sorell - Part A.

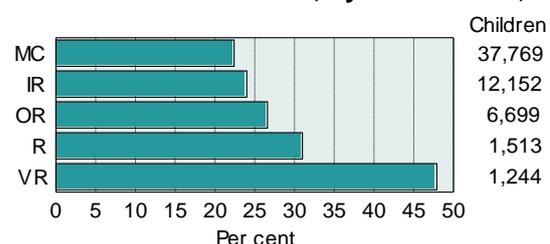
Darwin North West (30.6%), Darwin North East (30.4%) and Litchfield - Part B (29.5%) had the highest proportions of children in this category in **Darwin**. Darwin South West had the lowest (12.2%).

Woden Central (28.2%), Weston Creek (27.9%), Belconnen Balance (27.5%) and Tuggeranong North West (27.3%) recorded the highest proportions of children in this category in **Canberra**. The lowest proportions were recorded in the central areas of Canberra South, and Woden South and North.

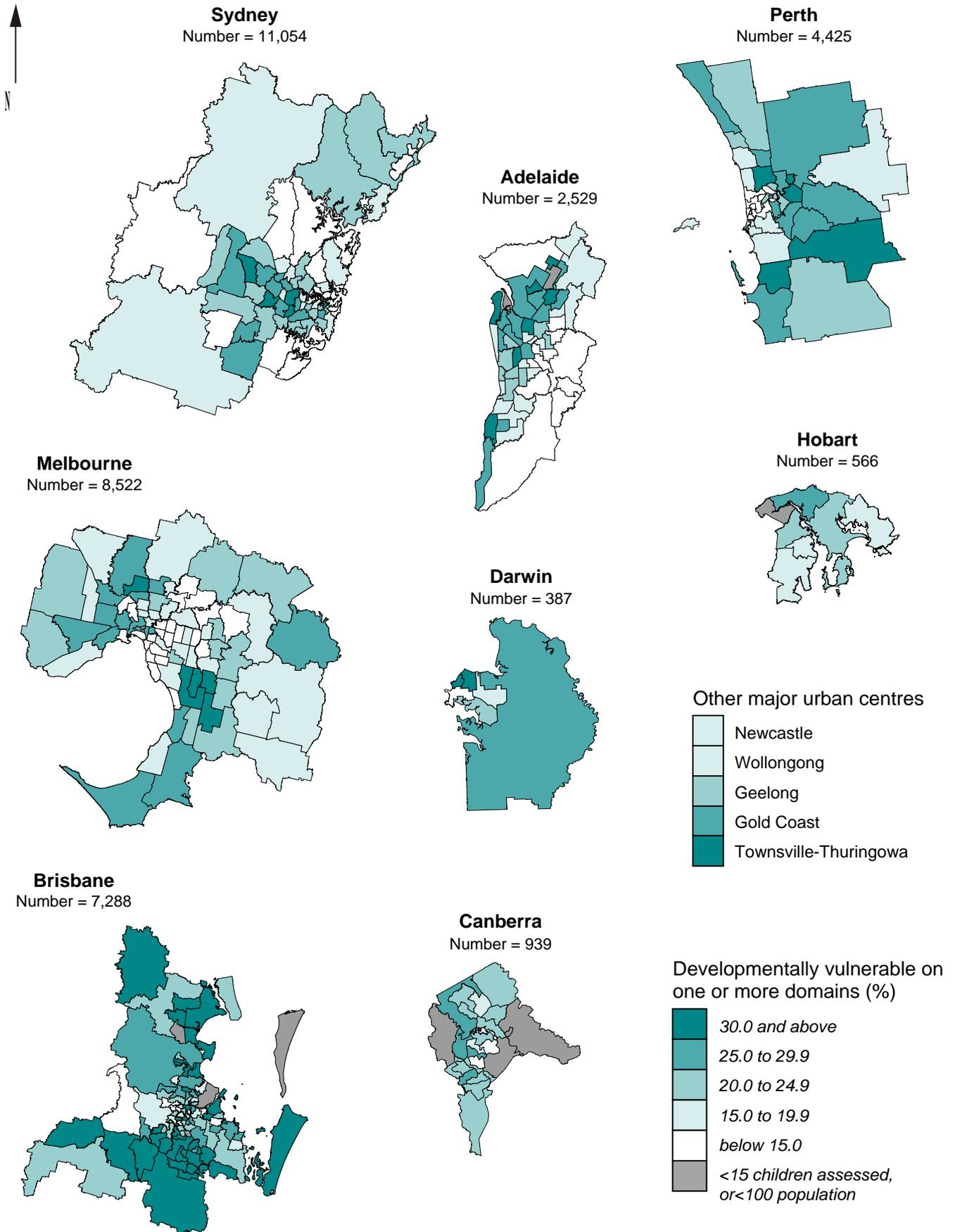
### Remoteness

The proportion of children assessed as being developmentally vulnerable on one or more domains under the AEDI increases steadily over the first four remoteness classes, before increasing substantially in the Very Remote areas.

**Figure 10: Children developmentally vulnerable on one or more domains, by remoteness, 2009**



Map 11: The Australian Early Development Index - children assessed as being developmentally vulnerable on one or more domains, major urban centres, 2009 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by DEEWR/ RCH

## The Australian Early Development Index, Australia

**Notes:** See comments on previous text page for details of this indicator. ‘Non-metropolitan’ refers to the area of the State or Territory outside of the capital city. ‘Total’ refers to the whole State or Territory.

**Table 13: Children assessed as being developmentally vulnerable on one or more domains, by State/ Territory, Australia, 2009**

| <i>Per cent</i>  |      |      |      |      |      |      |      |      |       |
|------------------|------|------|------|------|------|------|------|------|-------|
| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT  | Total |
| Non-metropolitan | 22.1 | 20.8 | 30.1 | 22.6 | 27.7 | 22.7 | 56.8 | ..   | 25.4  |
| Total            | 21.3 | 20.3 | 29.7 | 22.9 | 24.8 | 21.9 | 40.7 | 22.3 | 23.6  |

### Non-metropolitan areas

Overall, one quarter of the children in the non-metropolitan areas of Australia assessed under the AEDI were considered to be developmentally vulnerable on one or more domains, with the highest proportion in the Northern Territory, where over half of the children were in this category (56.8%).

SLAs with high proportions of children developmentally vulnerable on one or more domains were scattered throughout inland areas of **New South Wales**, with more than 35% of children in Central Darling (61.1%), Wellington (43.3%), Dubbo - Part B (40.0%), Bourke (37.0%), Moree Plains (36.3%) and Parkes (35.1%) in this category. Areas with lower proportions were located throughout the State, in particular along the southern border.

There were two main concentrations of SLAs with high proportions of developmentally vulnerable children in **Victoria**, with low proportions predominant throughout much of the State. Proportions of 34% or above were recorded in the north-eastern area of Central Goldfields - Maryborough (39.8%), and in the north-western areas of Loddon - South (39.4%), Swan Hill - Robinvale (39.1%), Yarriambiack - South (34.6%), and Mildura - Part B (34.5%).

There was wide variation between SLAs in the non-metropolitan areas of **Queensland**, with proportions ranging from 100% in Injinoo to 4.8% in Flinders. More than three quarters of children assessed in Naparanum, Yarrabah, Boigu, Mornington, Palm Island, Lockhart River and Erub were considered developmentally vulnerable on one or more domains. Low proportions were recorded in SLAs near Brisbane, along the coast and in a block inland from Mackay.

A relatively large number of SLAs in the non-metropolitan areas of **South Australia** were not mapped due to the small numbers of children assessed. Of the areas mapped, those with the

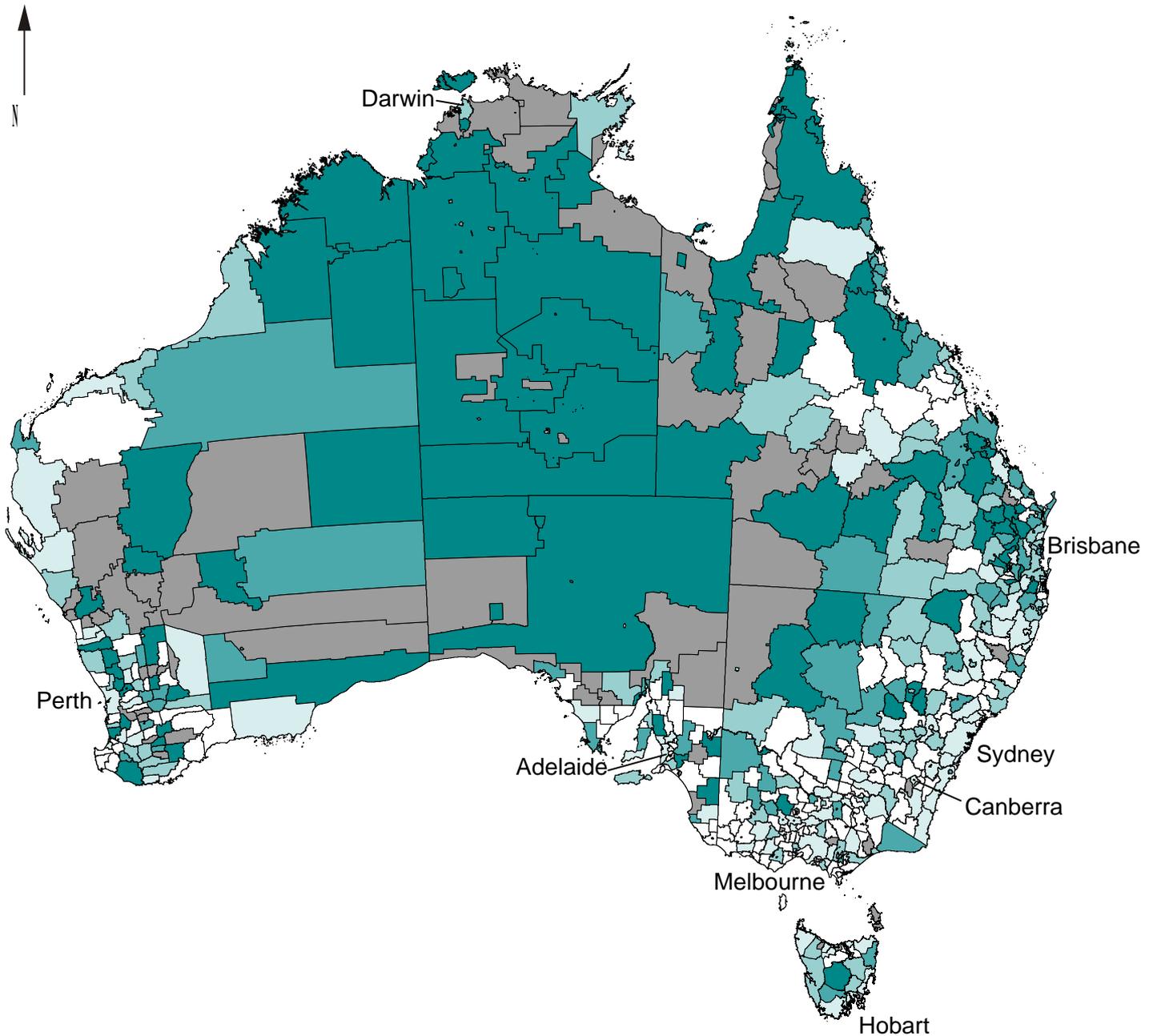
highest proportions of children considered to be developmentally vulnerable on one or more domains under the AEDI were recorded in the far northern areas of Anangu Pitjantjatjara (73.7%), Unincorporated Far North (38.3%); and in Orroroo/Carrieton (41.2%), Whyalla (40.2%) and Loxton Waikerie - East (40.0%). Roxby Downs recorded the lowest proportion of children in this category (5.6%).

In the non-metropolitan areas of **Western Australia**, many SLAs were also not mapped due to the small numbers of children assessed. At least half of the children assessed in Ngaanyatjarraku (78.3%), Meekatharra (68.4%), Mount Marshall (66.7%), Halls Creek (61.5%), Dumbleyung (57.9%), Toodyay (54.2%), Katanning (52.3%), Derby-West Kimberley (50.0%) and Boddington (50.0%) were considered developmentally vulnerable on one or more domains. SLAs with the lowest proportions were almost exclusively in the more populous south-west of the State.

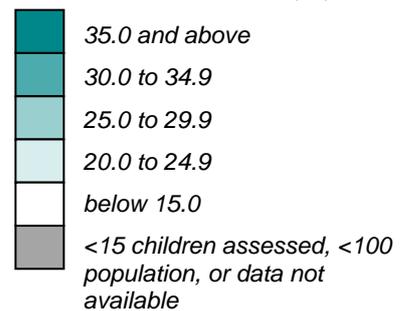
The highest proportions of children considered developmentally vulnerable on one or more domains under the AEDI in **Tasmania** were in the northern areas of George Town - Part A (40.0%), and Break O’Day (34.5%); and the central areas of Central Highlands (36.7%) and Derwent Valley - Part B (34.0%). Kingborough, Waratah/Wynyard - Part A, Launceston - Part C and Tasman had less than 15% of children in this category.

The majority of the small, community-based SLAs in the **Northern Territory** could not be mapped due to the small numbers of children assessed. However, more than 80% of the children assessed in Thamarrurr (92.3%), Tanami (91.7%), Tennant Creek - Balance (89.1%), Lajamanu (83.3%), and Hanson (82.1%), were considered vulnerable on one or more domains. The SLAs with proportions below the Territory’s average were Groote Eylandt and Alice Springs - Heavitree.

Map 12: The Australian Early Development Index - children assessed as being developmentally vulnerable on one or more domains, Australia, 2009  
 per cent by Statistical Local Area/ Statistical Local Area group



Developmentally vulnerable on one or more domains (%)



Source: Compiled in PHIDU based on data supplied by DEEWR/ RCH

## Women smoking during pregnancy, capital cities

*Maternal smoking during pregnancy carries a higher risk of adverse outcomes for the baby before and after delivery, which include premature birth, miscarriage and perinatal death, poor intra-uterine growth and Sudden Infant Death Syndrome (SIDS).<sup>44</sup> Other problems include a higher risk of disability and developmental delay, decreased lung function, and increased respiratory illness, which may affect children through to adulthood.<sup>45</sup>*

**Indicator definition:** Women who reported that they smoked during a pregnancy, as a proportion of the number of pregnancies, over the time period (three years).

**Table 14: Women smoking during pregnancy, by capital city, 2006 to 2008**

| Per cent |           |          |          |       |        |        |           |                    |  |
|----------|-----------|----------|----------|-------|--------|--------|-----------|--------------------|--|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra* | Total <sup>#</sup> |  |
| 8.8      | n.a.      | n.a.     | 14.7     | 13.4  | 25.7   | 20.5   | 13.3      | 11.3               |  |

\* The figures for Canberra are for the years, 2005 to 2007.

<sup>#</sup> The 'Total' excludes data for Melbourne and Brisbane.

### Capital cities

Over the period from 2006 to 2008, 11.3% of pregnant women living in the capital cities, for which data were available, reported smoking during pregnancy. Proportions varied greatly between the capital cities, from 8.8% in Sydney to 25.7% in Hobart.

The correlation analysis showed a strong association at the SLA level between women smoking during pregnancy and socioeconomic disadvantage in **Sydney**. SLAs with a high proportion of women smoking during pregnancy were located to the west and south-west of the city centre, in Campbelltown - North and - South, and Blacktown - South-West; high proportions were also evident in the outer north, in Wyong and Gosford. The lowest proportions were in a group of high SES areas, from Ku-ring-gai in the north, through the city and eastern suburbs, to Sutherland Shire - East in the south.

Data for **Melbourne** and **Brisbane** were not available.

The distribution in **Adelaide** of women smoking during pregnancy has a very strong association with socioeconomic disadvantage, with the highest proportions recorded in SLAs in the outer north (42.9% in Playford - Elizabeth and 42.0% in Playford - West Central, the second and third highest capital city rates) and south (Onkaparinga - North Coast, 30.3% and - Hackham, 28.7%). The lowest proportions were in the east, south and south-east.

The correlation analysis showed a strong association at the SLA level between women smoking during pregnancy and socioeconomic disadvantage in **Perth**. The highest proportions were recorded in the outer southern SLAs of Kwinana (28.5%) and Rockingham (21.8%), and the south-eastern SLAs of Armadale (24.9%) and Gosnells (21.6%). No women in Peppermint

Grove, Perth - Inner or Fremantle - Inner were recorded as smoking during their pregnancy.

Very high proportions of women smoking during pregnancy were recorded across much of Hobart, with the highest in Brighton (47.1%, the highest capital city rate), Derwent Valley (36.2%) and Glenorchy (33.2%) (the third and fourth highest).

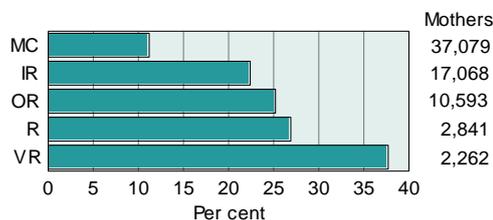
All but one area (Darwin South West) in **Darwin** had more than 18% of women smoking during pregnancy, with the highest proportion in Litchfield - Part B (23.5%).

In **Canberra**, with proportions of above 18% recorded in Tuggeranong South East and North West, Kambah and Eastern Fringe, the correlation analysis showed a moderate association at the SLA level between women smoking during pregnancy and socioeconomic disadvantage. The lowest proportions were found in Kowen and Majura, Weston Creek, Woden North and South, and Gungahlin.

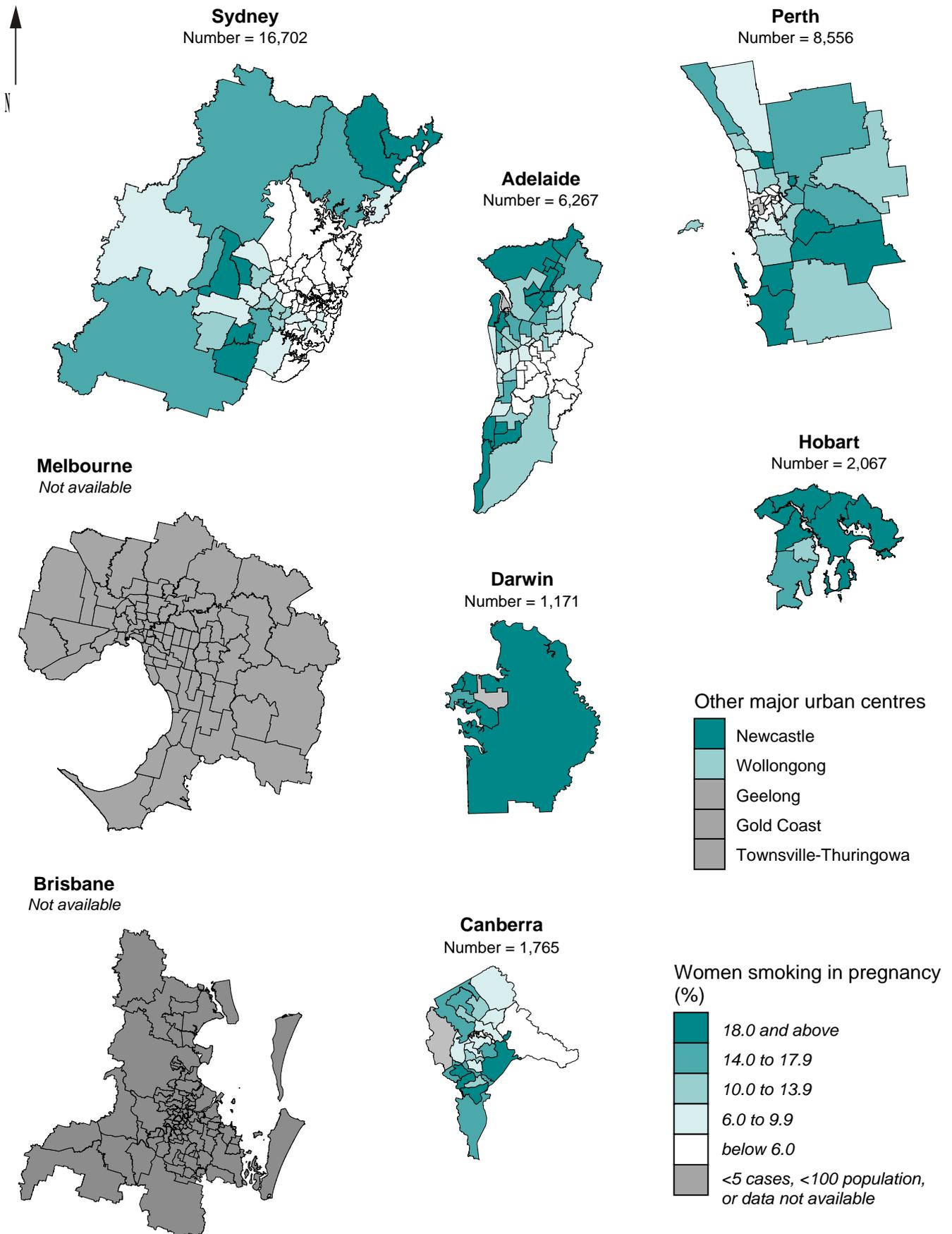
### Remoteness

The proportion of women smoking during pregnancy increased substantially with increasing remoteness, from 11.2% in the Major Cities areas to 37.7% in the Very Remote class. The higher smoking rates reported by Indigenous women are reflected in these figures; data for Australia, excluding Victoria and Queensland, showed smoking rates among Indigenous women during their pregnancy were around 50.0%, compared with 13.4% for non-Indigenous women.

**Figure 11: Women smoking during pregnancy, by remoteness, 2006 to 2008**



Map 13: Women smoking during pregnancy, major urban centres, 2006 to 2008 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by State and Territory health authorities

## Women smoking during pregnancy, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 15: Women smoking during pregnancy, by State/ Territory, Australia, 2006 to 2008**

*Per cent*

| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT* | Total# |
|------------------|------|------|------|------|------|------|------|------|--------|
| Non-metropolitan | 22.0 | n.a. | n.a. | 22.4 | 24.3 | 29.3 | 34.8 | ..   | 23.4   |
| Total            | 13.0 | n.a. | n.a. | 16.8 | 16.4 | 27.7 | 27.3 | 13.3 | 15.0   |

\* The figures for the Australian Capital Territory are for the years 2005 to 2007.

# The 'Total' excludes data for Victoria and Queensland.

### Non-metropolitan areas

In the non-metropolitan areas of Australia, almost a quarter of women smoked during pregnancy, with the highest proportions recorded in the Northern Territory (34.8%) and Tasmania (29.3%), and the lowest in New South Wales (22.0%) and South Australia (22.4%).

Note that, although the data are self-reported, the authors believe that data from this source, based on information collected by midwives, are among the most reliable, in particular for the Indigenous population. However, the accuracy of the data at the SLA and community level is less reliable, due to the extent of movement across the country by Aboriginal and Torres Strait Islander women to give birth.

In the non-metropolitan areas of **New South Wales**, high proportions of women smoking during pregnancy were distributed throughout much of the State, with the highest rates in the north, north-west and north-east (in Central Darling, 57.7% and Brewarrina, 47.6%). High proportions were also recorded in a number of towns, including Queanbeyan, Broken Hill, Grafton and Casino. The lowest proportions were largely recorded in southern SLAs, including Kiama, Snowy River, and Wagga Wagga - Part B. Balranald, Greater Hume Shire - Part A, Albury and Wentworth had no cases recorded over this period.

Data for **Victoria** and **Queensland** were not available.

The towns and areas in non-metropolitan **South Australia** with the highest proportions of women smoking during pregnancy were in the far west of the State, in Unincorporated West Coast (48.8%) and Ceduna (41.1%); and in the north, in Peterborough (42.3%), Port Augusta (41.0%), Coober Pedy (49.2%) and Anangu Pitjantjatjara (37.5%). Below average proportions were recorded in areas surrounding Adelaide, in Tanunda, and Adelaide Hills - North and Balance; on the Eyre Peninsula, in Le Hunte,

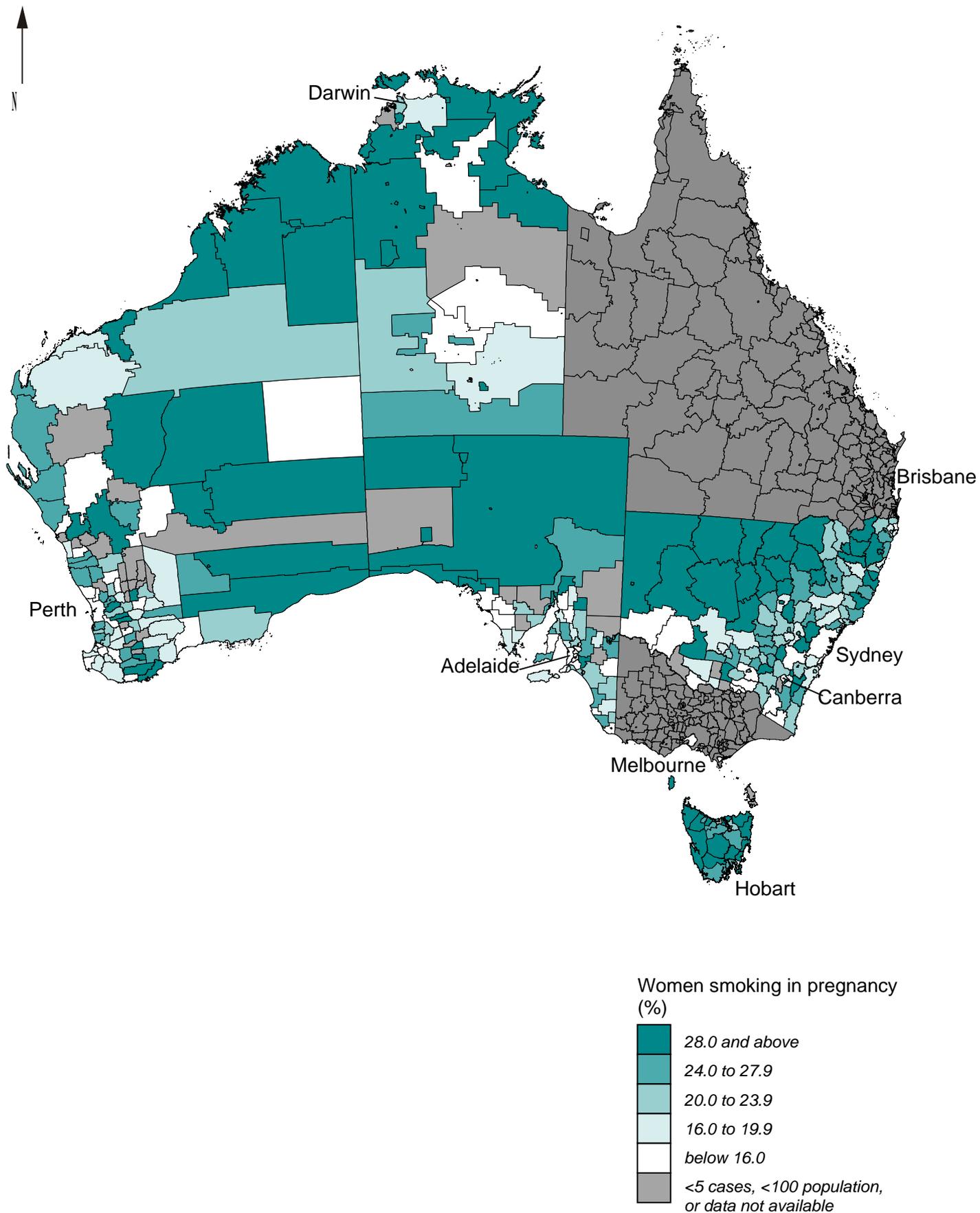
Streaky Bay, and Elliston; and in the mid-north, in Mount Remarkable and Northern Areas.

High proportions of women smoking during pregnancy were recorded in the more remote areas of **Western Australia**, with proportions of over 40% in Yalgoo (63.6%), Halls Creek (59.8%), Kalgoorlie/Boulder Part B (57.7%) and Derby-West Kimberley (57.0%), Wyndham-East Kimberley (44.7%), Wiluna (44.7%), Meekatharra (44.3%) and Albany Balance (42.3%). SLAs with the lowest proportions were generally in the south-west, including the SLAs of Ravensthorpe, Dowerin, and Augusta-Margaret River; and several areas had no women who reported smoking during their pregnancy over this period.

All but two SLAs in the non-metropolitan areas of **Tasmania** had 20% or more women who reported smoking during their pregnancy; these were Launceston - Inner (no cases) and Sorell - Part B (19.0%). SLAs with the highest proportions were West Coast (48.4%), George Town - Part A (42.0%), Derwent Valley - Part B (39.6%), and Central Highlands (38.4%), Glamorgan/Spring Bay (37.7%), George Town - Part B (37.5%) and Tasman (37.3%).

The highest rates of smoking during pregnancy were recorded in the north of the **Northern Territory**, while the lowest were generally in central areas, and near Darwin. Proportions of 50% or more were recorded in the SLAs of Marngarr (85.7%), Angurugu (80.0%), Timber Creek (73.9%), Gulf (68.2%), Nyirranggulung Mardrulk Ngadberre (67.1%), West Arnhem (59.3%), East Arnhem - Balance (52.3%), and Pine Creek (52.0%). Indigenous Australians make up relatively high proportions of the population in these areas. A further 28 areas had proportions over 20%, with proportions below that level in Tennant Creek - Balance, South Alligator, Sandover and Nhulunbuy. In addition, the SLAs of Tapatjatjaka, Hanson, Alpurrurulam, Watiyawanu, Alice Springs - Stuart, Elsey and Artarpilta had no cases recorded over this period.

Map 14: Women smoking during pregnancy, Australia, 2006 to 2008  
 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by State and Territory health authorities

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## People affected by homelessness

The causes, pathways to and consequences of homelessness are complex and vary for different population groups: families, young people, women and children escaping domestic violence, Aboriginal people and Torres Strait Islanders, people with substance use problems, people with mental illness, older men, and so on. Structural factors include poverty, unemployment, lack of affordable housing, insufficient public housing, and gender-based violence.<sup>46,50-58</sup> These structural issues can be compounded by co-existing, and often related, family and individual level factors such as substance abuse, disability, and financial and health problems.<sup>46,47</sup>

The impact of homelessness on personal wellbeing is profound. People experiencing homelessness are more likely to suffer a number of health conditions, including respiratory and skin infections; accidents and injuries; sexual and reproductive health issues; mental illness including depression; poor nutrition; dental problems as a result of poor oral hygiene and diet; skin problems such as sunburn, abscesses and dermatitis; and chronic diseases such as diabetes, bronchitis, and hepatitis.<sup>53</sup> For some people, health issues such as mental illness or substance use precipitate their homelessness.<sup>47,55,57</sup>

Families with children are the fastest growing group in the homeless population in Australia, and are estimated to make up approximately a third of the nation's homeless population.<sup>56</sup> Children and young people may become homeless through the breakdown of family relationships, or they may be homeless with their families.<sup>48</sup> There are many risks to their wellbeing: they are more likely to suffer health conditions such as asthma, low immunisation rates, vision problems, intellectual disability and developmental delay.<sup>48,56-58</sup> They also commonly experience psychological problems including depression, anxiety and low self-esteem; and their mental and emotional wellbeing can be seriously affected by having lived in an environment of fear, uncertainty and insecurity over a protracted period.<sup>56</sup> Social difficulties include isolation as a result of losing social support, family, friends and stable schooling; and their growth and development can be severely hindered by homelessness, family breakdown and poverty.<sup>58</sup> Children and young people who experience homelessness are more likely to become homeless as adults and raise families who, in turn, may also become homeless; this is largely as a result of the disrupted education that many experience.<sup>128</sup>

The impact on people of long-term homelessness is substantial; they almost always report traumatic childhoods, growing up in poverty and major, often repeated childhood trauma.<sup>129</sup> Most have limited economic resources, chronic ill health and drug and alcohol problems, and have experienced long-term unemployment and repeated physical assaults.<sup>129</sup> Such homelessness remains a strong indicator of entrenched disadvantage and social exclusion.

## Homelessness, capital cities

Homelessness is strongly linked to disadvantage, with poverty and unstable housing resulting in a higher risk of poor health, social exclusion, interrupted education, and unemployment.<sup>49,50</sup> Homelessness is associated with poor health and wellbeing through inadequate nutrition, hygiene issues, exposure to the elements, increased risk of injury and communicable diseases, social isolation, and stress.<sup>53</sup> People without stable housing are also at significantly higher risk of physical and sexual abuse, violence and emotional trauma.<sup>57,58</sup> For homeless people, there are often barriers to accessing health care, including ongoing services for the prevention and treatment of ill health.<sup>59</sup> Further details are in Appendix A.

**Indicator definition:** Homeless people as defined here includes people who are in improvised dwellings, tents or sleeping out; and those staying temporarily with other households, mapped as a rate per 10,000 population.

**Note:** See note on the following text page regarding the 2011 homeless data.

**Table 16: Estimated homeless people, by capital city, 2006**

Number and rate per 10,000 population

| Data   | Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total  |
|--------|--------|-----------|----------|----------|-------|--------|--------|----------|--------|
| Number | 3,372  | 2,590     | 2,327    | 1,070    | 1,732 | 247    | 706    | 360      | 12,404 |
| Rate   | 8.2    | 7.2       | 13.2     | 9.7      | 12.0  | 12.3   | 66.6   | 11.1     | 9.8    |

### Capital cities

The number of homeless people in 2006 was estimated to be highest in Sydney (3,372 homeless people), Melbourne (2,590) and Brisbane (2,327). However, the rate in Darwin was substantially higher (66.6 homeless people per 10,000 population) than those of the other capital cities.

In **Sydney** in 2006, the largest numbers of homeless people were estimated to be in Sydney - East (210 homeless; almost twice that of any other area in Sydney, and the highest rate at 44.9 per 10,000 population), with other notable numbers in Sydney - South, Blacktown - South-West, Penrith - West and Parramatta - Inner, all with more than 100 homeless people.

The largest numbers of homeless people (80 or more people) in **Melbourne** were estimated to be in the inner city area of Melbourne - Remainder (100 homeless), in the south in Frankston - West and Casey - Cranbourne, and in Yarra - North.

The largest number of homeless people in **Brisbane** was estimated to be in the inner city area of City/Spring Hill (160 homeless; almost twice that of than any other Brisbane area, and the highest rate, at 128.8 homeless people per 10,000 population). Other areas with 80 or more homeless people included Herston/Newstead (61.9 per 10,000), Stretton-Karawatha/Kingston, and Pine Rivers Balance.

**Adelaide's** homeless people were also principally located in the central city SLA of Adelaide, with 144 homeless (more than three times that of any other Adelaide SLA), and the city's highest rate at 86.4 per 10,000 population).

In **Perth**, the largest numbers of homeless people were recorded in Perth - Remainder (149

homeless; and a rate of 142.0 homeless people per 10,000 population), Swan (108) and Stirling - Central (101). Perth - Inner (with an estimated 92 homeless people, 853.4 per 10,000 population) and Fremantle - Inner (53, 639.3), had the highest rates of any capital city SLA in Australia.

The highest numbers of homeless in **Hobart** were in Clarence (59), Glenorchy (48) and Hobart - Remainder (45), although the rate in Hobart - Inner (16 people, 348.6) was by far the highest (and the third highest capital city rate).

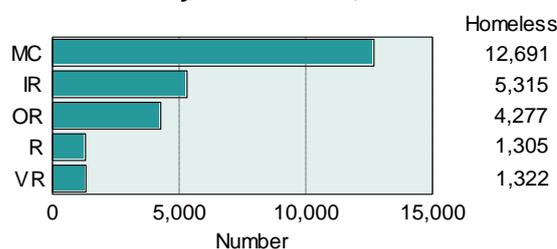
The largest numbers of homeless in **Darwin** were in Darwin South West (264 homeless, 128.7 per 10,000 population), although the city's highest rate was in Litchfield - Part A (17 homeless, 138.0 per 10,000 population). Darwin North West (184), Darwin North East (103) and Litchfield - Part B (70) all had high rates.

The numbers of homeless people in **Canberra** were generally lower, with the largest recorded in Canberra Central (72 homeless; and a rate of 32.8 per 10,000 population) followed by Canberra North (38) and Belconnen West (37).

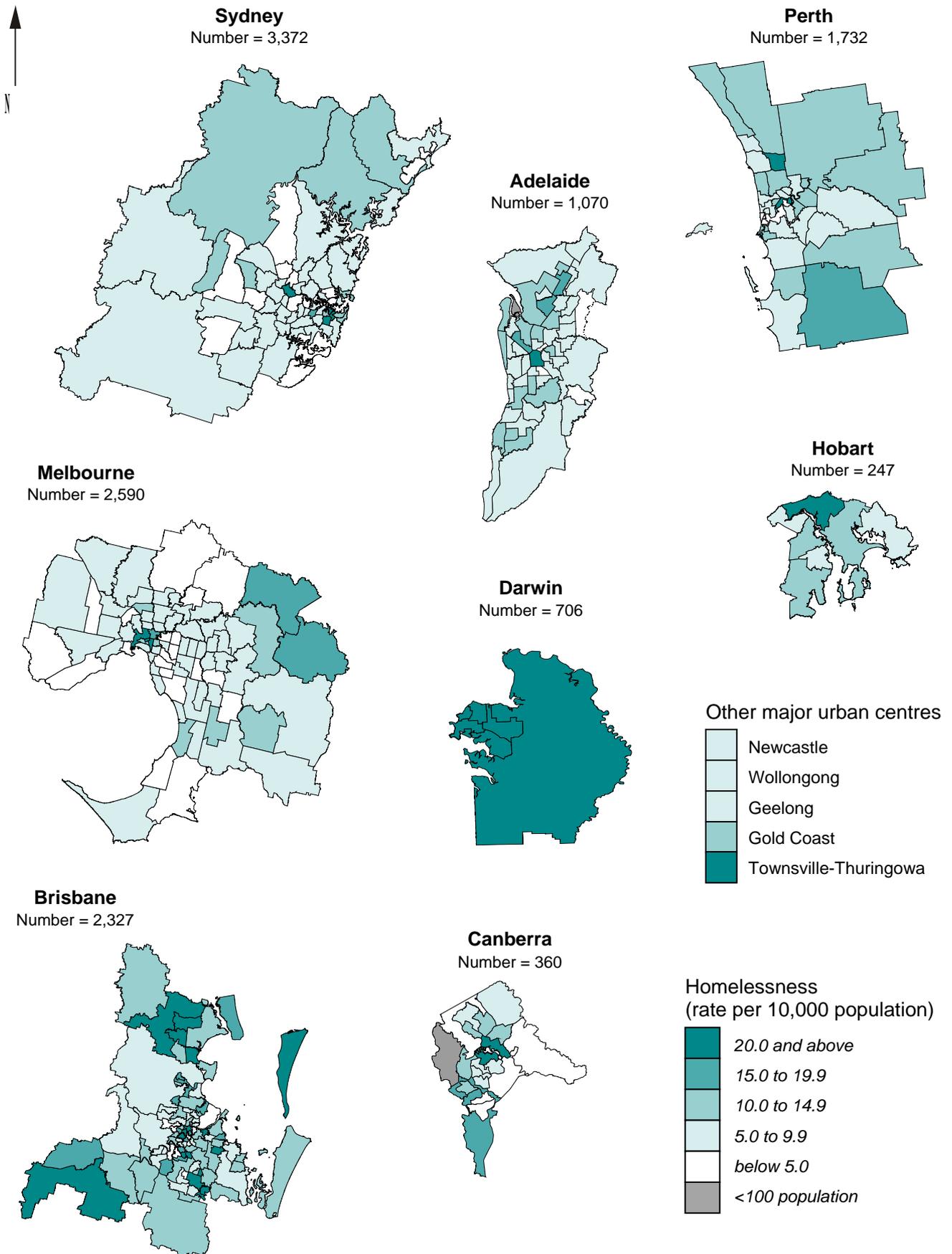
### Remoteness

The number of homeless people declined markedly across the Remoteness classes, although this population group was clearly present throughout each State.

**Figure 12: Estimated homeless people, by remoteness, 2006**



Map 15: Estimated homeless people, major urban centres, 2006  
 rate per 10,000 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU using data supplied by ABS, based on the ABS 2006 Census

## Homelessness, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 17: Estimated homeless people, by State/Territory, Australia, 2006**

*Number and Rate per 10,000*

| Area                    | NSW   | Vic.  | Qld   | SA    | WA    | Tas. | NT    | ACT  | Total  |
|-------------------------|-------|-------|-------|-------|-------|------|-------|------|--------|
| Non-metropolitan – no.  | 3,010 | 1,409 | 4,770 | 663   | 1,370 | 350  | 936   | ..   | 12,508 |
| Non-metropolitan – rate | 12.4  | 10.6  | 22.4  | 16.3  | 27.0  | 12.7 | 110.1 | ..   | 17.5   |
| Total – number          | 6,357 | 4,013 | 7,015 | 1,764 | 3,117 | 617  | 1,659 | 366  | 24,910 |
| Total – rate            | 9.7   | 8.1   | 18.0  | 11.7  | 16.0  | 13.0 | 86.9  | 11.3 | 12.5   |

### Non-metropolitan areas

Note: The 2011 ABS homeless data are only available at the larger Statistical Area Level 3, so have not been mapped in this Atlas. The total estimated homeless rate for Australia has decreased from 12.5 homeless people per 10,000 population in 2006 to 11.2 in 2011. Refer to the notes and reference (ABS 2012c) in Appendix A.

The largest numbers of homeless people in the non-metropolitan areas of Australia in 2006 were estimated to be in Queensland (4,770 homeless people) and New South Wales (3,010). However, the rate was substantially higher in the Northern Territory (110.1 homeless people per 10,000 population, and more than six times the rate of the total non-metropolitan areas).

Non-metropolitan **New South Wales** had a low overall rate, with the largest numbers of homeless people in coastal areas, particularly in the north, in Byron (138 homeless people; a rate of 48.0 homeless people per 10,000 population), Coffs Harbour - Part A (95, 19.9), Tweed - Part B (86, 43.1) and - Tweed-Heads (71, 14.1), and Ballina (82, 21.3). Port Stephens and Bega Valley had 74 and 69 homeless people, respectively.

The number of homeless people in the non-metropolitan areas of **Victoria** was relatively low compared to the other States and the Northern Territory, with the highest recorded for Greater Shepparton - Part A (58 homeless; a rate of 13.0 per 10,000 population). Other areas estimated to have more than 35 homeless people included Mildura - Part A (52 homeless; 11.3 per 10,000 population), Wodonga (44, 13.3), Greater Bendigo - Part B (41, 36.2) and Corio - Inner (37, 6.7).

In general, the coastal areas in the non-metropolitan areas of **Queensland** are estimated to have the most homeless people, with the State's largest number estimated for Mackay - Part A (182 homeless, and a rate of 25.0 per 10,000 population), followed by Thuringowa - Part A (107, 20.7), Bowen (102, 82.4), Cooloola (excluding Gympie) (96, 48.9), Cairns - Central Suburbs (93, 43.5) and Rockhampton (89, 15.1). Emerald had

the largest number of homeless of the State's inland SLAs (87 homeless people, 60.6 per 10,000 population).

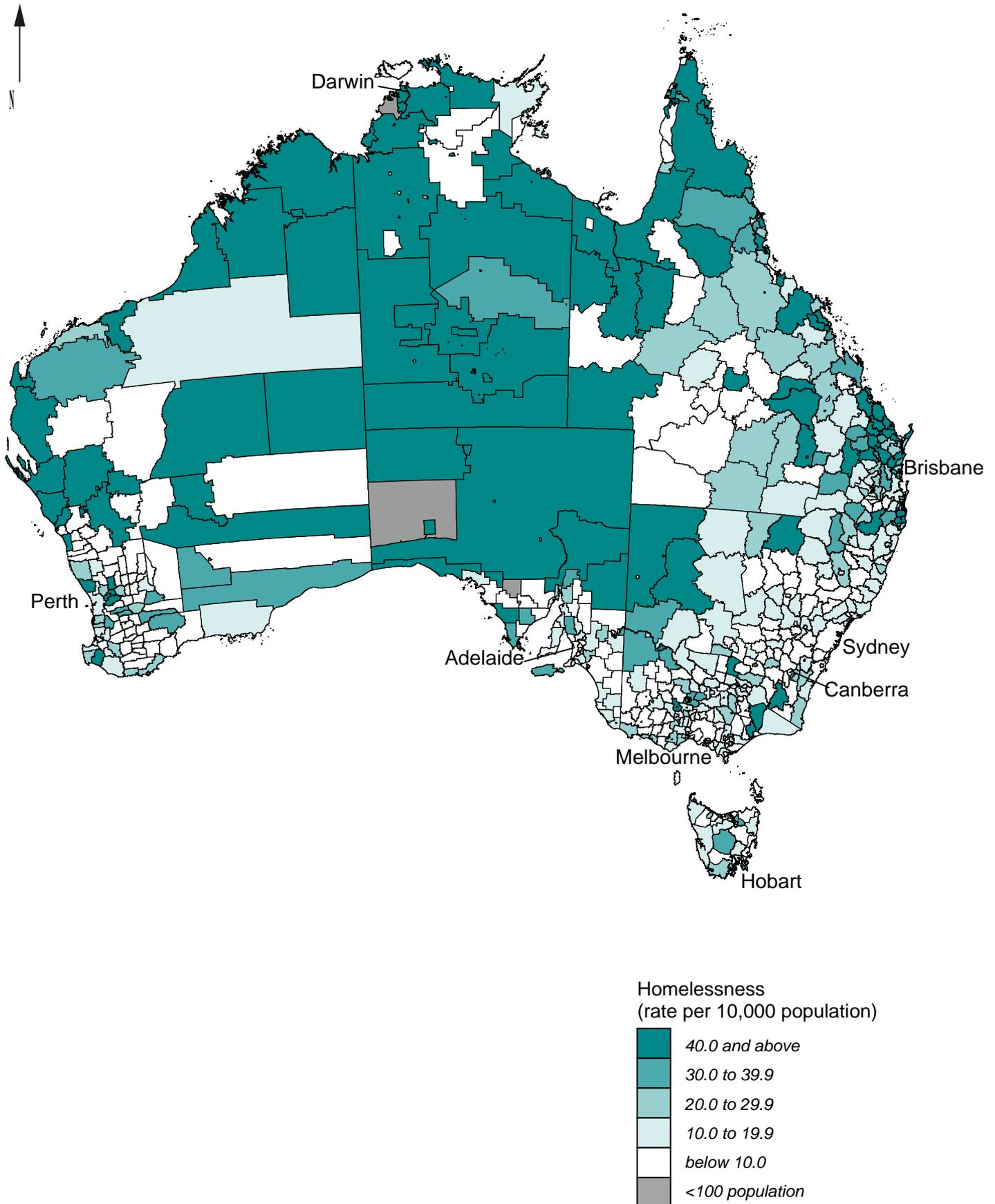
The largest numbers of homeless people in the non-metropolitan areas of South Australia were estimated for SLAs in the far north, in Anangu Pitjantjatjara (74 homeless and the highest rate in the State, at 331.8 per 10,000 population) and Unincorporated Far North (52 homeless and the State's second highest rate at 331.6 per 10,000 population). The next highest estimates were closer to Adelaide in Murray Bridge (43 homeless, 24.3 per 10,000 population), and in the north of the State, in Port Augusta (31, 22.3). All other SLAs were estimated to have fewer than 25 homeless people.

The largest numbers of homeless people in the non-metropolitan areas of **Western Australia** were estimated to be in the far north of the State, in Wyndham-East Kimberley (134 homeless people, and a rate of 203.1 per 10,000 population), Broome (128, 98.0) and Halls Creek (104, 332.0). The next highest numbers were in Mandurah (64 homeless people, 11.5), Kalgoorlie/Boulder - Part A (60, 21.2) and Port Hedland (58, 48.5).

There were estimated to be relatively few homeless people in non-metropolitan SLAs in **Tasmania**, with the largest numbers recorded in Launceston - Part B (61 homeless, a rate of 10.3 per 10,000 population), Huon Valley (40, 28.6), Devonport (33, 13.7) and Central Coast - Part A (24, 13.6). All other SLAs were estimated to have 20 or fewer homeless people.

The largest numbers of homeless people in the **Northern Territory** in 2006 were estimated to be in Katherine (190 homeless; almost 75% more than the number recorded for any other SLA in the non-metropolitan areas of the Territory, and a rate of 231.9 per 10,000 population). Tharrarrurr (110 homeless people; 569.7 per 10,000 population), Sandover (82, 295.9), Anmatjere (53, 548.1) and Alice Springs - Charles (48, 105.6) recorded the next largest numbers of homeless people.

Map 16: Estimated homeless people, Australia, 2006  
 rate per 10,000 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU using data supplied by ABS, based on the ABS 2006 Census

## Dwellings rented from the government housing authority, capital cities

*Affordable, safe and appropriate housing has significant benefits for people's health, social inclusion and access to labour markets.<sup>53,135</sup> The distribution of households in public rental accommodation remains an indicator of socioeconomic disadvantage; and reflects historic government policies, which led to substantial declines in public housing stock, and the transfer of some stock to community-managed housing.<sup>47,52,96</sup> Recent increases in the Northern Territory are largely the result of specific funding for Indigenous community housing in non-metropolitan areas.<sup>95,96</sup>*

**Indicator definition:** Occupied private dwellings rented from a state or territory government housing authority, as a proportion of all occupied private dwellings.

**Table 18: Dwellings rented from the government housing authority, by capital city, 2011**

| Per cent |           |          |          |       |        |        |          |       |
|----------|-----------|----------|----------|-------|--------|--------|----------|-------|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
| 4.5      | 2.6       | 3.7      | 6.4      | 3.4   | 5.9    | 6.9    | 7.3      | 4.0   |

### Capital cities

The largest number of private dwellings rented from the government housing authority in 2011 was in Canberra (7.3%), with similar proportions in Darwin (6.9%) and Adelaide (6.4%). Of note is that the number of dwellings in Darwin is some four fifths of that at the 2006 Census, with 13% fewer of these dwellings in a larger housing stock.

The highest proportions of these rented dwellings in **Sydney** were located in two distinct areas, the larger group to the west and south-west of the city centre, and including Blacktown South - West (14.6%) and Parramatta - South (12.2%); and in a band from the city centre and south to Botany Bay, including Sydney - South (13.2%). The lowest percentages for this indicator were in a large area to the north of the harbour and in the inner east, in Woollahra and Mosman.

Dwellings in **Melbourne** rented from the government housing authority were concentrated in inner SLAs, with the highest proportions in Yarra - North (10.8%), Richmond (10.7%), Melbourne - Remainder (8.5%), and Port Phillip - West and Moonee Valley - Essendon (both 7.5%). Lower proportions were in SLAs throughout the metropolitan area.

The distribution of housing authority rented dwellings in **Brisbane** showed no distinct pattern, with the highest proportions in a mix of inner and fringe areas, including in the grouped areas of Loganlea (12.8%), Stretton-Karawatha/Kingston (12.7%), Darra-Sumner/Wacol (12.2%). The lowest proportions were largely in areas located on the metropolitan fringe.

In **Adelaide**, the Playford SLAs of - Elizabeth (21.5%) and Port Adelaide Enfield - Park (20.2%) had the two highest capital city rates for dwellings rented from the government housing authority. The lowest proportions were largely recorded in SLAs to the east, north-east and south-east of the city.

SLAs in **Perth** with high proportions of dwellings rented from the housing authority were located along the Swan River in the inner area of Fremantle - Remainder (9.9%) and further out in the suburb of Belmont (8.7%). SLAs with less than 1% of dwellings in this category were largely in inner areas, or on the coast.

The highest proportion of dwellings rented from the government housing authority in **Hobart** was recorded in the SLA of Brighton (17.0%, the third highest capital city proportion), and the lowest in Sorell Part A (1.8%).

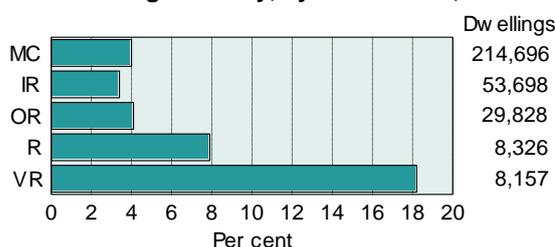
In **Darwin**, SLAs other than Litchfield - Part A and Litchfield - Part B had more than 5% of dwellings rented from the housing authority. The highest proportions were in Palmerston (9.9%) and Darwin North East (9.7%).

There were relatively high proportions of dwellings across **Canberra**, with the highest in the contiguous areas of Canberra North (11.3%), South and Central (both 10.6%). Kamba, Tuggeranong North West, Belconnen West and Eastern Fringe had the next highest proportions.

### Remoteness

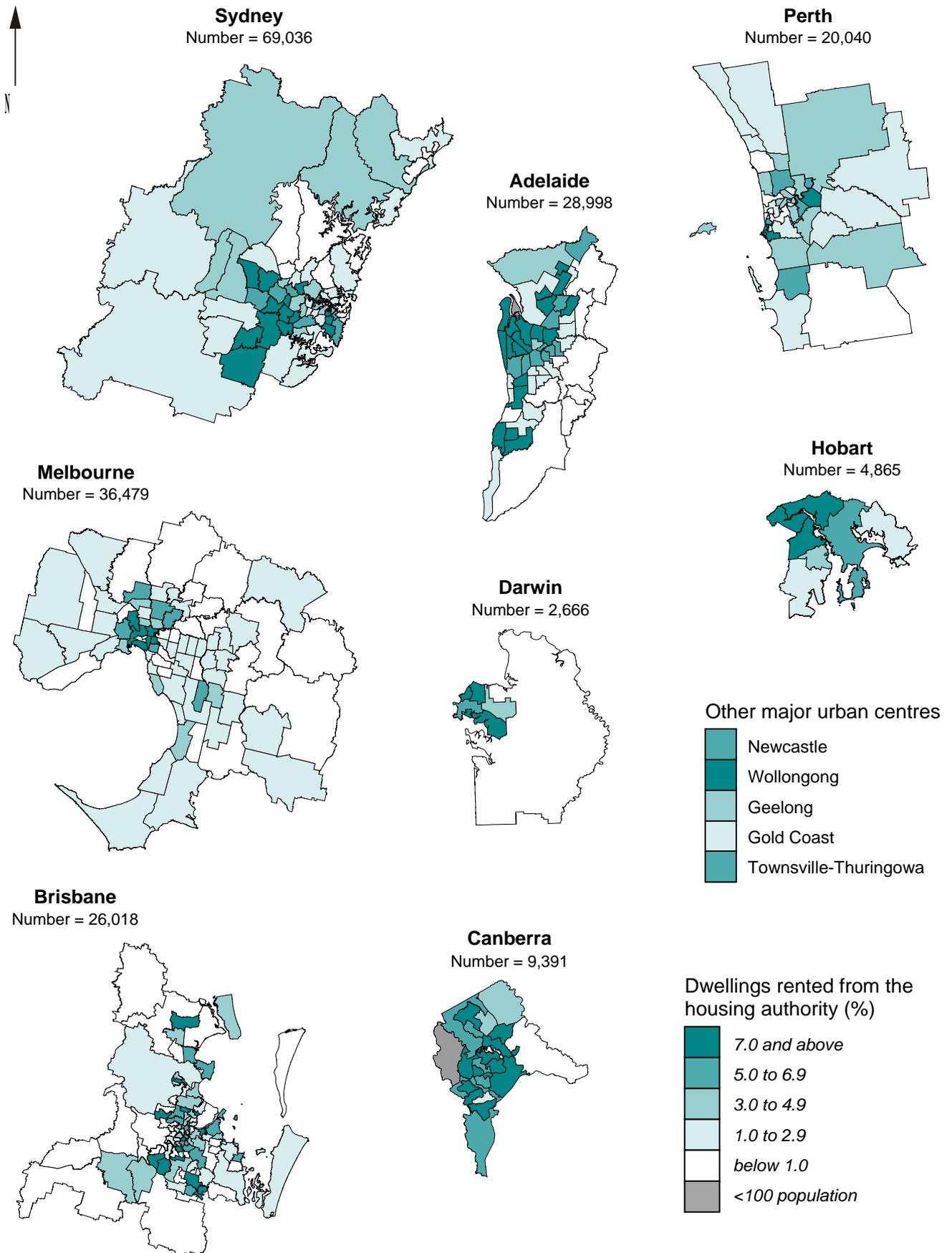
The proportion of the private dwelling stock rented from government housing authorities was similar across the first three remoteness classes (3.4% to 4.1%), higher in the Remote areas (7.9%) and substantially higher in the Very Remote areas (18.2%).

**Figure 13: Dwellings rented from the government housing authority, by remoteness, 2011**



# Map 17: Dwellings rented from the government housing authority, major urban centres, 2011

per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data from ABS 2011 Census

## Dwellings rented from the government housing authority, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 19: Dwellings rented from the government housing authority, by State/ Territory, Australia, 2011**

| <i>Per cent</i>  |     |      |     |     |     |      |      |     |       |
|------------------|-----|------|-----|-----|-----|------|------|-----|-------|
| Area             | NSW | Vic. | Qld | SA  | WA  | Tas. | NT   | ACT | Total |
| Non-metropolitan | 4.2 | 3.4  | 3.3 | 5.5 | 6.0 | 4.9  | 21.7 | .   | 4.1   |
| Total            | 4.4 | 2.8  | 3.5 | 6.1 | 4.0 | 5.4  | 12.3 | 7.3 | 4.1   |

### Non-metropolitan areas

Whereas there were fewer of these dwellings in Darwin in 2011 than in 2006, outside of Darwin the situation was very different. In 2006, there were 1,578 dwellings rented from Territory Housing; by 2011, this number had more than trebled to 4,808 dwellings. Thus, in 2011, the Northern Territory (21.7%) had the highest proportion of dwellings rented from the housing authority outside of the capital cities. The lowest levels were recorded in the non-metropolitan areas of Queensland (3.3%) and Victoria (3.4%).

High rates of dwellings rented from the government housing authority in **New South Wales** were recorded in a mix of regional towns and rural and remote SLAs. More than 7% of dwellings were rented from the government housing authority in Central Darling (12.9%), Brewarrina (10.3%), Wollongong - Inner (8.5%) and Balance (7.6%), Lake Macquarie - East (8.5%), Shoalhaven - Part A (8.2%), Shellharbour (7.5%), and Bourke and Moree Plains (both 7.1%).

There are few of these dwellings across much of non-metropolitan **Victoria**, with the highest proportions generally in regional centres. Only seven SLAs recorded proportions of 7.0% or above: these areas included Greater Bendigo - Eaglehawk (7.9%) and - Central (7.1%), Campaspe - Echuca (7.8%), Wodonga (7.5%), and Swan Hill - Central (7.1%) and - Robinvale (7.0%).

In the non-metropolitan areas of **Queensland**, the highest proportions of dwellings rented from the government housing authority are generally located in a number of small, island-based Indigenous communities in the Torres Strait and on Cape York, with the next highest rates in SLAs located along the Northern Territory border, extending inland and down to the State's southern border. The former group (with rates above 50%) included Napranum (90.7%), Wujal Wujal (90.0%), Iama (86.6%), Hope Vale (83.3%), Kubin (82.6%), Yorke (78.3%), Warraber (72.2%), Erub (71.6%), Mer (71.4%), Mornington (68.6%), St Pauls (68.6%), Yarrabah (67.8%), Saibai (66.7%), Mabuig and Hammond (both 64.4%), New

Mapoon (62.3%), Poruma (61.8%), Palm Island (60.4%), Pormpuraaw (59.1%), Dauan (58.3%), Doomadgee (53.5%). Rates above 50% were also recorded in Woorabinda (72.8%), located in the mid-east of the State.

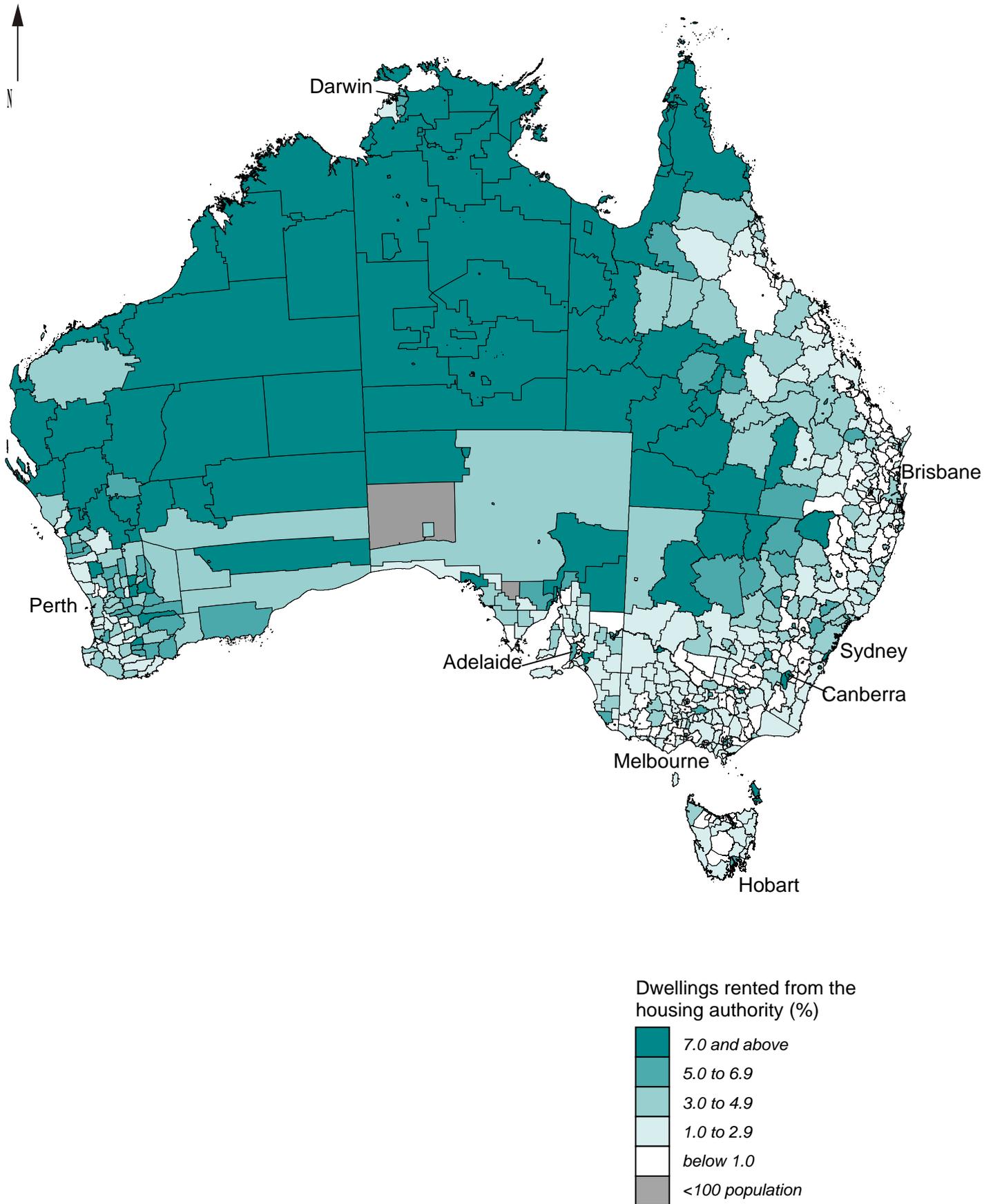
The SLA of Anangu Pitjantjatjara (34.0%), in the far north-west recorded the highest proportion of rented dwellings in non-metropolitan **South Australia** in 2011, with high proportions also recorded in the larger regional towns of Whyalla (21.1%), Port Augusta (14.4%), Port Pirie (12.7%), Ceduna (10.9%), Port Lincoln (10.8%) and Mount Gambier (10.3%).

SLAs with high proportions of dwellings rented from the housing authority covered much of **Western Australia**, other than in the more populous south-west. The highest proportions were recorded in the SLAs of Ngaanyatjaraku (59.0%), Halls Creek (49.4%), Upper Gascoyne (35.6%), Wiluna (31.9%), Meekatharra (29.0%), Derby-West Kimberley (24.1%), Yalgoo (23.2%), Broome (20.5%), Wyndham-East Kimberley (19.9%) and Mount Magnet (18.9%).

The distribution across **Tasmania** was relatively uniform. The highest proportions of dwellings rented from the government housing authority were found in areas along the north coast and in the Tamar Valley with George Town - Part A (10.0%), Devonport (9.6), Burnie - Part A (9.2%), Flinders (8.1%), Launceston - Part B (7.5%) and Waratah/Wynyard - Part A (7.3%), all with proportions above the Tasmanian average.

The highest proportions of these dwellings in the non-metropolitan areas of **Northern Territory** are in towns and small Indigenous, community-based SLAs. Rates above 45% were recorded in Belyuen (77.8%), Thamarrurr (72.0%), Tiwi Islands (60.3%), Arltarlpilta, Yuendumu, Lajamanu and Anmatjere (all 56.2%), Hanson (55.2%), Tableland, Elliott District, Tennant Creek - Balance and Alpururulam (all 49.9%), Kunbarlanjnja and West Arnhem (both 49.6%), Marn Garr, Angurugu and East Arnhem - Balance (all 49.1%), and Sandover (45.6%).

Map 18: Dwellings rented from the government housing authority, Australia, 2011  
 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data from ABS 2011 Census

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## People living with disability or mental illness, and their carers

People who live with disability (including mental illness) face many barriers to employment, health and wellbeing, and social inclusion.<sup>7</sup> These include interrupted or inadequate education; a lack of access to vocational and educational training; the debilitating effects of the disability; inappropriate job design or working environment; little assistance following the gaining of employment; fear of losing eligibility for crucial benefits; and negative employer and community attitudes.<sup>7,60,68</sup> In particular, stigma, discrimination and a lack of understanding of mental illness can be significantly reduce opportunities for people with mental illness accessing employment.<sup>60</sup>

Characteristics which contribute positively to the ability of a person experiencing a mental illness to obtain and maintain employment have been identified as work readiness; work attitudes and motivation; interpersonal relations and work quality; duration of the employment; and available mental health supports.<sup>8,61</sup> Issues that have a negative impact on employment outcomes included multiple impairments (cognitive, perceptual, affective and interpersonal), decreased life experiences, associated substance abuse, the episodic nature of the illness, obstacles within the service delivery system (such as discrimination) and the negative symptoms of the illness being confused with lack of motivation.<sup>9,10</sup> Factors which are not predictive of employment outcomes include age, and number and length of hospitalisations.<sup>8</sup>

Unemployment is a complex and diverse experience, and its effects are mediated by a large number of social and individual factors.<sup>11</sup> While many people with psychiatric or other forms of disability do not experience significant employment disruption over the course of their working life, others however, find gaining and maintaining employment extremely difficult.<sup>62</sup> The psychological wellbeing of people living with disability (particularly those who are young) is enhanced by their economic and social participation.<sup>61,63</sup>

The lack of employment of people living with disability is costly for the Australian economy. In 2009, it was estimated that the financial cost of mental illness in people aged 12-25 years was \$10.6 billion, of which \$7.5 billion (70.5%) was productivity lost due to lower employment, absenteeism and premature death of young people with mental illness.<sup>64</sup> Overall, people with disability achieve lower educational qualifications than people without disability, and generally have poorer labour market outcomes.<sup>65,67</sup> However, because the experience of disability stems from the interaction of individual and broader factors, it is possible to reduce the impact of disability on a person's participation in all aspects of life through early intervention, and environmental and societal modifications.<sup>66</sup>

The indicators listed in bold type are included in this sub-section. The remaining indicators listed below and other indicators can be found online at [www.adelaide.edu.au/phidu/](http://www.adelaide.edu.au/phidu/).

- People aged 0 to 64 years and living in the community who have a profound or severe disability
- **People aged 15 to 59 years and living in the community who have a profound or severe disability and are not employed**
- People who provide assistance to people with a disability
- **People with long-term mental health problems, who are unemployed**
- **Prevalence of psychological distress**

## People living in the community who have a profound or severe disability and are not employed, capital cities

People of working age living with disability generally experience lower levels of employment than other Australians.<sup>67</sup> In 2009, nearly half (46%) of working-age people with disability were not in the labour force, and more than half of these (59%) were permanently unable to work.<sup>67</sup> While the severity of the disability may limit participation in the labour market, other factors are also significant, particularly discrimination.<sup>68</sup>

**Indicator definition:** People aged 15 to 59 years and living in the community whose responses to the 2011 ABS Census resulted in them being categorised as having a profound or severe disability, and who were not employed, as a proportion of the population aged 15 to 59 years.

**Table 20: People aged 15 to 59 years and living in the community who have a profound or severe disability and are not employed, by capital city, 2011**

| Per cent |           |          |          |       |        |        |          |       |  |
|----------|-----------|----------|----------|-------|--------|--------|----------|-------|--|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |  |
| 1.5      | 1.5       | 1.5      | 2.0      | 1.1   | 2.3    | 0.9    | 1.0      | 1.5   |  |

### Capital cities

In 2011, the proportion of the population aged 15 to 59 years, with a profound or severe disability, who were living in the community and were not employed, ranged from 1.0% in both Canberra and Darwin, to 2.0% in Hobart.

For **Sydney**, the proportions of the population in this group were highest in a large group of SLAs in the west, including Parramatta - South (3.7%), Fairfield - East (3.5%) and - West (2.8%), Liverpool - East (3.4%), Bankstown - North-East (3.2%) and - North-West (3.0%), Blacktown - South-West (2.8%) and Campbelltown - South (2.7%); and in the north, in Wyong - North-East (3.0%). The lowest proportions were in SLAs on the north shore, and in and to the east and south of the city centre.

SLAs in **Melbourne** with the highest proportions of the population with a disability who were unemployed were located to the north and north-west of the city, in Hume - Broadmeadows (4.2%), Whittlesea - South-West (3.2%) and Melton Balance (2.9%); and to the south-east, in Greater Dandenong - Dandenong (2.9%) and Casey - Hallam (2.5%). The lowest proportions were generally in the inner city and eastern suburbs.

People in **Brisbane** in this category were in several locations, principally in the outer areas in the south and south-west, and along the coast in the outer north. SLAs with the highest proportions, of above 3.0%, included Redland Balance (6.8%, the highest capital city rate), Bribie Island (3.7%), Caboolture - Central (3.6%), Waterford West (3.5%), Deception Bay (3.4%), Archerfield/ Coopers Plains, Loganlea and Morayfield (all 3.3%), Stretton-Karawatha/Kingston (3.2%) and Caboolture - East (3.1%).

In **Adelaide**, high proportions of this population lived in Playford - Elizabeth (5.5%) and - West Central (4.4%), the second and third highest capital city rates, and in Onkaparinga - North Coast and - Hackham (both 3.9%). Low rates were in the east, south and south-east of the city.

SLAs in **Perth** had relatively low proportions of the population with these characteristics, with the highest being in the middle and outer SLAs of Kwinana (1.8%), Armadale (1.7%) and Bassendean (1.6%).

In **Hobart**, Brighton (4.1%) and Derwent Valley - Part A had the highest rates, with other high rates in Glenorchy (3.2%) and Sorrell - Part A (3.0%).

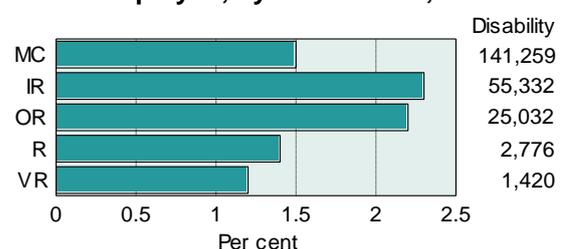
The proportions of this population group in **Darwin** were all low, with the highest in the outer SLA of Litchfield - Part B (1.3%).

Proportions in **Canberra** were also generally low, ranging from no cases in Kowen and Majura, to 1.4% in Belconnen West.

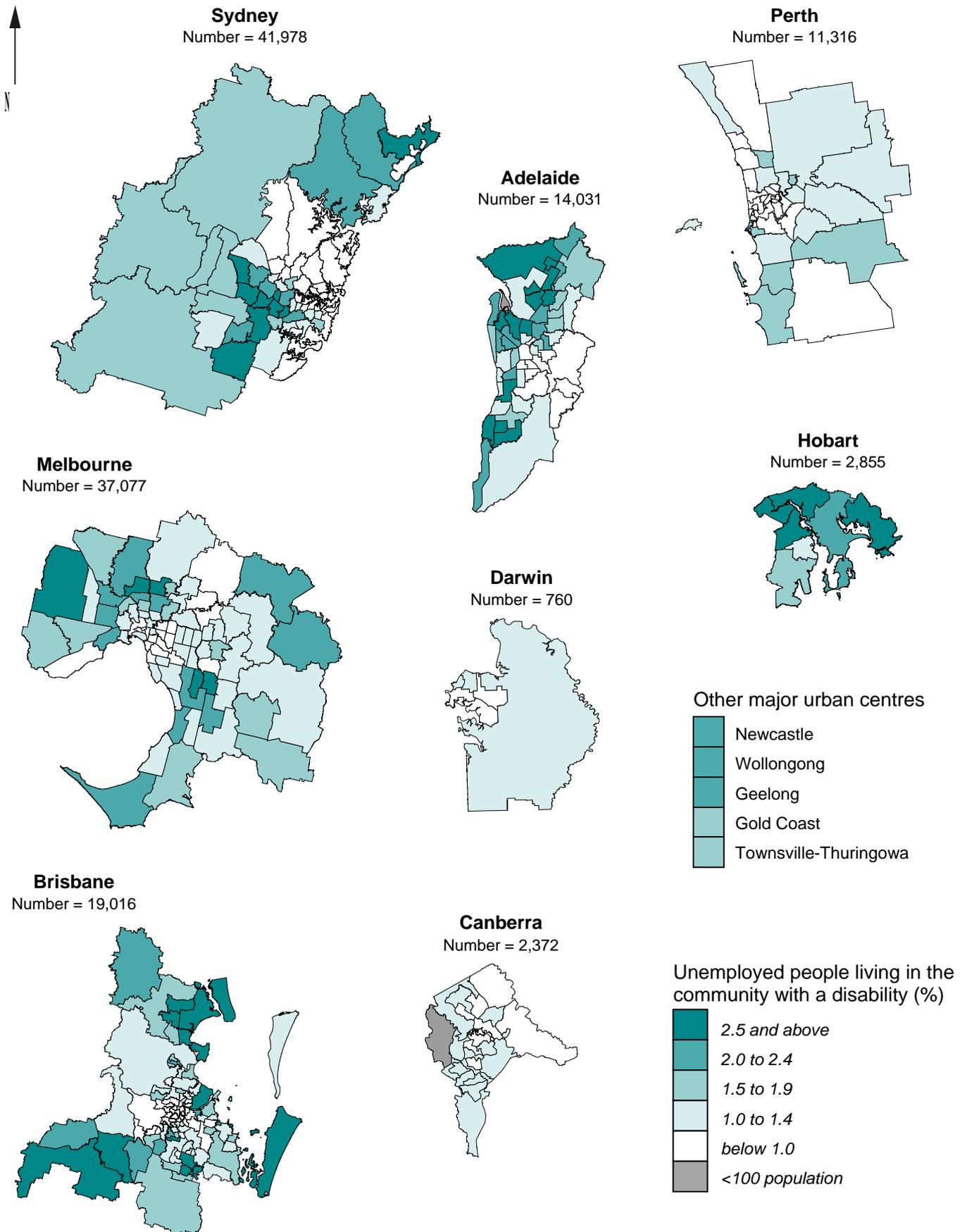
### Remoteness

The highest proportions of the population living in the community who had a profound or severe disability and were unemployed were in the Inner and Outer Regional remoteness classes. The categorisation of people in the CDEP scheme by the ABS as 'employed' is likely to have influenced the low proportion in the Very Remote class.

**Figure 14: People aged 15 to 59 years who have a profound or severe disability and are not employed, by remoteness, 2011**



Map 19: People aged 15 to 59 years and living in the community who have a profound or severe disability and are not employed, major urban centres, 2011 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data from ABS 2011 Census

## People living in the community who have a profound or severe disability and are not employed, Australia

**Notes:** See comments on previous text page for details of this indicator. ‘Non-metropolitan’ refers to the area of the State or Territory outside of the capital city. ‘Total’ refers to the whole State or Territory.

**Table 21: People aged 15 to 59 years and living in the community who have a profound or severe disability and are not employed, by State/ Territory, Australia, 2011**

| <i>Per cent</i>  |     |      |     |     |     |      |     |     |       |
|------------------|-----|------|-----|-----|-----|------|-----|-----|-------|
| Area             | NSW | Vic. | Qld | SA  | WA  | Tas. | NT  | ACT | Total |
| Non-metropolitan | 2.4 | 2.3  | 2.0 | 2.3 | 1.4 | 2.8  | 1.5 | ..  | 2.2   |
| Total            | 1.8 | 1.7  | 1.8 | 2.1 | 1.2 | 2.6  | 1.2 | 1.0 | 1.7   |

### Non-metropolitan areas

In areas outside of the capital cities, the proportion of the population living in the community who have a profound or severe disability and were unemployed, ranged from 1.4% of the population aged 15 to 59 years in Western Australia, to 2.8% in Tasmania. Again, note that categorisation of people in the CDEP scheme as employed is likely to have had an impact on the proportions in remote areas with relatively large Indigenous populations.

Relatively high proportions of the population with these characteristics were found in many SLAs in **New South Wales**. The highest proportions were in Clarence Valley Balance (5.5%), Kempsey and Weddin (both 4.6%), Nambucca (4.3%), Greater Taree, Tenterfield and Kyogle (all 4.1%), and Warrumbungle Shire, Walgett, Great Lakes and Urana (all 4.0%).

Relatively high proportions of the population living in the community who have a profound or severe disability and were unemployed were also spread across much of **Victoria**, with percentages above 4% in Central Goldfields Balance (4.9%) and - Maryborough (4.2%), Loddon - South (4.9%), Yarra Ranges - Part B (4.8%), Yarriambiack - South (4.3%) and - North (4.2%), and Northern Grampians - St Arnaud (4.1%). Very few areas had proportions in the lowest category mapped.

SLAs in **Queensland** with the highest percentages of the population with these characteristics were largely located around Brisbane, and in a group to the south of Cairns. The five highest rates in Australia were recorded in Tara and Kolan (both 7.5%), Nanango (6.9%), Mount Morgan (located south of Cairns, 6.5%) and Hervey Bay - Part B (6.4%). Rates of 4% or more (in areas with more than 20 people in this category) were also recorded in Woocoo and Wondai (both 5.9%), Biggenden (5.5%), Tiara (5.2%), Hervey Bay - Part A (4.7%), Maryborough and Miriam Vale (4.6%), Isis (4.5%), Kilkivan

(4.4%), Cherbourg (4.3%), Cooloola (excluding Gympie) and Laidley (4.2%), Rosalie - Part B and Herberton (4.1%), and Esk (4.0%). As shown in the map, many of the central and far western areas of the State had low proportions.

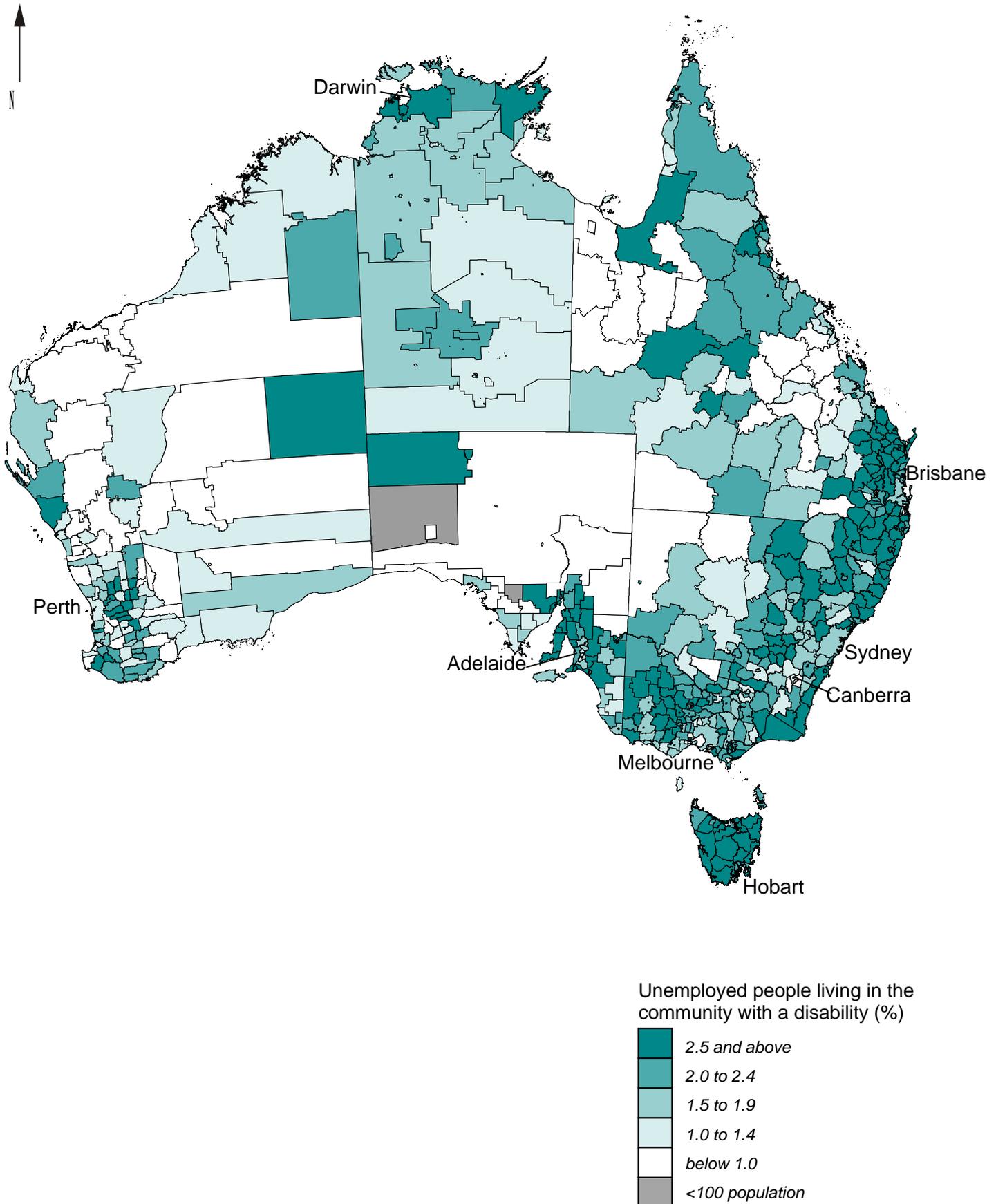
The proportion of the population with a profound or severe disability who were unemployed and lived in the non-metropolitan areas of **South Australia** was highest in the mid-north, and on the Yorke and Fleurieu Peninsulas, in particular in the SLAs of Peterborough (6.0%), Port Pirie City Districts - City (4.3%), Copper Coast (4.2%) and Goyder (4.0%). The lowest percentages were in SLAs in the far north (other than a rate of 2.6% in Anangu Pitjantjatjara), in the north-east, and in parts of Eyre Peninsula.

There were low proportions of the population with these characteristics across most of non-metropolitan **Western Australia**, with the highest proportions in SLAs located in the south-west. Of areas with more than 20 people in this category, the highest rates were in the SLAs of Kellerberrin (4.2%), Beverley (3.9%), Brookton (3.5%) and Nannup (3.3%).

With the greatest proportion of the population with these characteristics in the non-metropolitan areas, the majority of the SLAs in **Tasmania** were mapped in the highest range (2.5% and above). The largest proportions were in Tasman (6.2%), Break O'Day (5.3%), Central Highlands (5.2%), Derwent Valley - Part B (4.5%), George Town - Part A (4.2%), Waratah/Wynyard - Part A (3.7%), Kentish (3.6%) and Huon Valley (3.5%).

Overall, few SLAs in the **Northern Territory** had high proportions of the population with a profound or severe disability who were unemployed. The highest proportions were in the small Indigenous communities of Angurugu and Marngarr (both 3.4%, with 6 and 18 people, respectively, in this category), and in East Arnhem - Balance (3.4%) nearby. High rates were also recorded in SLAs near to Darwin, in Cox-Finnis (3.2%, 11 people), South Alligator (2.8%, 15) and Coomalie (2.7%, 18).

Map 20: People aged 15 to 59 years and living in the community who have a profound or severe disability and are not employed, Australia, 2011  
 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data from ABS 2011 Census

## People with long-term mental health problems who are unemployed, capital cities

*Employment plays a critical role in the life and recovery of people with experience of mental illness; and offers an opportunity to improve levels of confidence, social status and identity, and in some cases, clinical improvement.<sup>68</sup> However, accessing and maintaining employment can be difficult, especially without supportive work environments; and people with experience of mental illness are more likely to be unemployed when they have lower education levels, and where they also suffer from additional disabilities.<sup>68,69</sup>*

**Indicator definition:** Estimated population aged 20 to 59 years who reported having current long-term mental and behavioural disorders and who are unemployed, expressed as an age-standardised rate per 1,000 population; further details of these estimates are in Appendix B.

**Table 22: Estimated population aged 20 to 59 years with long-term mental health problems, who are unemployed, by capital city, 2007-08**

Age-standardised rate per 1,000 population

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 5.4    | 6.2       | 5.1      | 8.8      | 6.0   | 4.8    | 6.2    | 3.0      | 5.9   |

### Capital cities

The highest rate of people aged 20 to 59 years reporting long-term mental health problems and who were unemployed was estimated for Adelaide, and the lowest for Canberra.

The inner city SLAs of Sydney - Inner (11.8 per 1,000 population), - East (11.4), - West (9.8) and - South (8.8), and Waverley (8.3), were estimated to have the highest rates of people with these characteristics in **Sydney**. The lowest rates were largely evident on the north shore, in Ku-ring-gai, Baulkham Hills - South and - Central, and Hornsby - North and - South.

In **Melbourne**, more than 9 people per 1,000 population in the SLAs of Mornington Peninsula - South (12.3 per 1,000 population), Yarra Ranges - North (11.2), Cardinia - South (10.9), Port Phillip West (9.2) and Yarra Ranges Central (9.0), were estimated to have a mental health problem and to be unemployed. Inner and middle suburbs to the east, north-east and south-east had the lowest rates.

In **Brisbane**, the highest rates of the population aged 20 to 59 years with mental health problems and who were unemployed were estimated for the outer SLAs of Bribie Island (17.4 per 1,000 population), Redland Balance (16.7) and Caboolture - Hinterland (10.4). Apart from City/Spring Hill and New Farm, the next highest rates were in middle and outer suburbs. The lowest rates were generally confined to areas in the inner region, just north or south of the Brisbane River.

Reflecting the overall high rate in **Adelaide**, all SLAs, other than Adelaide Hills - Central, were mapped in the top three ranges. The highest rates were estimated for the Playford SLAs of - Elizabeth (14.0 per 1,000 population), - West Central (12.6), - Hills (11.1) and - West (11.0); the

Port Adelaide Enfield SLAs of - Park (12.3), - Port (11.6) and - Inner (10.6); Charles Sturt - North-East (11.2) in the north-west; and Onkaparinga - North Coast (11.6) in the outer south.

The highest rates in **Perth** were estimated for Perth - Inner (13.5 per 1,000 population) and - Remainder (11.4), with other high rates in outer-suburban SLAs including Rockingham, Serpentine-Jarrahdale and Kwinana. Excluding areas with no people with these characteristics (Peppermint Grove and Fremantle - Inner), the lowest rates were in Joondalup - South, Melville, Nedlands, Cambridge, Canning and Claremont.

In **Hobart**, the highest rates were estimated for Derwent Valley - Part A (7.6 per 1,000 population), Brighton (6.8), Glenorchy (6.2) and Sorell Part A (5.7), and the lowest were in Kingborough - Part A (3.4).

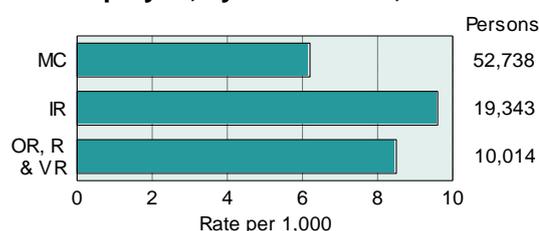
Litchfield - Part B (8.3), Darwin South West (7.4), Palmerston (6.5) and Darwin North West (5.4) had the highest estimated rates in **Darwin**.

**Canberra** Central and South were the only grouped SLAs estimated to have rates above the lowest range (four or more people per 1,000 population).

### Remoteness

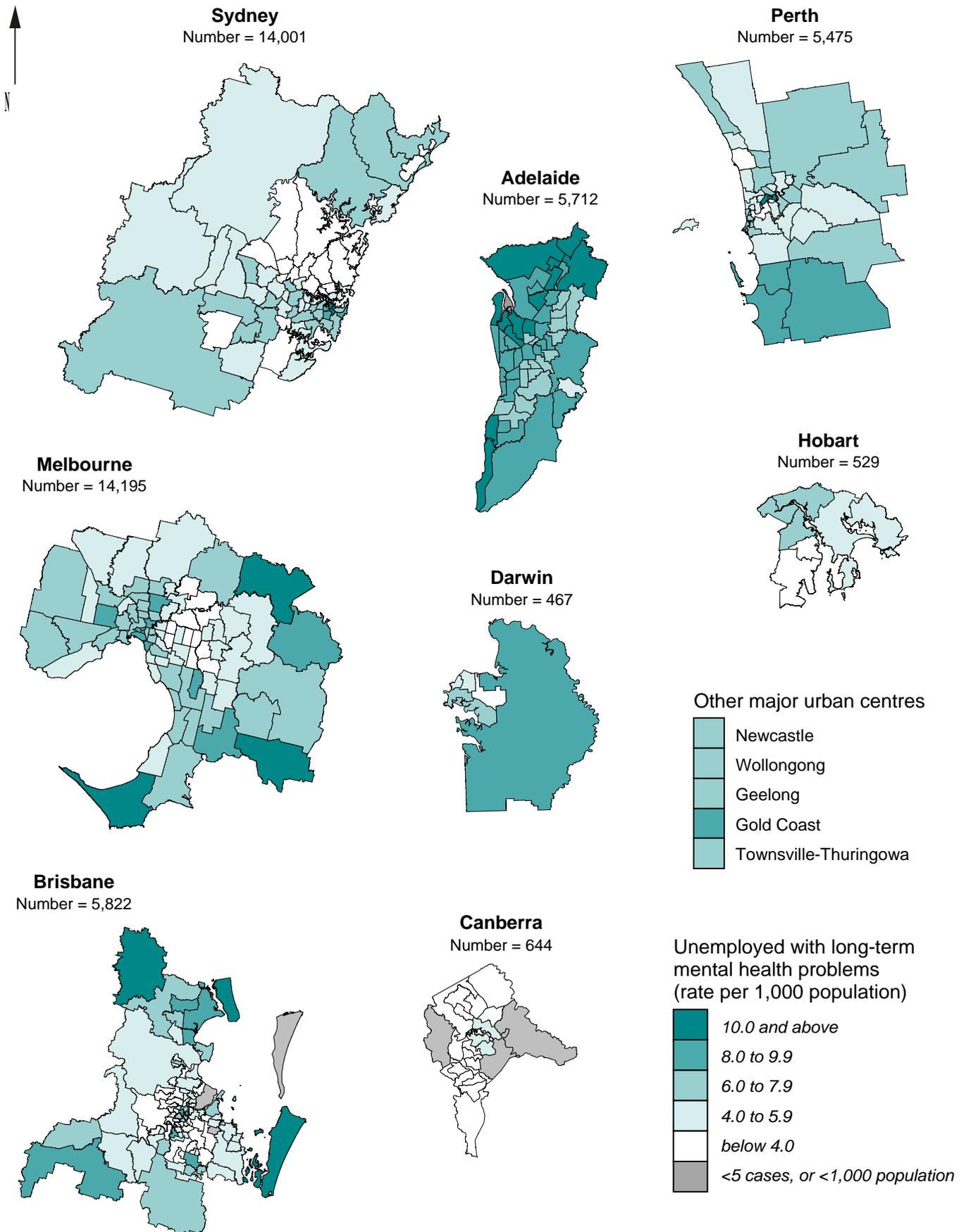
Rates were higher in areas outside of the Major Cities remoteness class.

**Figure 15: Estimated population aged 20 to 59 years with mental health problems, who are unemployed, by remoteness, 2007-08**



# Map 21: Estimated population aged 20 to 59 years with long-term mental health problems, who are unemployed, major urban centres, 2007-08

standardised rate per 1,000 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (provided as a consultancy)

## People with long-term mental health problems who are unemployed, Australia

**Notes:** These estimates were not made for the most remote areas of Australia. This is of particular relevance to the Northern Territory; as a result totals are not available for the Northern Territory. See comments on previous text page for other details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 23: Estimated population aged 20 to 59 years with long-term mental health problems, who are unemployed, by State/ Territory, Australia, 2007-08**

*Age-standardised rate per 1,000 population*

| Area                          | NSW | Vic. | Qld | SA   | WA   | Tas. | NT | ACT | Total |
|-------------------------------|-----|------|-----|------|------|------|----|-----|-------|
| Non-metropolitan <sup>1</sup> | 8.7 | 9.9  | 9.2 | 14.3 | 12.5 | 6.7  | .. | ..  | 9.5   |
| Total <sup>1</sup>            | 6.5 | 7.0  | 7.2 | 10.1 | 7.4  | 5.9  | .. | 3.0 | 7.0   |

<sup>1</sup> Estimates have not been made for SLAs in the remote areas of Australia: the 'Non-metropolitan' and 'Total' figures do not therefore represent the entire population of these areas. See Appendix B for further details.

### Non-metropolitan areas

The highest rates of the population aged 20 to 59 years reporting long-term mental health problems and who were unemployed were estimated for the non-metropolitan areas of South Australia and Western Australia; the lowest rate was in Tasmania. Rates in all the non-metropolitan areas were estimated to be higher than those in the capital cities.

SLAs in the north of non-metropolitan **New South Wales**, on the coast in Nambucca (17.1), Clarence Valley - Coast (14.7) and Balance (15.1), Great Lakes (14.7); and inland, in Walgett (14.2) and Brewarrina (14.0) had the highest rates of the population with these characteristics, with a similar rate in Eurobodalla (14.0). Lower rates were estimated for SLAs across much of the State.

In non-metropolitan **Victoria**, the highest rates of long-term mental health problems and unemployment were estimated for the SLAs of Central Goldfields Balance (17.5 per 1,000 population), and Pyrenees - North (14.1), to the north-west of Melbourne; East Gippsland - Orbost (15.2) and Balance (14.3), in the east of the State; and Bass Coast Balance (14.9) and Philip Island (14.0), Wellington - Alberton (14.3), and South Gippsland - East (14.1), in the south-east. The lowest rates were in SLAs in and around Geelong.

Many of the more remote areas of non-metropolitan **Queensland** were not mapped for this variable. Of those mapped, the highest rates were estimated for Cook (18.7 per 1,000 population) and Herberton (17.4) in the far north, and further south in Mount Morgan (16.4), Hervey Bay - Part B (16.4), Miriam Vale (16.0), Kolan (15.6) and Tiaro (15.3). The lowest rates were estimated for a group of SLAs covering an area from Roma to Belyando; as well as a number of SLAs closer to Brisbane, and on the Gold Coast.

Many of the SLAs in the non-metropolitan areas of **South Australia**, for which data were available, were estimated to have rates above 14 people per 1,000 population, with rates as high as 20 per 1,000 population estimated for the SLAs of Robe (23.3), Alexandrina - Coast (21.5), Flinders Ranges (21.3), Victor Harbor (21.1), Peterborough (20.8), and Yankalilla (20.4): these are the highest rates in Australia. Roxby Downs, with a rate of 7.8 people per 10,000 population, was the only SLA mapped in the lowest range.

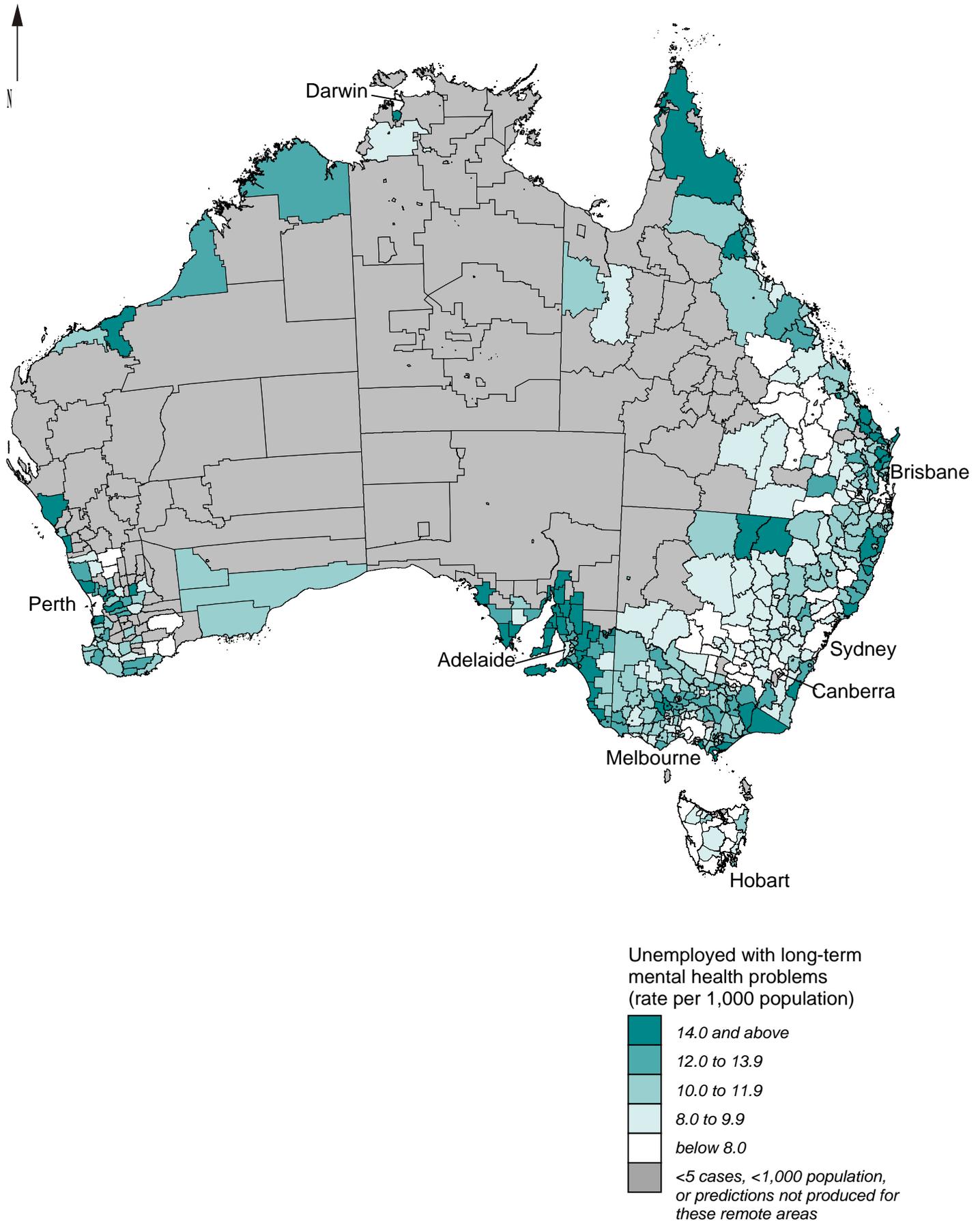
The highest rates of the population in the non-metropolitan areas of **Western Australia** with long-term mental health problems and who were unemployed, were estimated for SLAs in the south-west of the State (Kellerberrin (17.0 people per 10,000 population), Gingin (16.6), Murray (14.9) Beverley (14.7), Northam (14.5) and Mandurah (14.0)) and further north, in Irwin (15.0) and Northampton (14.7), and Port Hedland (16.1). The SLAs of Wongan-Ballidu and Dalwallinu, just north-east of Perth; and Gnowangerup, Lake Grace, and Jerramungup, in the outer south, had the lowest rates.

There were generally small numbers of people with these characteristics across non-metropolitan **Tasmania**, with the lowest rates estimated for Meander Valley - Part A, Launceston - Part C and - Part B, West Tamar - Part A, and Northern Midlands - Part A. Although still relatively low, the highest rates, just above 10 people per 1,000, were estimated for Break O'Day (10.8), Tasman (10.5) and Kentish (10.1).

Of the nine areas mapped in the non-metropolitan areas of the **Northern Territory**, the highest rates were estimated for the SLAs of Coomalie (18.3 per 1,000 population), Jabiru (10.6), and Katherine (9.4), with lower rates in the Alice Springs SLAs of - Ross (6.0), - Larapinta (6.1), and - Charles (6.7).

Map 22: Estimated population aged 20 to 59 years with long-term mental health problems, who are unemployed, Australia, 2007-08

standardised rate per 1,000 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## Prevalence of psychological distress, capital cities

People who gave responses in the 2007-08 National Health Survey which resulted in them being assessed as having 'high' or 'very high' psychological distress under the Kessler Psychological Distress Scale (K-10), as distinct from 'low' or 'moderate', are reported here. Based on previous research, a high or very high K-10 score may indicate a need for professional mental health care.<sup>71</sup>

**Indicator definition:** Estimated population aged 18 years and over assessed as having a high or very high level of psychological stress as indicated by the K-10, expressed as a percentage (age-standardised); further details of these estimates are in Appendix B.

**Table 24: Estimated population aged 18 years and over with high/ very high psychological distress, by capital city, 2007-08**

Per cent (age-standardised rate per 100 population)

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 12.0   | 12.1      | 11.8     | 12.3     | 9.9   | 9.4    | 10.8   | 10.0     | 11.7  |

### Capital cities

The estimated prevalence of high/very high psychological distress, as indicated by the K-10, varies across the capital cities, with the highest rates in Adelaide, Melbourne and Sydney. In each of the cities, the distribution of this population group reflects the pattern of socioeconomic disadvantage.

In **Sydney**, rates of above 12% were estimated for SLAs located in a band, from Botany Bay in the east to Penrith - East in the west, and south to Campbelltown - South. The highest rates were estimated for Parramatta - South (16.8%), Bankstown - North-East (16.7%), and Fairfield - East (16.6%); and the lowest for Ku-ring-gai (6.9%), Mosman (8.4%), and Hornsby - North (8.5%).

SLAs in **Melbourne** with the highest rates were largely located to the north and west of the city centre, including Hume - Broadmeadows (18.0%), Whittlesea - South-West (16.3%) and Brimbank - Sunshine (16.1%); with similar rates in Greater Dandenong - Dandenong (15.8%) and Balance (14.6 %) to the south-east. The lowest rates were in SLAs to the east, south-east and north-east.

The highest rates in **Brisbane** were estimated for Stretton-Karawatha/Kingston (16.5%), Redland Balance (16.1%) and Darra-Sumner/Wacol (16.0%), Loganlea (15.3%) and Marsden (15.2%), in the south; and Caboolture Central (15.2%) and Deception Bay (15.1%) in the north. Rates above the city average were also in these areas, other than for a few inner-city SLAs, south of the river. The lowest rates were in inner and middle suburbs to the east and west of the city.

Areas with the highest rates of high/very high psychological distress in **Adelaide** were Playford - Elizabeth (18.0%) and - West Central (16.9%) in the outer north; Port Adelaide Enfield - Park (17.2%, - Port (15.7%), and - Inner (15.3%) in the north-west; and Onkaparinga - North Coast

(15.4%) in the outer south. Low rates were estimated for SLAs to the east, south and south-east of the city.

Compared to the other capital cities, **Perth** had a relatively low prevalence of high/very high psychological distress. The highest rates were estimated for Perth - Inner (13.7%), Kwinana (12.4%), Stirling - Central (12.1%), and Wanneroo - South (11.8%). The lowest rates were estimated for the inner city areas of Peppermint Grove, Nedlands, Cambridge and Cottesloe.

Although **Hobart** had the lowest overall rate of high/very psychological distress, considerable variation in rates was still evident, ranging from 7.5% in Kingborough - Part A, to over 10% in Brighton (12.6%), Derwent Valley part A (12.0%), Glenorchy (11.4%) and Sorell (10.4%).

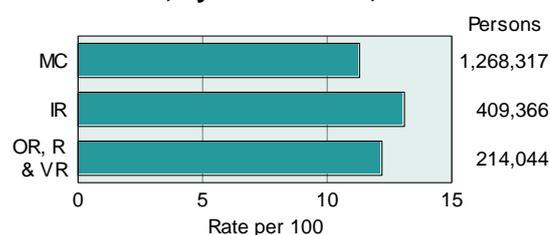
In **Darwin**, rates were highest in Palmerston (11.6%); a little lower in Litchfield - Part B (11.1%), Darwin South West (10.9%) and Darwin North West (10.8%); and lowest in Litchfield - Part A (8.7%) and Darwin North East (9.9%).

Rates were consistent across **Canberra**, with most SLA groups mapped in the second lowest range, other than for Eastern Fringe, which had the highest estimated rate (13.8 %).

### Remoteness

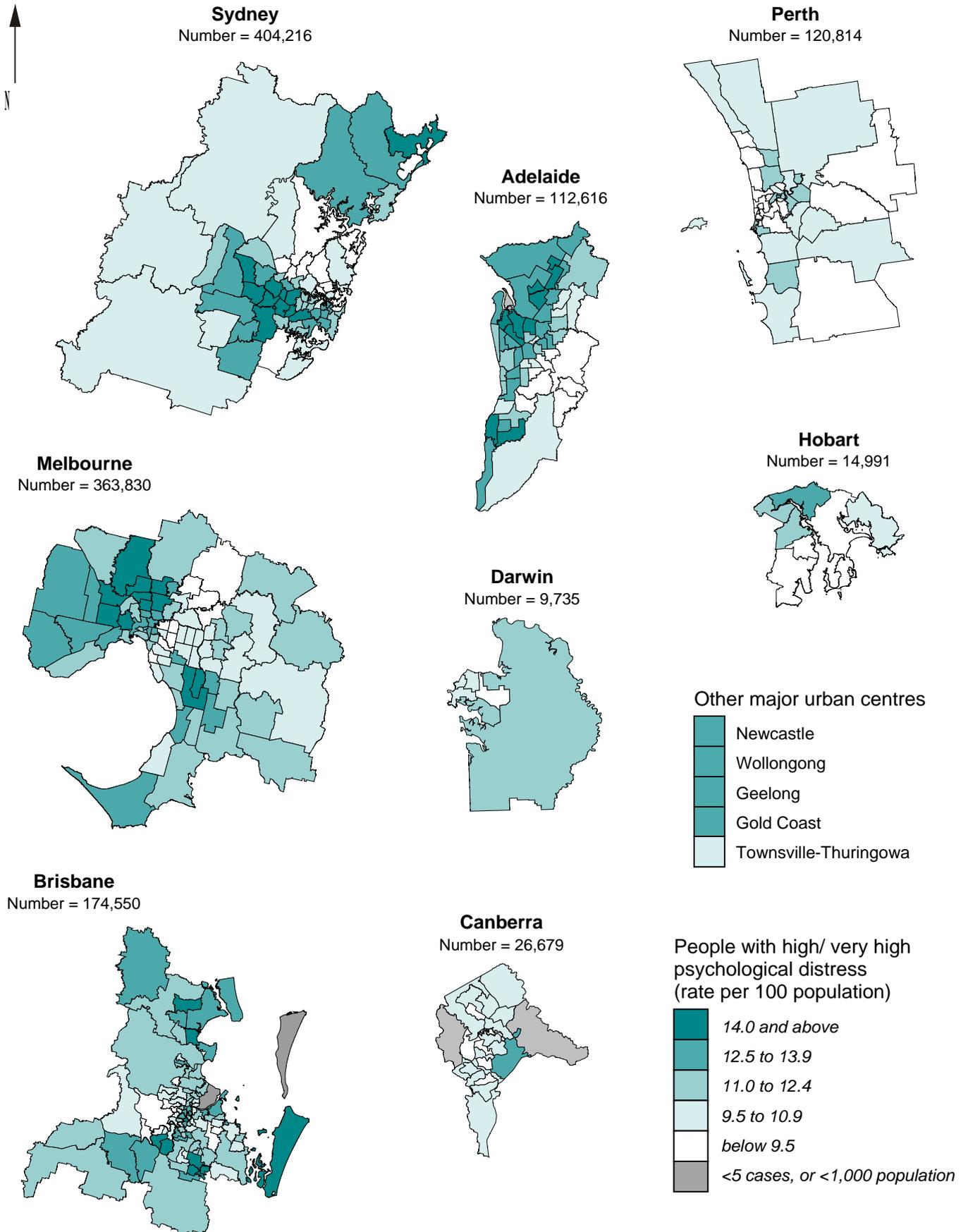
Rates of high/very high psychological distress were somewhat higher in remoteness classes outside of the Major Cities.

**Figure 16: Estimated population aged 18 years and over with high/ very high psychological distress, by remoteness, 2007-08**



# Map 23: Estimated population aged 18 years and over with high/ very high psychological distress, major urban centres, 2007–08

standardised rate per 100 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## Prevalence of psychological distress, Australia

**Notes:** These estimates were not made for the most remote areas of Australia. This is of particular relevance to the Northern Territory; as a result, totals are not available for the Northern Territory. See comments on previous text page for other details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 25: Estimated population aged 18 years and over with high/ very high psychological distress, by State/ Territory, Australia, 2007-08**

*Per cent (age-standardised rate per 100 population)*

| Area                          | NSW  | Vic. | Qld  | SA   | WA  | Tas. | NT | ACT  | Total |
|-------------------------------|------|------|------|------|-----|------|----|------|-------|
| Non-metropolitan <sup>1</sup> | 12.3 | 11.7 | 11.9 | 11.5 | 9.7 | 10.6 | .. | ..   | 11.8  |
| Total <sup>1</sup>            | 12.1 | 12.0 | 11.9 | 12.1 | 9.9 | 10.1 | .. | 10.0 | 11.7  |

<sup>1</sup> Estimates have not been made for SLAs in the remote areas of Australia: the 'Non-metropolitan' and 'Total' figures do not therefore represent the entire population of these areas. See Appendix B for further details.

### Non-metropolitan areas

There is little difference in the estimated prevalence of high/very high psychological distress, as indicated by the K-10, between the metropolitan and non-metropolitan areas of Australia, with the largest difference in Tasmania.

In non-metropolitan **New South Wales**, the highest rates were in SLAs located along the coast, and inland in the north of the State, with rates above 14% estimated for Brewarrina (15.2%), Walgett (14.7%), Kempsey (14.4%), Nambucca (14.3%) and Tweed - Tweed Heads (14.2%) and - Tweed Coast (14.1%). The lowest rates were estimated for SLAs in the south of the State.

Three main areas were estimated to have above-average prevalence of high/very high psychological distress in **Victoria**: one to the north-west of Melbourne, another in the east of the State and the third in and around Geelong. The highest rate was estimated for Corio - Inner (14.3%), with slightly lower rates in Geelong, Geelong West and Bellarine Inner; Central Goldfields - Maryborough and Balance (both 14.1%) and Bendigo Eaglehawk had the highest rates in this cluster of SLAs; as did Latrobe - Morwell (13.7%) and - Moe (13.6%) in the east. Areas with the lowest rates were evident across the State.

A group of SLAs along the coast, from Brisbane to south of Mackay (including Mount Morgan (17.4%), Hervey Bay - Part B (16.1%), Kolan (15.8%) and Nanango (15.0%)); and another, in the far north of **Queensland** (Cook (15.6%) and Herberton (15.0%)), were characterised by high rates of high/very high psychological distress. Low rates were mainly concentrated in an area from Belyando and Nebo, to Balonne and Waggamba on the southern border. Data are not shown for much of inland Queensland, as the estimates were not considered to be reliable.

No data were available for many SLAs in **South Australia**, which have small populations, or are considered to be remote. The highest rates were estimated for adults living in the towns of Peterborough (16.3%), Port Pirie (14.2%), Whyalla (13.7%), and Port Augusta (13.5%) and Murray Bridge (13.3%). Roxby Downs and Kimba had the lowest rates; and a number of areas around Adelaide and in the south-east also had low rates.

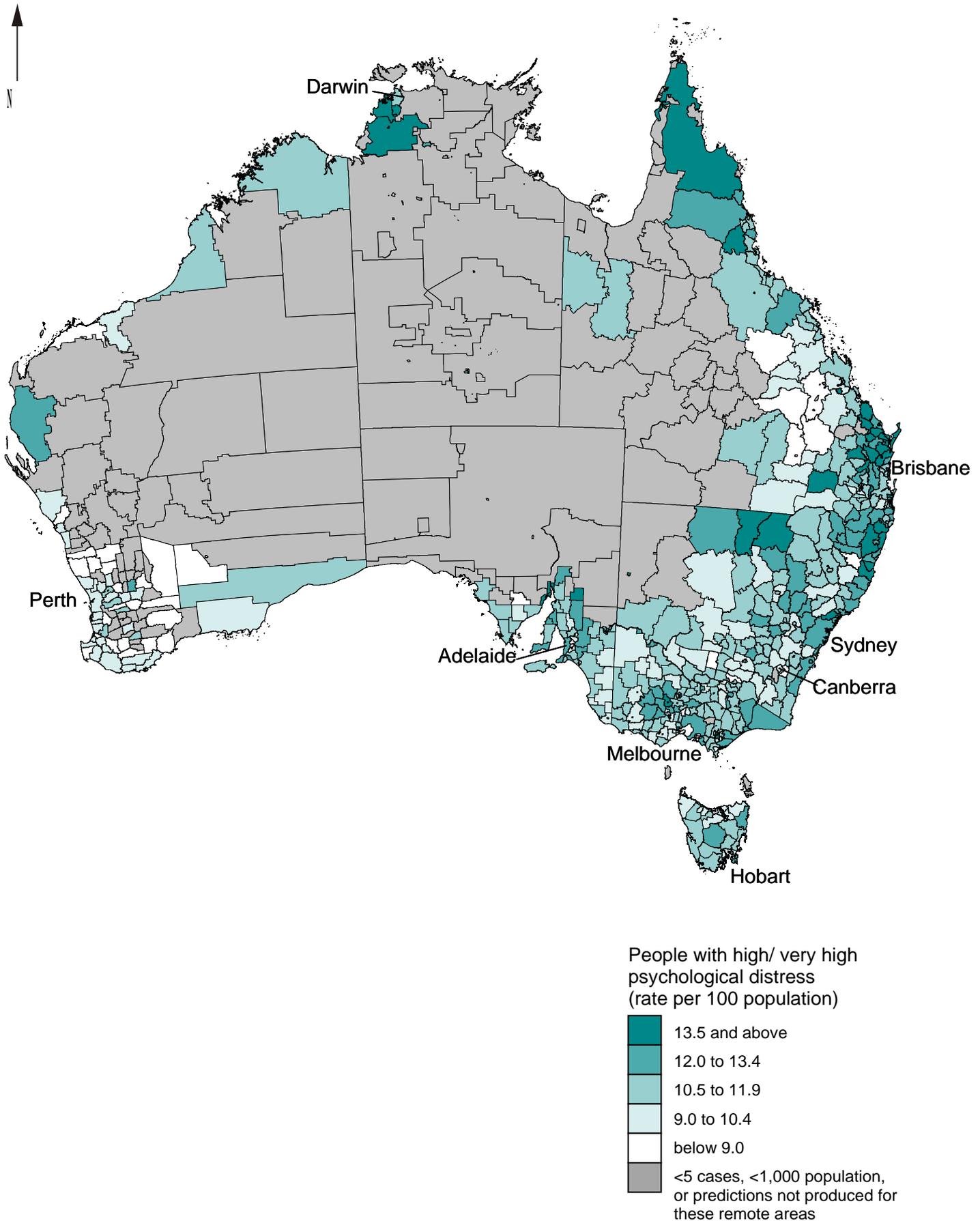
Rates were relatively low across the non-metropolitan areas of **Western Australia**, with the highest in Carnarvon and Kellerberrin (both 12.1%). Other relatively high rates were recorded in SLAs in Broome and Wyndham-East Kimberley in the far north, in Geraldton and in numerous SLAs in the south-west, where many of the lowest rates were also evident. Again, estimates were not produced for many areas.

In non-metropolitan **Tasmania**, the prevalence of high/very high psychological distress ranged from 8.8% in Meander Valley - Part A to 12.8% in Break O'Day. Higher rates were generally estimated for SLAs on the north (George Town - Part A (12.3%)) and south-west coast (Tasman (12.1%)), as well as in central Tasmania (Central Highlands (12.1%) and Southern Midlands (11.8%).

Coomalie (14.7%), Daly (14.5%), Alice Springs - Stuart (13.2%) and Katherine (12.7%) had the highest rates of the very few SLAs in the non-metropolitan areas of **Northern Territory** for which estimates could be made. Prevalence rates below the non-metropolitan average were estimated for Jabiru (with a rate of 10.1%) and the Alice Springs SLAs of - Ross (10.9%) and - Larapinta (11.4%).

# Map 24: Estimated population aged 18 years and over with high/ very high psychological distress, Australia, 2007–08

standardised rate per 100 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (provided as a consultancy)

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## Aboriginal and Torres Strait Islander Australians

In Australia, the parlous state of wellbeing of Aboriginal and Torres Strait Islander peoples has been documented for decades.<sup>72</sup> Key social and economic measures in areas such as life expectancy, poverty, employment, housing ownership, education, justice and health show that these populations are at substantially higher risk of poorer wellbeing and social exclusion compared with non-Indigenous Australians, and represent the most disadvantaged groups in our society. This situation is the result of the inter-generational impact of colonisation, dispossession of lands, lost and stolen generations and the attempted decimation of the cultures and languages of the peoples inhabiting Australia before 1770.<sup>73, 74</sup> Therefore, for there to be a start to improving Aboriginal and Torres Strait Islander wellbeing and 'closing the gap', a process of genuine reconciliation, which acknowledges the past in light of the present, needs to be embraced across all sectors of society, accompanied by changes in attitudes, practices and the sharing of power.<sup>75,76</sup>

Most indicators of Aboriginal and Torres Strait Islander wellbeing, such as those included in the atlas, tend to reflect a 'deficit' model, highlighting problems and the extent of disadvantage experienced over a lifetime, and between generations. While there is an imperative to illustrate the unmet need for appropriate resources and services, this approach overlooks the strengths, capabilities and passion that the majority of Aboriginal and Torres Strait Islander peoples demonstrate in caring for their family and community, their environment, and their land; and fails to represent the holistic nature of Indigenous cultures, histories and understandings.<sup>77,78</sup> A positive concept of Aboriginal and Torres Strait Islander wellbeing can be drawn from the following definition, which notes that achieving wellbeing is an attribute of communities, as well as of the individuals within a community; and it identifies cultural wellbeing, along with physical, social, spiritual and emotional wellbeing, as equally important:

*'Not just the physical wellbeing of the individual but the social, emotional and cultural wellbeing of the whole community. This is the whole-of-life view and it also includes the cyclical concept of life-death-life'.<sup>79</sup>*

Thus, a community's capabilities are fundamental to enhancing individual and collective wellbeing, preserving cultural knowledge, engaging in social and economic development, and in resolving local issues. Unfortunately, indicators that might illustrate these capabilities are not yet available in a form needed for mapping.

A number of indicators of Aboriginal and Torres Strait Islander peoples' wellbeing are the focus of government attention, such as life expectancy, infant and child mortality, access to early childhood education, educational attainment and employment. There is a strong thread of interdependence between them, and the nature of the inter-relationships is complex.<sup>80</sup> For example, post-secondary educational attainment is linked to year 10 and 12 retention and attainment.<sup>81</sup> In turn, these are related to household income, education and employment, levels of racism and discrimination, and so forth. None of these policy areas in isolation will achieve the priority outcomes mentioned above but, together, they may have the capacity to start to address the existing intergenerational cycle of disadvantage for Aboriginal and Torres Strait Islander peoples whose needs are not being met; and to support the health and wellbeing of the members of these populations who are doing well.

The indicators listed in **bold** type are included in this sub-section. The remaining indicators listed below, and other indicators which are relevant, can be found online at [www.adelaide.edu.au/phidu/](http://www.adelaide.edu.au/phidu/).

- Indigenous population: number of people
- **Indigenous population: % of total population**
- Indigenous participation in preschool and primary education
- **Indigenous participation in secondary education**
- **Indigenous women smoking during pregnancy**
- **Indigenous median age at death**
- **Non-Indigenous median age at death (as a comparator)**

## Indigenous population, capital cities

*Aboriginal and Torres Strait Islander peoples are disadvantaged across all domains of wellbeing compared to their non-Indigenous counterparts.<sup>7</sup> Nationally, the majority of the Aboriginal and Torres Strait Islander populations live in cities and towns, but around one-quarter resides in areas classified as 'Remote' or 'Very Remote' in relation to having 'very little or very restricted access to goods and services and opportunities for social interaction'. Only 2% of the non-Indigenous population live in Remote or Very Remote areas.*

**Indicator definition:** The Aboriginal and Torres Strait Islander population (based on people identifying as such in the 2011 Census), as a proportion of the total population. Note: The Aboriginal and Torres Strait Islander population are also referred to in the text as 'Indigenous' (people, population, women, etc.).

**Table 26: Indigenous population, by capital city, 2011**

Per cent

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 1.2    | 0.4       | 2.0      | 1.3      | 1.6   | 3.3    | 9.2    | 1.4      | 1.3   |

### Capital cities

The proportion of Aboriginal and Torres Strait Islander people living in the capital cities is low, with the exception of Darwin, where they comprise 9.2% of the population.

Areas in **Sydney** with relatively large Indigenous populations are generally located in outer areas, in the outer north, the outer west and the south-west. SLAs with the highest proportions were Blacktown - South-West (4.6%), Wyong - North-East (4.0%) and - South and West (3.3%), Campbelltown - South (3.6%) and - North (2.9%), and Penrith - East (3.3%) and - West (2.7%).

Reflecting the overall low proportion in **Melbourne**, the Indigenous population comprised low proportions at the SLA level. The exception was Yarra Ranges - North, with 2.2% of its population estimated to be Indigenous. Preston had the largest Indigenous population, of 841 people (1.0%).

Aboriginal and Torres Strait Islander people comprised high proportions of the population in a number of areas in **Brisbane**, in three main clusters of SLAs. The highest proportions were in Redland Balance (7.5%), Darra-Sumner/Wacol (6.6%), Ipswich - West (4.7%), Loganlea and Stretton-Karawatha/Kingston (both 4.5%), Marsden, Ipswich Central and Caboolture - Central (all 4.3%), Murarrie (4.2%) and Deception Bay (4.0%).

In **Adelaide**, the highest proportions of this population group lived in three main areas: in the outer north, in Playford - West Central (4.3%) and - Elizabeth (4.1%; and the largest number), and Salisbury - Inner North (2.3%) and - Central (2.0%); the north-west, in all five of the Port Adelaide Enfield SLAs, ranging from 3.3% in - Port, to 2.0% in - East, and Charles Sturt - North-East (2.0%); and the outer south, in Onkaparinga - North Coast (2.7%) and - Hackham (2.2%).

In **Perth**, Aboriginal and Torres Strait Islander people were generally in middle and outer suburban SLAs, in Kwinana (3.9%), Swan (3.0%, the largest number of Indigenous people), Belmont (3.0%), Armadale (2.8%), Mundaring and Bassendean (both 2.7%), and Gosnells (2.5%).

In **Hobart**, the proportions were relatively high in all of the SLAs (other than in Hobart - Inner and - Remainder), with Brighton (7.5%), and Glenorchy (the largest number) and Derwent Valley - Part A both 4.2%. Clarence, with 2.9%, had the second largest number.

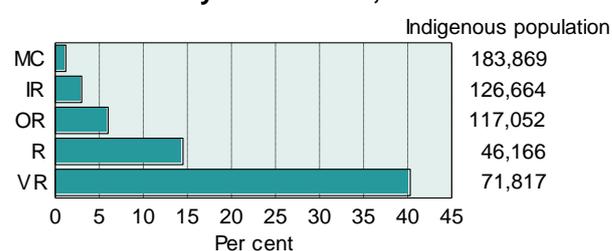
Aboriginal people and Torres Strait Islanders comprised relatively high proportions of the population in SLAs in **Darwin**, ranging from 6.6% in Darwin South West, to the highest proportion, of 12.6%, in Palmerston (and the largest number). Darwin North East had the second highest proportion, with 11.1%.

In **Canberra**, the highest proportions of this population group were generally in SLAs in outer areas of the city, including Eastern Fringe (6.0%), and Tuggeranong North West, Tuggeranong South, and Kambah (all 2.2%).

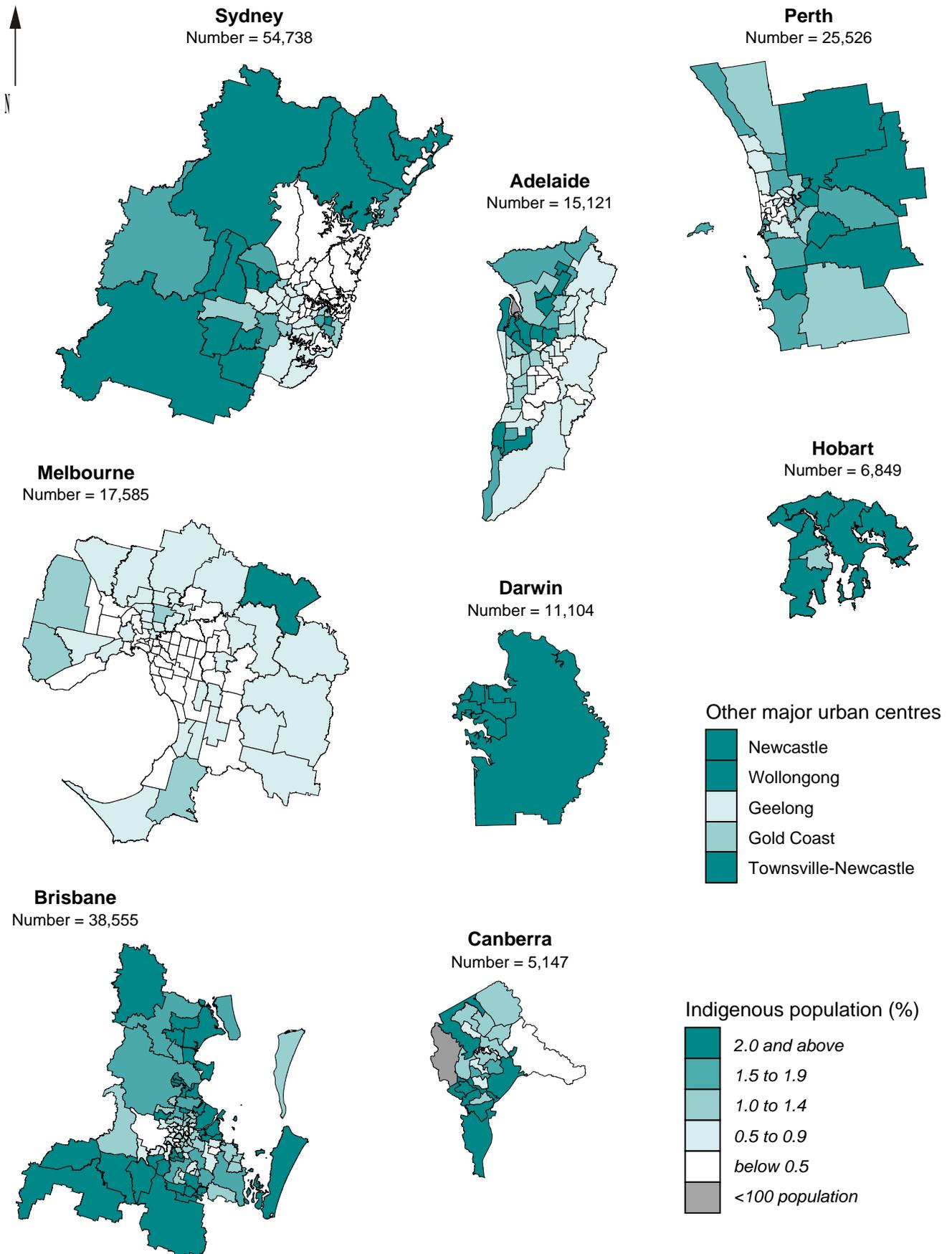
### Remoteness

There is a clear gradient, and a substantial differential, in the distribution by remoteness of the Indigenous population (as a proportion of the total Australian population), from a low of 1.2% in the Major Cities areas to 14.5% in the Remote and 40.3% in the Very Remote areas.

**Figure 17: Indigenous population, by remoteness, 2011**



Map 25: Indigenous population, major urban centres, 2011  
 per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data from ABS Census 2011

## Indigenous population, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 27: Indigenous population, by State/ Territory, Australia, 2011**

*Per cent*

| Area             | NSW | Vic. | Qld | SA  | WA  | Tas. | NT   | ACT | Total |
|------------------|-----|------|-----|-----|-----|------|------|-----|-------|
| Non-metropolitan | 4.7 | 1.4  | 4.9 | 3.6 | 7.5 | 4.5  | 50.9 | ..  | 4.8   |
| Total            | 2.5 | 0.7  | 3.6 | 1.9 | 3.1 | 4.0  | 26.8 | 1.5 | 2.5   |

### Non-metropolitan areas

There are wide variations in the proportion of the population who are Indigenous in the areas outside of the capital cities; by far the highest proportion was recorded in the Northern Territory, with half of its population identifying as Aboriginal or Torres Strait Islander or both in the 2011 Census (50.9%). Proportions in the non-metropolitan areas of the States ranged from 1.4% in Victoria to 7.5% in Western Australia.

Indigenous people comprised very high proportions of the population in a band of SLAs across much of inland **New South Wales**, including Brewarrina (59.0%), Central Darling (38.3%), Bourke (30.2%), Coonamble (29.3%) and Walgett (28.1%). The largest numbers of this population group (with 2,500 or more people) were in Dubbo, Tamworth, Kempsey, Moree Plains, Wagga Wagga and Greater Taree.

The majority of SLAs in the non-metropolitan areas of **Victoria** had less than 2% of their population who were Indigenous. Areas with the highest proportions were located in the north of the State (including Swan Hill - Robinvale (7.9%) and - Central (4.3%), Greater Shepparton - Part A and Mildura - Part A (both 3.8%), and Campaspe - Echuca (3.7%)); as well as in the east of the State, including the East Gippsland SLAs of - Orbost (4.9%) and - Bairnsdale (3.2%).

The extent of distribution of the Aboriginal and Torres Strait Islander population in the non-metropolitan areas of **Queensland** is not evident from the scale of this map, with many of the highest proportions in small communities, in particular on Cape York and in the Torres Strait, with proportions of over 95% of the population in the small communities of Yorke, Poruma, Dauan, Cherbourg, Yarrabah, Mabuiag, Injinoo, Kubin and Napranum. As noted elsewhere, the online atlas and datasheets allow a better examination of these data. Other areas, with as high as one third of the population being Indigenous, are more evident on the map, and cover a broad area from Cape York to the southern State border. The largest numbers were in regional centres, including Cairns, Rockhampton, Mackay and Mount Isa.

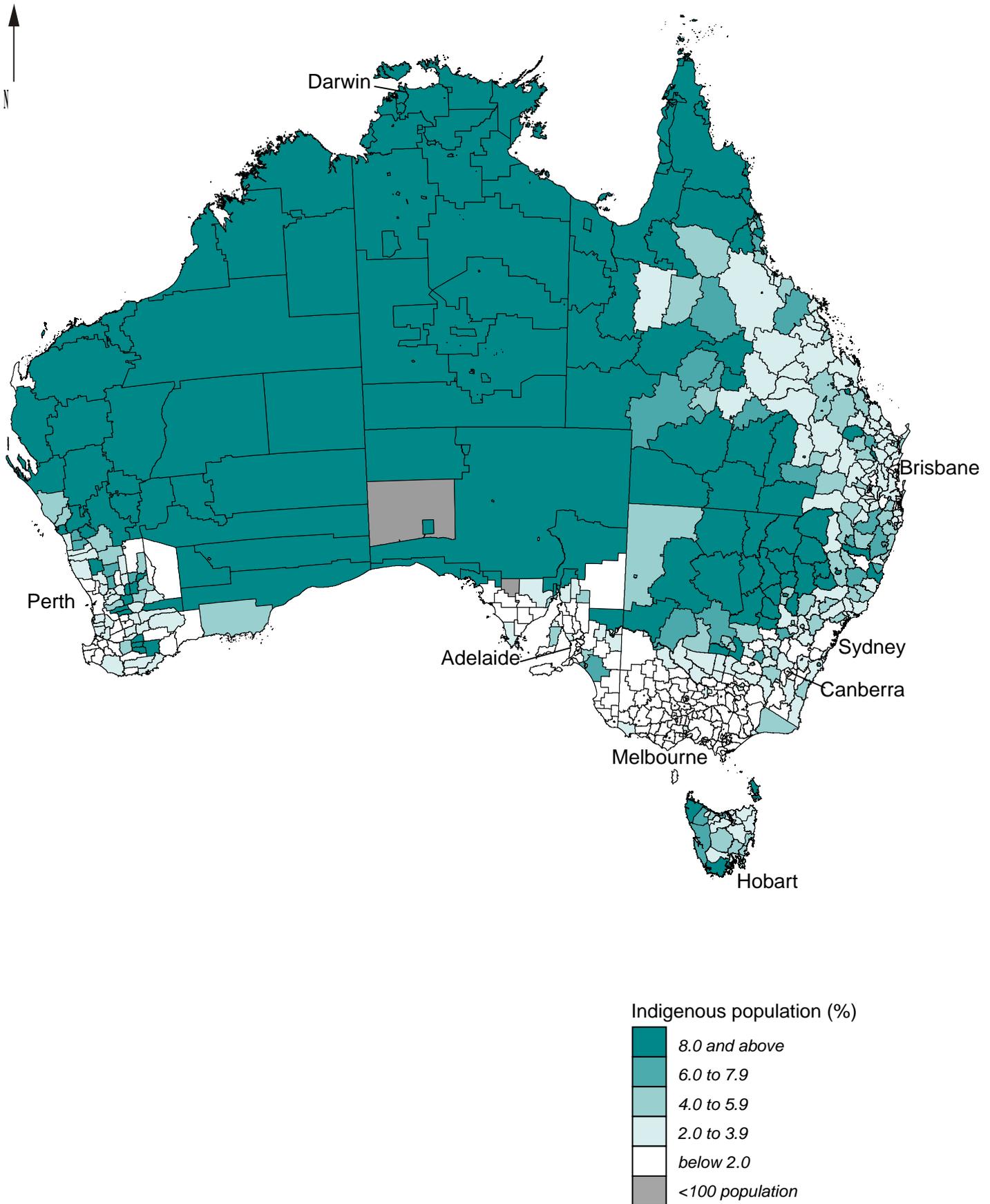
In non-metropolitan **South Australia**, the Aboriginal population was highly represented in the far north of the State (86.2% in Anangu Pitjantjatjara, and the second largest number, after Port Augusta (16.9%), and 18.4% in Unincorporated Flinders Ranges); on the west coast (49.8% in Unincorporated West Coast and 24.9% in Ceduna); and in Unincorporated Riverland (50.0%), as well as in the upper south-east of the state. The rest of the State was characterised by low proportions.

Indigenous people comprised relatively high proportions of the population across much of **Western Australia**, in particular in Ngaanyatjarraku (84.5%), Halls Creek (76.3%), Menzies (66.2%), Upper Gascoyne (56.6%), Derby-West Kimberley (48.1%), Mount Magnet (36.0%), Wyndham-East Kimberley (34.8%) and Meekatharra (32.8%). A number of communities in the south-west had proportions of 8% and higher, although many SLAs in this part of the State also had very low proportions. The largest numbers were in the far north of the State, in Broome, Kimberley and Halls Creek.

In **Tasmania**, Indigenous people formed the highest proportions of the population in the SLAs of Flinders (16.4%) in the Bass Strait; in the north-west, in Circular Head (11.7%); and in the south, in Huon Valley (8.6%). The largest numbers of this population group were in the northern areas of Launceston - Part B and Devonport, and in Huon Valley in the south.

Only two SLAs in the **Northern Territory**, outside of Darwin, were estimated to have Aboriginal and Torres Strait Islander populations below 10%: these were Cox Peninsula with 4.0%; and Nhulunbuy with 6.1%. The highest proportions, all over 85%, were recorded in the Indigenous communities of Belyuen, Thamarrurr, Angurugu, Marngarr, East Arnhem - Balance, Tiwi Islands, Kunbarllanjnja and West Arnhem. East Arnhem - Balance, West Arnhem, Tiwi Islands, Sandover, Katherine, Thamarrurr and Tanami all had populations of more than 2,000 Aboriginal people and Torres Strait Islanders.

Map 26: Indigenous population, Australia, 2011  
per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data from ABS Census 2011

## Indigenous participation in secondary education, capital cities

*Increasing rates of educational attainment for Aboriginal and Torres Strait Islander peoples in the education system are key strategies to improve socioeconomic and health outcomes. Capacity to engage with and learn at school is linked to individual life experience and influenced by family, community, cultural, school and social contexts.<sup>82</sup> Lower participation is hampered by poor school access (in some remote areas), inability to afford education, and other community expectations affecting the ability of families to get children to school.<sup>83</sup>*

**Indicator definition:** Aboriginal and Torres Strait Islander young people aged 16 years in full-time secondary school education, as a proportion of all Aboriginal and Torres Strait Islander people aged 16 years. The area mapped is the Indigenous Area (IA) as the number of cases at the SLA level is generally too small to be reliable. However, even for IAs, and removing IAs with populations below ten Indigenous persons aged 16 years, the numbers are small; and the data are subject to perturbation by the ABS, designed to protect confidentiality.

**Table 28: Indigenous participation in full-time secondary education at age 16, by capital city, 2011**

| Per cent |           |          |          |       |        |        |          |       |
|----------|-----------|----------|----------|-------|--------|--------|----------|-------|
| Sydney   | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
| 70.1     | 74.4      | 74.7     | 77.5     | 50.9  | 59.6   | 71.2   | 92.8     | 69.0  |

### Capital cities

Canberra had the highest rate of full-time participation in secondary education of Indigenous young people at 16 years of age (92.8%). Participation rates in the remainder of the capital cities were between 70 to 80 per cent, apart from in Perth (50.9%, the lowest) and Hobart (59.6%).

In 2011, Indigenous young people's participation in full-time secondary education was below 50% in the **Sydney** Indigenous Areas (IAs) of Hawkesbury; a number of Blacktown IAs, including - Bidwell, - Blackett/Emerton, - Dharruk/Hebersham, - Inner West, - Lethbridge Park/Tregear, - Mount Druitt/Whalan and - Shalvey; as well as in Campbelltown - Airds, - Central and - South West. Participation rates were over 80% in a number of IAs to the north and south of the inner city, and in the west, in the Blue Mountains IAs.

In **Melbourne**, the highest rates of Indigenous participation in secondary school were in the inner IAs of Maribyrnong/Moonee Valley and Melbourne/ Port Phillip, and in the outer IAs of Whittlesea, North-Eastern Suburbs, Yarra Ranges, Frankston and Wyndham. The lowest rates were in Melton, Greater Dandenong and Hume.

IAs in **Brisbane** with the highest rates of Indigenous full-time educational participation at age 16 included the inner Brisbane City IAs of - Eastern Inner, - Eastern Outer, - Northern Outer, - North-Western Inner and - Southern Outer, and the southern IAs of Redland, Kingston and Woodridge. Low rates were recorded for Indigenous young people in Inala, Marsden and Beaudesert/Boonah, also located in the south.

At least 80% of Indigenous young people aged 16 years in **Adelaide** were participating in secondary education in West Adelaide, Marion,

Unley/Burnside/Mitcham, Port Adelaide Enfield and Charles Sturt. There were no IAs in Adelaide with participation rates below 60%.

A number of IAs in **Perth** had rates below 50%, including Melville, Cockburn, Gosnells, Rockingham, Bayswater, Armadale, Canning and Stirling. Participation rates were highest in South Perth and Joondalup, with 80% or more Indigenous 16 year olds in full-time secondary education.

Participation in full-time secondary education of 16 year old Indigenous students in **Hobart** was lowest in Glenorchy and Hobart, and highest in Clarence.

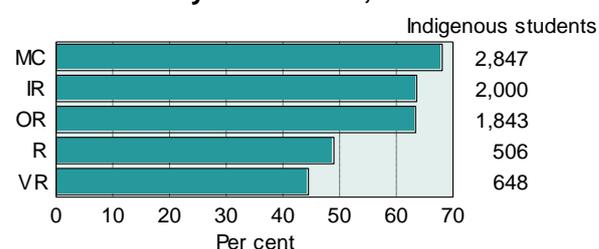
In **Darwin**, participation in full-time secondary education of 16 year old Indigenous students varied from below 50% in Palmerston - Remainder, Moulden and Litchfield, to over 80% in Marrara/Winnellie/Berrimah, Karama, Moil/Wagaman and Driver/Woodroffe.

In **Canberra**, participation rates for the three Indigenous Areas were all over 80%.

### Remoteness

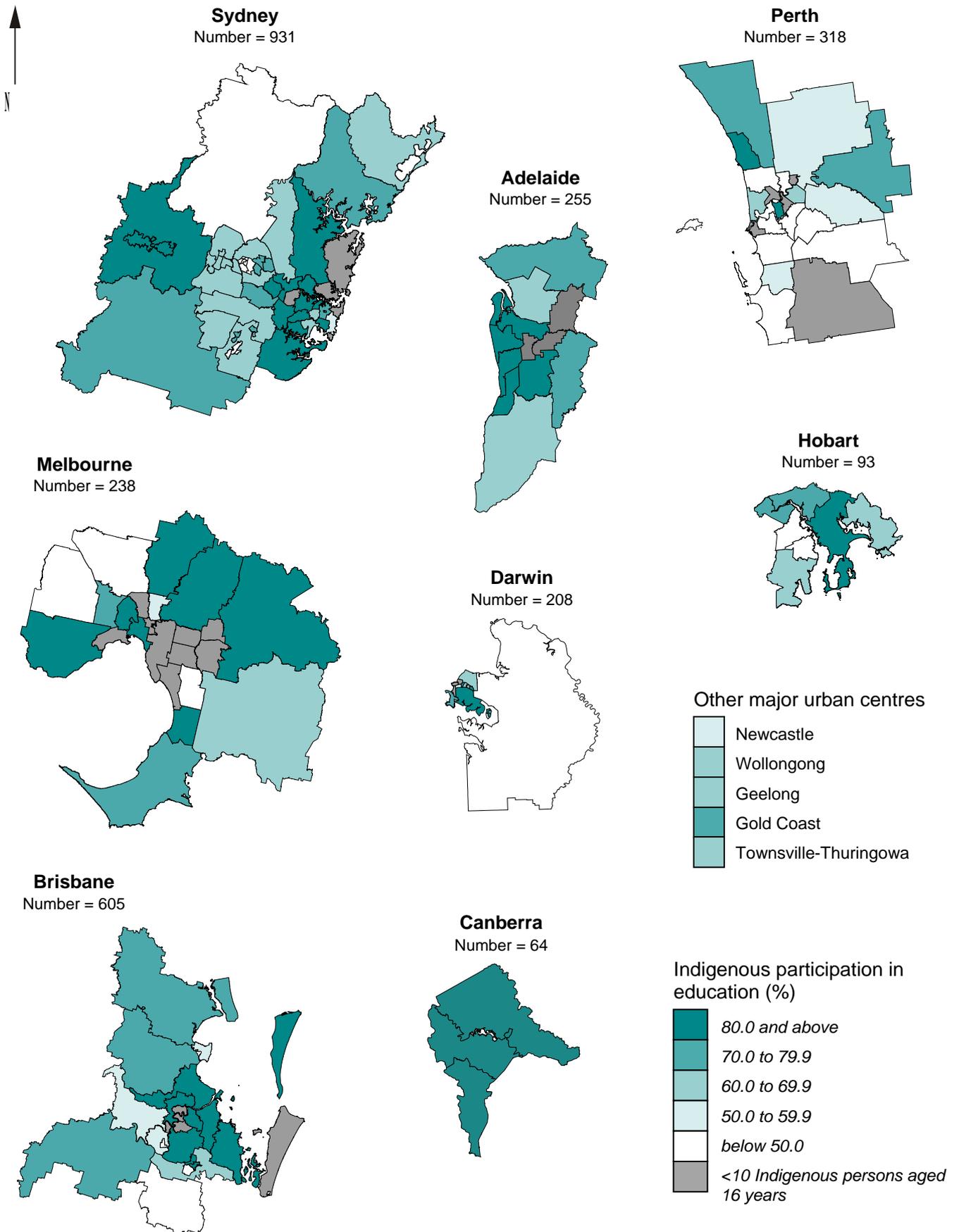
Around two thirds of Indigenous young people aged 16 years living in the first three remoteness classes were participating in secondary education full-time in 2011; participation rates then decreased, to 44.5% in the Very Remote areas.

**Figure 18: Indigenous participation in full-time secondary education at age 16, by remoteness, 2011**



# Map 27: Indigenous participation in full-time secondary education at age 16, major urban centres, 2011

per cent by Indigenous Area



Source: Compiled in PHIDU based on data from ABS 2011 Census

## Indigenous participation in secondary education, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 29: Indigenous participation in full-time secondary education at age 16, by State/ Territory, Australia, 2011**

| <i>Per cent</i>  |      |      |      |      |      |      |      |      |       |
|------------------|------|------|------|------|------|------|------|------|-------|
| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT  | Total |
| Non-metropolitan | 63.0 | 64.6 | 60.3 | 69.6 | 46.2 | 57.6 | 44.4 | ..   | 58.4  |
| Total            | 65.1 | 68.8 | 63.6 | 73.7 | 48.1 | 58.3 | 50.4 | 92.8 | 61.7  |

### Non-metropolitan areas

The lowest participation rates for Indigenous young people at age 16 engaged in full-time secondary education in the non-metropolitan areas were recorded in the Northern Territory (44.4%) and Western Australia (46.2%). Non-metropolitan South Australia (69.6%) had the highest rate, with rates above 60% also recorded in Victoria, New South Wales and Queensland.

At least 80% of the Indigenous population aged 16 years living in non-metropolitan **New South Wales** in the Indigenous Areas (IAs) of Blayney/Cabonne, Byron, Narrandera, Central Murray/Lower Murrumbidgee, Cowra, Gloucester/Dungog, Guyra, Tweed - Remainder, Upper Hunter Shire, Lithgow/Oberon and Tumut were participating in secondary education on a full-time basis. The IAs of Bourke, Gundagai/Junee/Harden, Moree Plains, Albury, Brewarinna, Young, Wellington, Newcastle, Mid-Western Regional, Broken Hill and Dubbo recorded the lowest rates (of less than 50%).

Campaspe, Latrobe, Swan Hill, Wellington, Ballarat and Warrnambool recorded the highest participation rates (of 80% or more) in the non-metropolitan areas of **Victoria**, with the lowest rates along the northern border in the IAs of East Gippsland, Mildura and Greater Shepparton.

High rates of educational participation in the non-metropolitan areas of **Queensland** were recorded in the IAs of Cairns - Barron, - City and - Western Suburbs, Darling Downs South-East, Esk/Kilcoy, Livingstone, Weipa, South Wide Bay, Herberton, Atherton/Eachem, Charters Towers, Burnett and Caloundra. In addition to areas with no Indigenous young people participating (Mornington, Pormpuraaw and Woorabinda), the lowest participation rates (of less than 40%) were recorded in Aurukun, Murgon, Yarrabah, Doomadgee, Cherbourg, Palm Island, Gatton, Cloncurry/McKinlay, Umagico and Balonne. The next lowest participation rates (of 40% to less than 50%) included the IAs of South-West Queensland, Paroo, South Central Queensland, Emerald, Hope Vale, Maryborough, Mackay,

Kowanyama, Cardwell, Warwick and Hervey Bay.

Rates in the non-metropolitan areas of **South Australia** were generally higher than those in the other States and Territories, with participation rates of Aboriginal young people aged 16 in secondary education recorded in the lowest range only for Port Augusta (43.2%). The next lowest rates were in Port Lincoln (52.4%), Murray Bridge (63.0%) and Whyalla (66.7%). The highest rates were recorded in the IAs of Mid-North and Yorke.

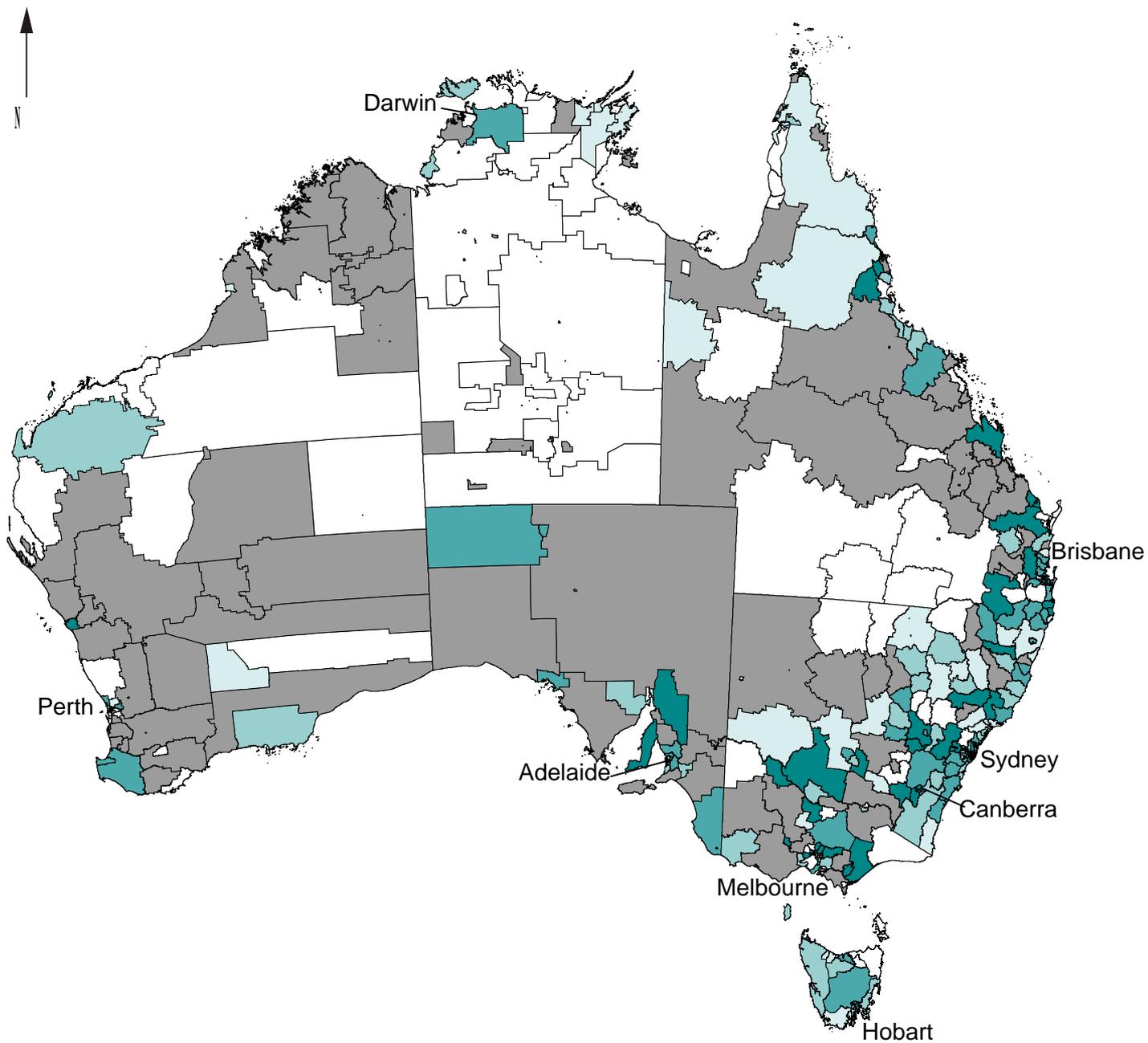
Throughout **Western Australia**, participation in secondary education of 16 year old Indigenous people was low, with the Indigenous Area of Northam recording no such students. Fewer than 40% of Indigenous young people in Kununurra, Ngaanyatjarraku (excl. Warburton), East Pilbara, Derby, Fitzroy Crossing, Fitzroy River, Port Hedland, Kalgoorlie/Boulder, Halls Creek Town and Mandurah were participating in full-time secondary education. Low rates (of 40% to less than 50%) were also recorded in Meekatharra, Karratha, Roebourne (excl. Karratha), Moore, Carnarvon, Katanning and Albany. Greenough recorded a participation rate of above 80%.

Participation rates in the non-metropolitan areas of **Tasmania** were below 50% in Glenorchy and Hobart. The highest rates were recorded in Central Tasmania (72.7%) and West Tamar/Latrobe (72.0%).

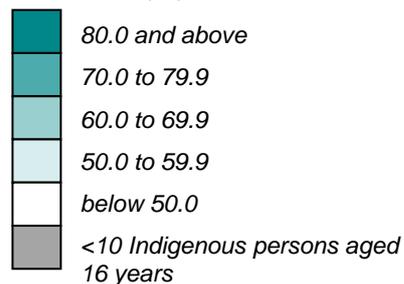
Only three Indigenous Areas in the non-metropolitan areas of the **Northern Territory** recorded more than 60% of Indigenous 16 year old young people participating in secondary education on a full-time basis: these areas were Kakadu/Marrakai (77.9%), Thamarrurr (65.2%) and Tiwi Islands (64.6%). As can be seen from the map, participation rates were relatively low across the remaining Indigenous Areas. The lowest of these, with less than 30% participation, included the IAs of Petermann/Simpson, Tanami, Yuendumu, Anjatjere, Lajamanu, Sandover, Urapuntja Outstation, Ingerkerke Outstation/Iwupataa.

# Map 28: Indigenous participation in full-time secondary education at age 16, Australia, 2011

per cent by Indigenous Area



Indigenous participation in education (%)



Source: Compiled in PHIDU based on data from ABS 2011 Census

## Indigenous women smoking during pregnancy, capital cities

*Smoking during pregnancy doubles the risk of low birth weight and significantly increases the risk of perinatal mortality, SIDS, asthma and other adverse pregnancy outcomes.<sup>84</sup> Smoking prevalence remains disproportionately high among pregnant Aboriginal and Torres Strait Islander women, especially teenaged mothers.<sup>84,85</sup> Having a smoking partner, an Aboriginal and/or Torres Strait Islander partner, and high levels of stress, are associated with an increased risk of smoking during pregnancy.<sup>86</sup> Smoking cessation interventions within this population need to focus on the social environment, and the influences of social networks and partners on the smoking behaviour of individuals.<sup>86</sup>*

**Indicator definition:** Aboriginal and Torres Strait Islander women who reported smoking during a pregnancy, as a proportion of the number of pregnancies (Aboriginal women), over the time period (three years).  
Note: The area mapped is the Indigenous Area (IA) as the number of cases at the SLA level is generally too small to produce reliable results. As IAs do not in all cases match the ABS boundaries on which the capital cities are based, the 'capital city' totals in the table below approximate the true figures for these areas.

**Table 30: Indigenous women smoking during pregnancy, by capital city, 2006 to 2008**

Per cent

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra* | Total <sup>#</sup> |
|--------|-----------|----------|----------|-------|--------|--------|-----------|--------------------|
| 42.6   | n.a.      | n.a.     | 55.1     | 50.0  | 57.1   | 45.1   | 46.6      | 47.5               |

\* The figures for Canberra are for the years 2005 to 2007.

<sup>#</sup> The 'Total' excludes data for Melbourne and Brisbane.

### Capital cities

At the capital city level, rates of smoking during their pregnancy, as reported by Aboriginal and Torres Strait Islander women, were all high, and varied from 42.6% in Sydney to 57.1% in Hobart. Readers should be aware that many of the areas that were not mapped (with fewer than five Indigenous women reporting smoking during their pregnancy) were also likely to have low rates.

There were relatively low rates across **Sydney**, with the exception of a number of Indigenous Areas in the inner west. These were the Indigenous Areas (IAs) of Blacktown - Shalvey (85.7%, with the highest rate in Australia), Blacktown - Blackett/Emerton (66.7%) and Blacktown - Doonside/ Woodcroft (65.7%); the Penrith SLAs of - West (64.3%) and - Central (63.5%); and Campbelltown - North-West (63.2%). In addition to IAs with small numbers (which were not mapped; and some of which are on the north shore), less than 25% of Indigenous women in Wollondilly, Inner Western Sydney, Canterbury and Rockdale reported smoking during their pregnancy.

Data for **Melbourne** and **Brisbane** were not available.

The northern IAs of Salisbury (60.7%) and Playford/ Gawler (57.5%) recorded the highest proportions of Aboriginal women smoking during pregnancy in **Adelaide**. High rates were also recorded in the inner city, in Adelaide/ Prospect/Walkerville (57.1%), and in the southern IA of Onkaparinga (56.0%). The lowest

smoking rates were recorded in West Adelaide, and Tea Tree Gully.

In **Perth**, 60% or more Indigenous women reported smoking during pregnancy in Armadale (62.3%), Victoria Park (60.5%) and Kwinana (60.0%), with rates of over 50% in several other IAs. Low rates were recorded in some inner city, middle and outer areas, the lowest of which were in Melville, Joondalup and Wanneroo.

At least 50% of Indigenous women smoked during their pregnancy in each of the IAs in **Hobart**. The highest proportions were recorded in Brighton (the second highest capital city rate) and Clarence (61.7%), with the lowest in Kingborough and Glenorchy.

Darwin/Inner Suburbs and several IAs in the north-west of **Darwin** had rates below 40%, with the lowest of these in Anula/Wulagi, Alawa/ Brinkin/Nakara and Malak. More than half of the Indigenous women in the Indigenous Areas of Millner/Jingili, Marrara/Winnellie/ Berrimah, Driver/Woodroffe, and Nightcliff/Rapid Creek reported smoking during pregnancy.

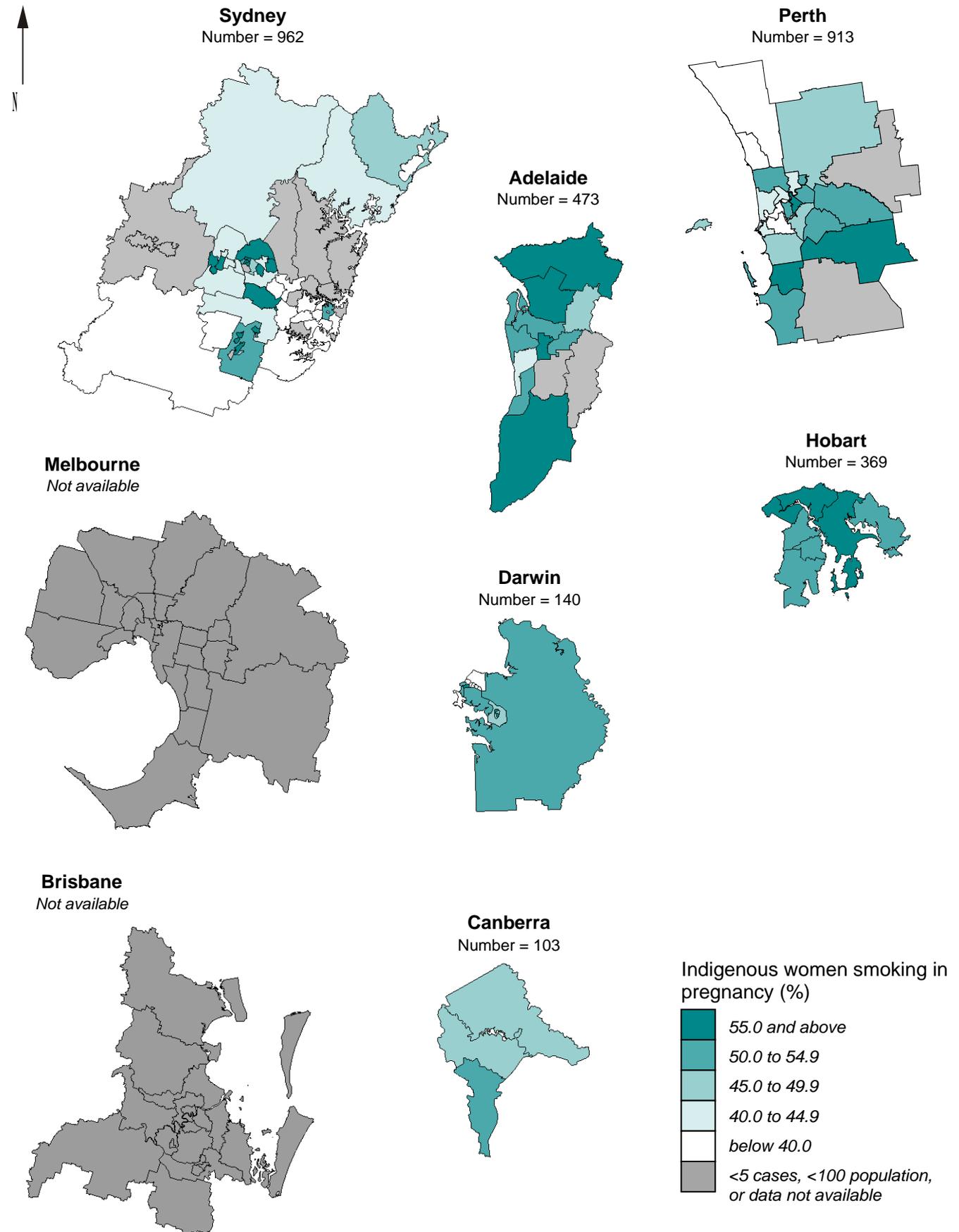
There was little difference in the proportion of Indigenous women smoking during pregnancy across **Canberra**, with 46.1% in Belconnen/ Gungahlin/North Canberra, 46.9% in South Canberra/Weston/Woden, and 50.0% in Tuggeranong/ACT South.

### Remoteness

Data were not available at a geographic level which would allow the calculation of rates by the remoteness classification.

# Map 29: Indigenous women smoking during pregnancy, capital cities, 2006 to 2008

per cent by Indigenous Area



Source: Compiled in PHIDU based on data supplied by State and Territory health authorities

## Indigenous women smoking during pregnancy, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory. The area mapped is the Indigenous Area as the number of cases at the SLA level is generally too small to produce reliable results. As IAs do not in all cases match the ABS boundaries on which the non-metropolitan areas are based, the 'non-metropolitan' totals in the table below approximate the true figures for these areas.

**Table 31: Indigenous women smoking during pregnancy, by State/ Territory, Australia, 2006 to 2008**

| <i>Per cent</i>  |      |      |      |      |      |      |      |      |                    |
|------------------|------|------|------|------|------|------|------|------|--------------------|
| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT* | Total <sup>#</sup> |
| Non-metropolitan | 53.8 | n.a. | n.a. | 59.8 | 53.6 | 53.4 | 45.5 | ..   | 52.2               |
| Total            | 51.2 | n.a. | n.a. | 57.4 | 52.5 | 54.6 | 44.7 | 46.6 | 50.8               |

\* The figures for the Australian Capital Territory are for the years 2005 to 2007.

<sup>#</sup> The 'Total' excludes data for Victoria and Queensland.

### Non-metropolitan areas

Aboriginal women in the non-metropolitan areas of South Australia reported the highest level of smoking in pregnancy (59.8%), with the lowest (45.5%) in the Northern Territory. Rates in the non-metropolitan areas of the other States were between 53% and 54%.

In **New South Wales**, high rates of Indigenous women smoking during pregnancy were evident throughout much of the State. Proportions above 70% were recorded in the Indigenous Areas (IAs) of Carrathool/Murrumbidgee (80.0%), Kyogle (75.0%), Queanbeyan (75.0%), Tenterfield (73.7%) and Wilcannia (72.7%). The IAs of Liverpool Plains, Coolamon/Temora/Weddin/Bland, Cowra, and Tumut had the lowest proportions, with 40% or fewer Indigenous women smoking during pregnancy.

Data for **Victoria** and **Queensland** were not available.

The IAs of Renmark Paringa (76.9%) and Loxton Waikerie/ Mid Murray/Gerard (69.6%) had the highest proportions of Aboriginal women smoking during pregnancy in country **South Australia**, with other high rates in Port Augusta (66.4%) and Port Pirie City and Districts (65.0%). Smoking rates were generally high across the State, with no area mapped in the lowest range. The lowest proportions (of just below 50%) were recorded in Barossa SSD and Anangu Pitjantjatjara, with 50% of Aboriginal women from Murray Mallee, South-East, Coober Pedy and Mid-North smoking during pregnancy.

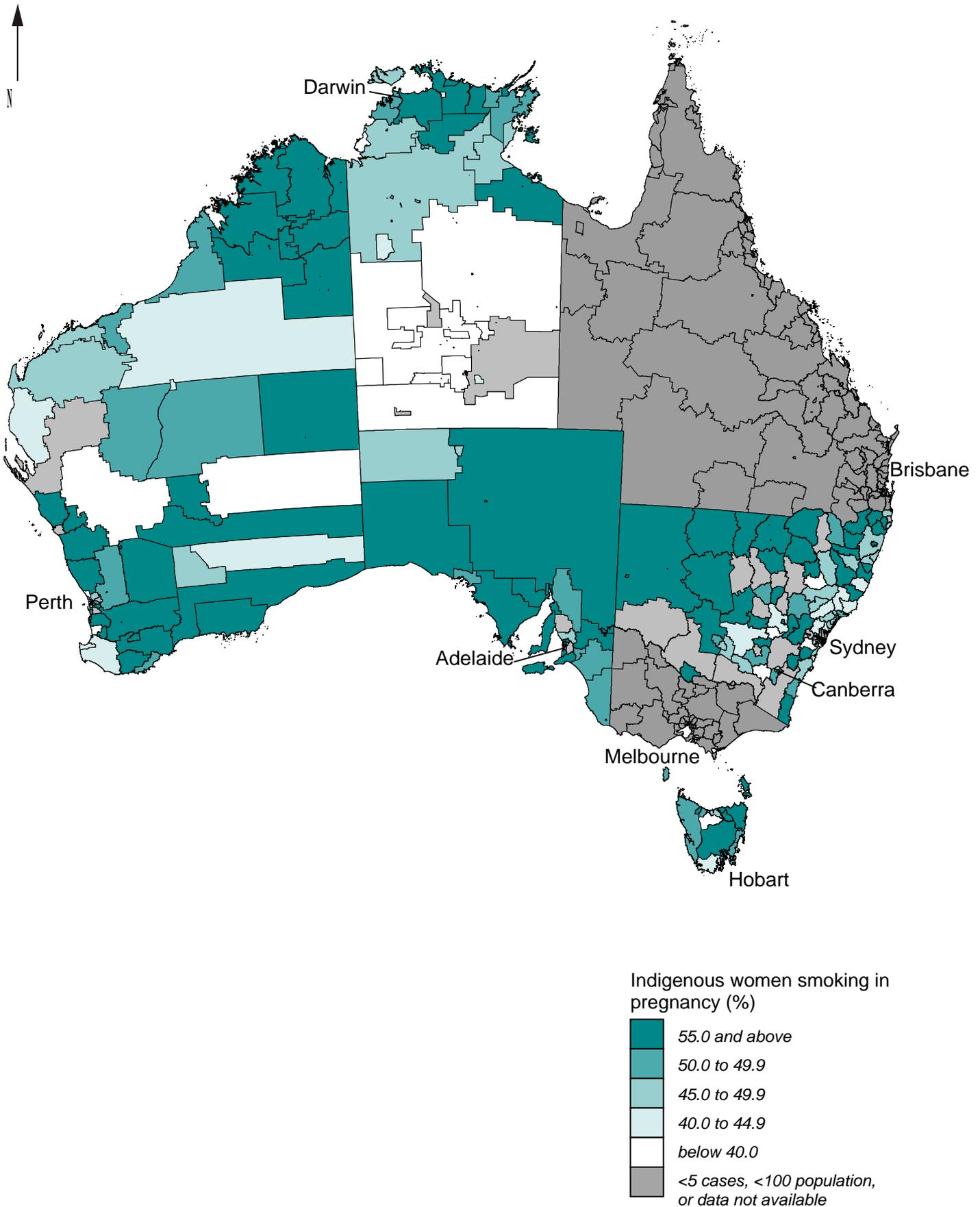
The highest rates of smoking by Indigenous women during pregnancy in Western Australia were in IAs located across the State, with rates above 70% in the IAs of Northern Agricultural (73.7%), Moore (70.6%) and Leonora (70.4%); in the south, in Esperance (71.1%); and in the north, in Derby and Fitzroy Crossing (both 67.1%). Harvey, Carnegie South and Laverton had rates

below 40%, with slightly higher rates in Northam, Busselton, Jigalong and East Pilbara.

The proportions of Indigenous women smoking during pregnancy in the non-metropolitan areas of **Tasmania** ranged from 34.6% in Meander Valley/ Kentish to 70.8% in North-East Tasmania and 69.4% in Central Tasmania. Other rates were between 43 and 47%.

IAs in the southern half of the **Northern Territory** were characterised by lower rates of smoking by Indigenous women during pregnancy (and the lowest of the IAs across Australia), including Tennant Creek Balance (14.9%), Urapuntja Outstation (16.2%) and Ingkerreke Outstation/ Iwupataka (16.2%); and Hermannsburg (Ntaria), Kintore (Walungurru) and Outstations, Tjuwanpa Outstation and Tanami, all reporting rates below 25%. In Angurugu IA, 81.6% of Indigenous women smoked during pregnancy (the highest non-metropolitan rate), with relatively high proportions also recorded in the IAs of Nyirranggulung Mardrulk Ngadberre (68.4%), Mabunji Outstation/ Mungoorbada Outstation (68.2%) and Nhulunbuy/ Marngarr/ Gumatj and Outstations/ Marthakal Homelands (64.8%).

Map 30: Indigenous women smoking during pregnancy, Australia, 2006 to 2008  
per cent by Indigenous Area



Source: Compiled in PHIDU based on data supplied by State and Territory health authorities

## Indigenous median age at death, capital cities

In 2009, the median age at death of Aboriginal and Torres Strait Islander males was 52.5 years and of females, 61.3 years.<sup>87</sup> This was much lower than for the non-Indigenous population (78.0 years and 83.9 years respectively). While median age at death values are influenced to some extent by the age structure of a population and the Aboriginal and Torres Strait Islander populations have a younger age structure than the non-Indigenous population (see 'Note' under the Indicator definition, below), this difference still clearly represents an important health inequity.<sup>87,123</sup> Similar information for the total population follows.

**Indicator definition:** The age at which exactly half the Aboriginal and Torres Strait Islander deaths registered in the period 2003 to 2007 were deaths of people above that age and half were deaths below that age. The area mapped is the Statistical Subdivision (SSD), as the number of deaths at the Statistical Local Area level is too small to be reliable.

Notes: Areas with fewer than 20 deaths over this five-year period have not been mapped. In addition to general issues to do with the quality of statistics for the Indigenous population, the ABS advises that the median age at death 'may also be affected by differences in identification by age'.<sup>87</sup> For more information on data quality issues for this indicator, refer to Appendix A.

**Table 32: Indigenous median age at death, by capital city, 2003 to 2007**

| Age (years) |           |          |          |       |        |        |          |        |
|-------------|-----------|----------|----------|-------|--------|--------|----------|--------|
| Sydney      | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total* |
| 63.0        | n.a.      | 56.0     | 51.0     | 56.0  | n.a.   | 52.0   | n.a.     | 57.0   |

\* 'Total' excludes data for Melbourne, Hobart and Canberra

### Capital cities

The variation in Indigenous median age at death between the capital cities has been calculated at twelve years, with the lowest median age (poorest outcome) recorded in Adelaide (51.0 years) and Darwin (52.0 years) and the highest in Sydney (63.0 years). Comparable figures for the non-Indigenous population are 81.0 years (Adelaide), 80.0 years (Sydney) and 67.0 years (Darwin). Readers should be aware that the lower median ages (poorer outcomes) are mapped in the darker shades.

In **Sydney**, the Indigenous median age at death was lowest in Blacktown (57.0 years), Inner Sydney (59.0 years) and Outer South Western Sydney (60.0 years). The highest median ages were calculated for a number of areas, from Central Northern Sydney (71.0 years) north to Gosford-Wyong, and to the south of the city.

Reliable data were not available for **Melbourne**.

In **Brisbane**, Indigenous median ages at death were markedly lower, with the lowest recorded in Pine Rivers Shire (43.0 years) and Redcliffe City (49.0 years). Median ages below 55 were also recorded for Southeast Outer Brisbane, Northwest Inner Brisbane, Logan City and Ipswich City. The highest median ages were recorded in Redland Shire (67.5 years), Caboolture Shire (66.0 years) and Southeast Inner Brisbane (61.5 years).

Relatively low Indigenous median ages at death were calculated for all four SSDs in **Adelaide**. The median ages were 48.5 years in Southern Adelaide, 51.0 years in Western Adelaide, 52.0

years in Northern Adelaide and 57.5 years in Eastern Adelaide.

The Indigenous median ages at death in **Perth** were also relatively low, in South East Metropolitan (54.0 years), East Metropolitan (55.0), South West Metropolitan (56.0) and North Metropolitan (57.0). The exception was the Central Metropolitan SSD, with a median age of 62.0 years.

Reliable data were not available for **Hobart**.

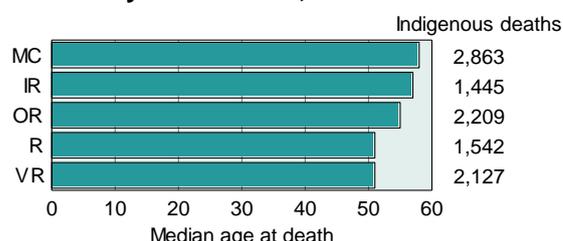
The median age at death was estimated to be low in all three SSDs in Darwin, at 50.0 years in Palmerston-East Arm, 52.5 years in Darwin City and 53.0 years in Litchfield Shire.

Reliable data were not available for **Canberra**.

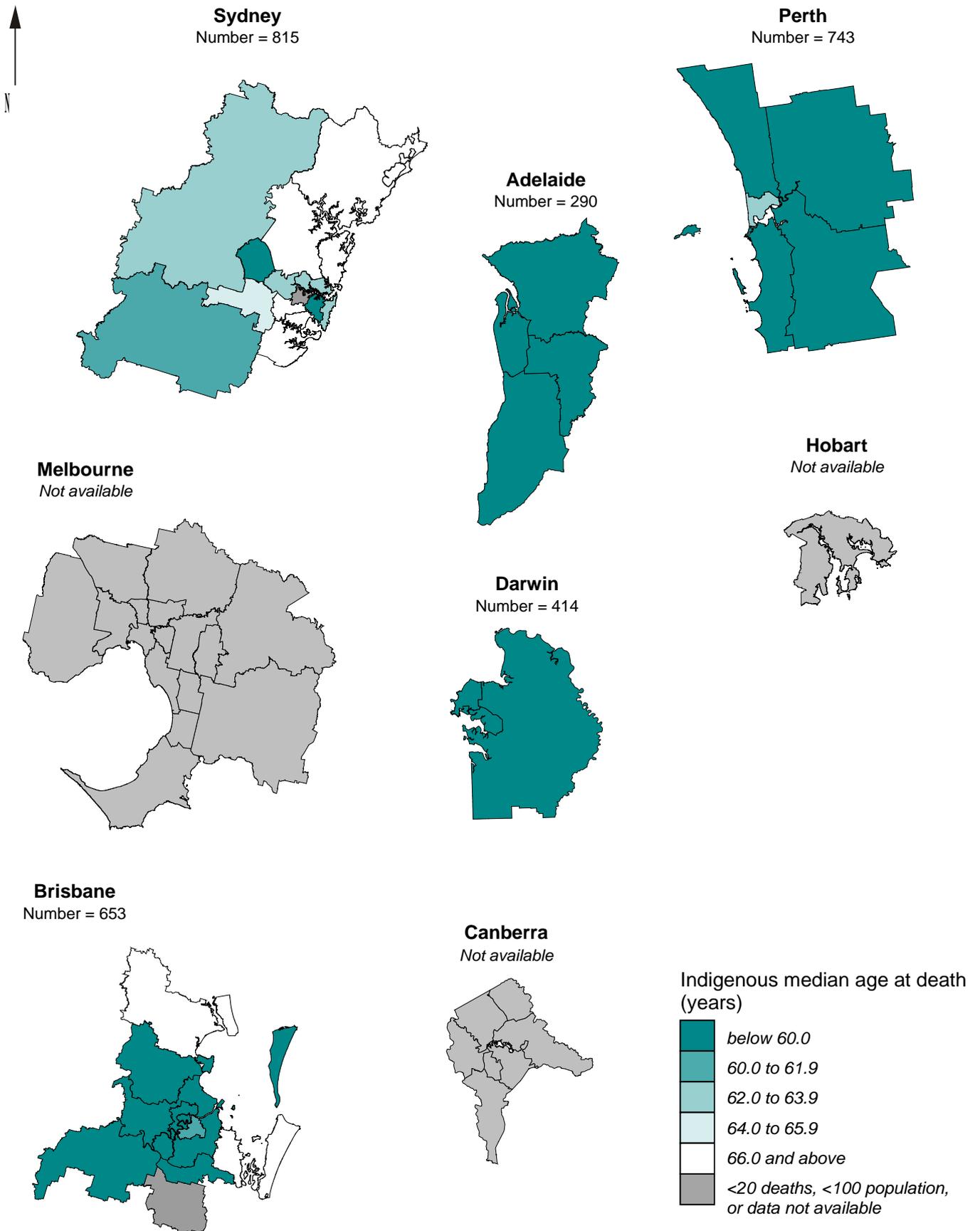
### Remoteness

The median age at death for the Indigenous population (excluding Melbourne, Hobart and Canberra) decreases over the remoteness classes, from 58.0 years in the Major Cities class 51.0 years in both the Remote and Very Remote areas. The next indicator shows the comparable figures for the non-Indigenous population to be markedly higher, at 80.0 years in the Major Cities and 74.0 years in the Very Remote areas.

**Figure 19: Indigenous median age at death, by remoteness, 2003 to 2007**



Map 31: Indigenous median age at death, capital cities, 2003 to 2007  
 median age at death by Statistical Subdivision



Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths

## Indigenous median age at death, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory. Areas with fewer than 20 deaths over this five-year period have not been mapped.

**Table 33: Indigenous median age at death, by State/ Territory, Australia, 2003 to 2007**

| Area             | Age (years) |      |      |      |      |      |      |      |        |
|------------------|-------------|------|------|------|------|------|------|------|--------|
|                  | NSW         | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT  | Total* |
| Non-metropolitan | 59.0        | n.a. | 56.0 | 49.0 | 54.0 | n.a. | 49.0 | n.a. | 54.0   |
| Total            | 60.0        | n.a. | 56.0 | 50.0 | 55.0 | n.a. | 49.0 | n.a. | 55.0   |

\* 'Total' excludes data for Victoria, Tasmania and the Australian Capital Territory

### Non-metropolitan

The difference in the Indigenous median age at death between the non-metropolitan areas has been calculated at ten years, with the lowest median age (indicating the poorest outcome) calculated for the non-metropolitan areas of South Australia and the Northern Territory (both 49.0 years) and the highest for New South Wales (59.0 years). The median ages at death in the non-metropolitan areas were lower than those in the capital cities, apart from in Queensland where it was the same.

Comparable figures for the non-Indigenous population are 80.0 years (SA), 69.0 years (NT) and 80.0 years (NSW). The low median age calculated from these official statistics for the non-Indigenous population of the Northern Territory (outside of Darwin), suggests that some Indigenous deaths may not be being correctly identified and, therefore lowering the non-Indigenous median. A similar possibility exists in relation to the data for Darwin, shown on the previous pages. It is not known if this is the case, nor what impact this might have on the Indigenous median age at death.

Indigenous median ages at death in non-metropolitan **New South Wales** were higher than in the other States, although still notably lower in comparison with the non-Indigenous population. The lowest median age at death was recorded for Richmond-Tweed SD Balance (50.0 years). Other areas with median ages below 55.0 years and more than 20 deaths) were Lower South Coast (50.5 years), Far West (52.5 years), Coffs Harbour (53.0 years), Dubbo (53.5 years) and Murray-Darling (54.0 years). Almost one-third of the SSDs in non-metropolitan New South Wales recorded median ages in the highest range mapped (62.0 years and above), with the majority of these spanning an area from the Queensland to the Victorian borders, inland from the coast, and around Sydney.

Reliable data were not available for non-metropolitan **Victoria**.

In **Queensland**, Indigenous the lowest median ages at death were calculated for Townsville City Part A (50.0 years), North West (50.0 years), Northern Statistical Division Balance (51.0 years), Sunshine Coast SD Balance (53.0 years) and Mackay City Part A (54.0 years): a median age of 46.0 years was calculated for Gladstone, although with 17 deaths over this five-year period it has not been mapped. The highest median ages were recorded for the SSDs of Gold Coast West (65.0 years) and East (62.5 years), Central West (62.5 years) and Lower West Moreton (62.5 years).

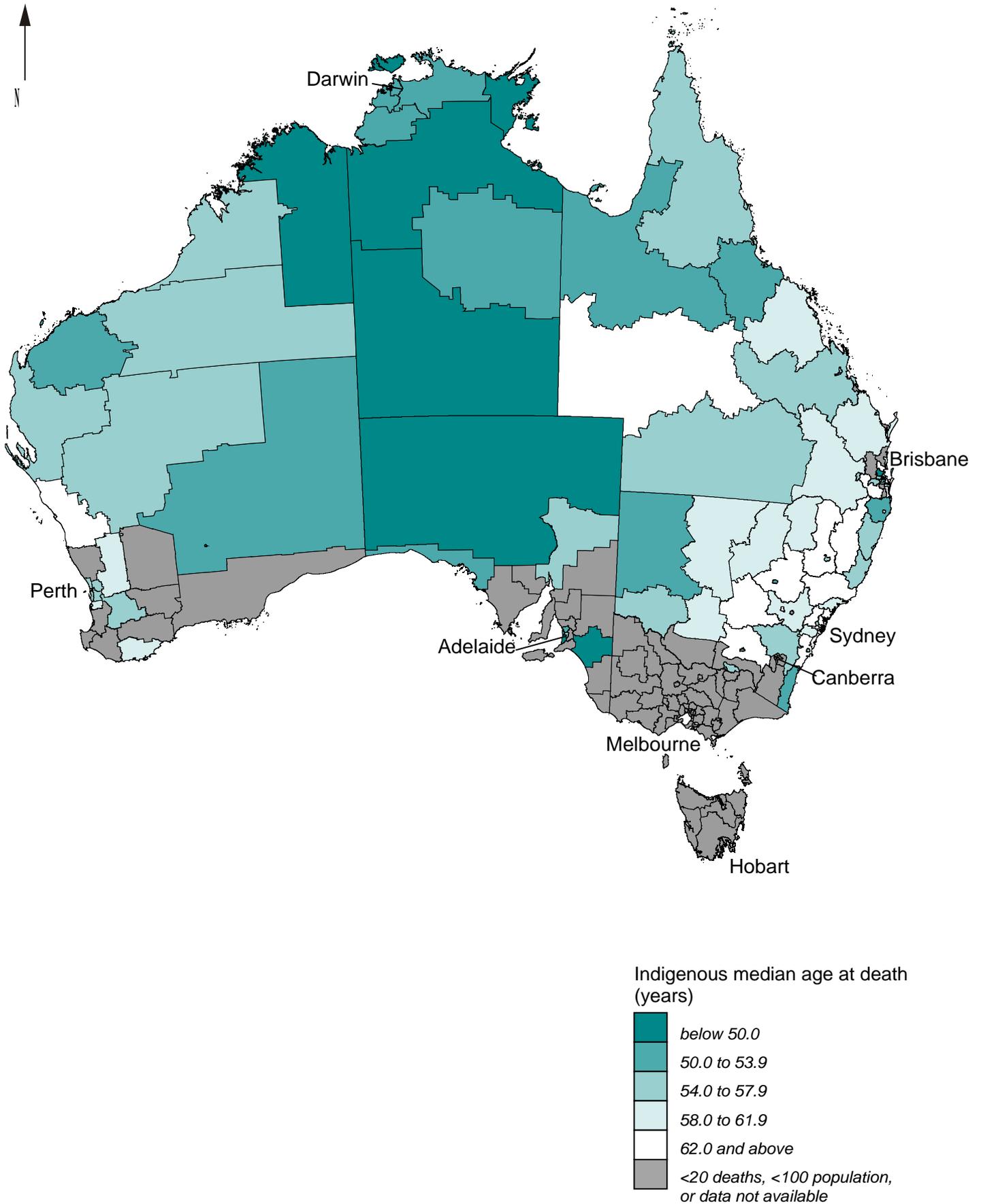
The median age at death was lower in the non-metropolitan areas of **South Australia**, ranging from 55.5 years in Flinders Ranges. Other SSDs with median ages below 50.0 years included the Murray Mallee, Far North and Riverland. Lincoln had a median age at death of 40 years, although with only 18 deaths, it has not been mapped.

In the non-metropolitan areas of **Western Australia**, the lowest Indigenous median ages at death were calculated for Kalgoorlie/Boulder City Part A and Ord (both 48.0 years). Median ages at death below 55.0 years were also recorded for Champion, Bunbury, Fortescue, Johnston, Lefroy, Pallinup and De Grey. The highest median age at death was recorded in the SSD of Greenough River (63.0 years); Vasse and Preston had similar median ages, but with 19 and 18 deaths, respectively, have not been mapped.

Reliable data were not available for non-metropolitan **Tasmania**.

In the non-metropolitan areas of **Northern Territory**, the Indigenous median age at death was comparatively lower than in the States. There was also little variation across the SSDs, with median ages below 50.0 years recorded for East Arnhem (47.0 years), Central Northern Territory (48.0 years), and Bathurst-Melville and Lower Top End NT (both 49.0 years); and 50.0 years or above in Daly (51.0 years), Barkly and Finnis (both 50.5 years), and Alligator (50.0 years).

Map 32: Indigenous median age at death, Australia, 2003 to 2007  
 median age at death by Statistical Subdivision



Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths

## Non-Indigenous median age at death, capital cities

Although not an indicator in this Priority Area, the median age at death of the non-Indigenous population is shown for comparison with the information for the Indigenous population, shown above. In 2009, the median age at death of the non-Indigenous population was 77.8 years for males and 83.9 years for females.<sup>87</sup>

**Indicator definition:** The age at which exactly half the non-Indigenous deaths registered in the period 2003 to 2007 were deaths of people above that age and half were deaths below that age. To enable comparison with the Indigenous median age at death mapped above, the area mapped for this indicator is also the Statistical Subdivision (SSD).

**Table 34: Non-Indigenous median age at death, by capital city, 2003 to 2007**

| Age (years) |           |          |          |       |        |        |          |       |  |
|-------------|-----------|----------|----------|-------|--------|--------|----------|-------|--|
| Sydney      | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |  |
| 80.0        | n.a.      | 80.0     | 81.0     | 80.0  | n.a.   | 67.0   | n.a.     | 80.0  |  |

\* 'Total' excludes data for Melbourne, Hobart and Canberra

### Capital cities

There was a 14 year difference in the median age at death between the Australian capital cities, with the lowest median age calculated for Darwin (67.0 years, the poorest outcome under this measure), and the highest for Adelaide (81.0 years, the best outcome).

In **Sydney**, the non-Indigenous median age at death were calculated at below 80 years for the western and south-western SSDs of Blacktown (76.0 years), Fairfield-Liverpool and Outer South Western Sydney (both 77.0 years), Outer Western Sydney (78.0 years) and Canterbury-Bankstown (79 years); with 78.0 years also in Inner Sydney. The highest median ages were calculated for the inner northern areas of Northern Beaches (83.0 years), Lower Northern Sydney and Central Northern Sydney (both 82.0 years).

As reliable data were not available for the Indigenous populations in **Melbourne**, data for the non-Indigenous population have not been mapped.

In **Brisbane**, SSDs with the lowest non-Indigenous median ages at death were located in the outer north and outer south, with the lowest median age calculated for Beaudesert Shire Part A (71.0 years). Other SSDs with median ages below 79.0 included Logan City (74.0 years), Pine Rivers Shire (77.0 years), Caboolture Shire (78.0 years) and Ipswich City (78.0 years). The highest median ages were in Inner Brisbane, Northwest Inner Brisbane and Northwest Outer Brisbane (all 81.0 years).

The median age at death in **Adelaide** was calculated at 78.0 years for the SSD of Northern Adelaide, with 80.0 years for Western Adelaide, 81 years for Southern Adelaide and 83.0 years for Eastern Adelaide.

Areas in **Perth** with a median age at death below 80.0 years for the non-Indigenous population were East, North and South West Metropolitan SSDs (all 79.0 years). The highest median age was recorded for the Central Metropolitan (83.0 years) with 80.0 years in South East Metropolitan.

As reliable data were not available for the Indigenous population in **Hobart**, data for the non-Indigenous population have not been mapped.

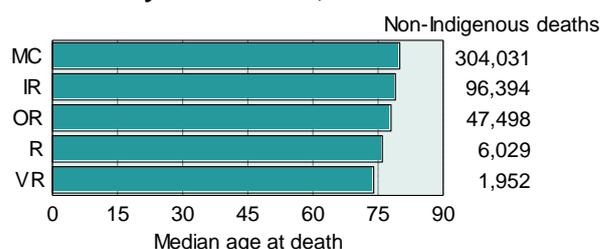
The non-Indigenous median age at death for **Darwin** was by far the lowest of the capital cities, with 62.0 years in Litchfield Shire SSD, 66.0 years in Palmerston-East Arm and 68.0 years in Darwin City.

As reliable data were not available for the Indigenous population in **Canberra**, data for the non-Indigenous population have not been mapped.

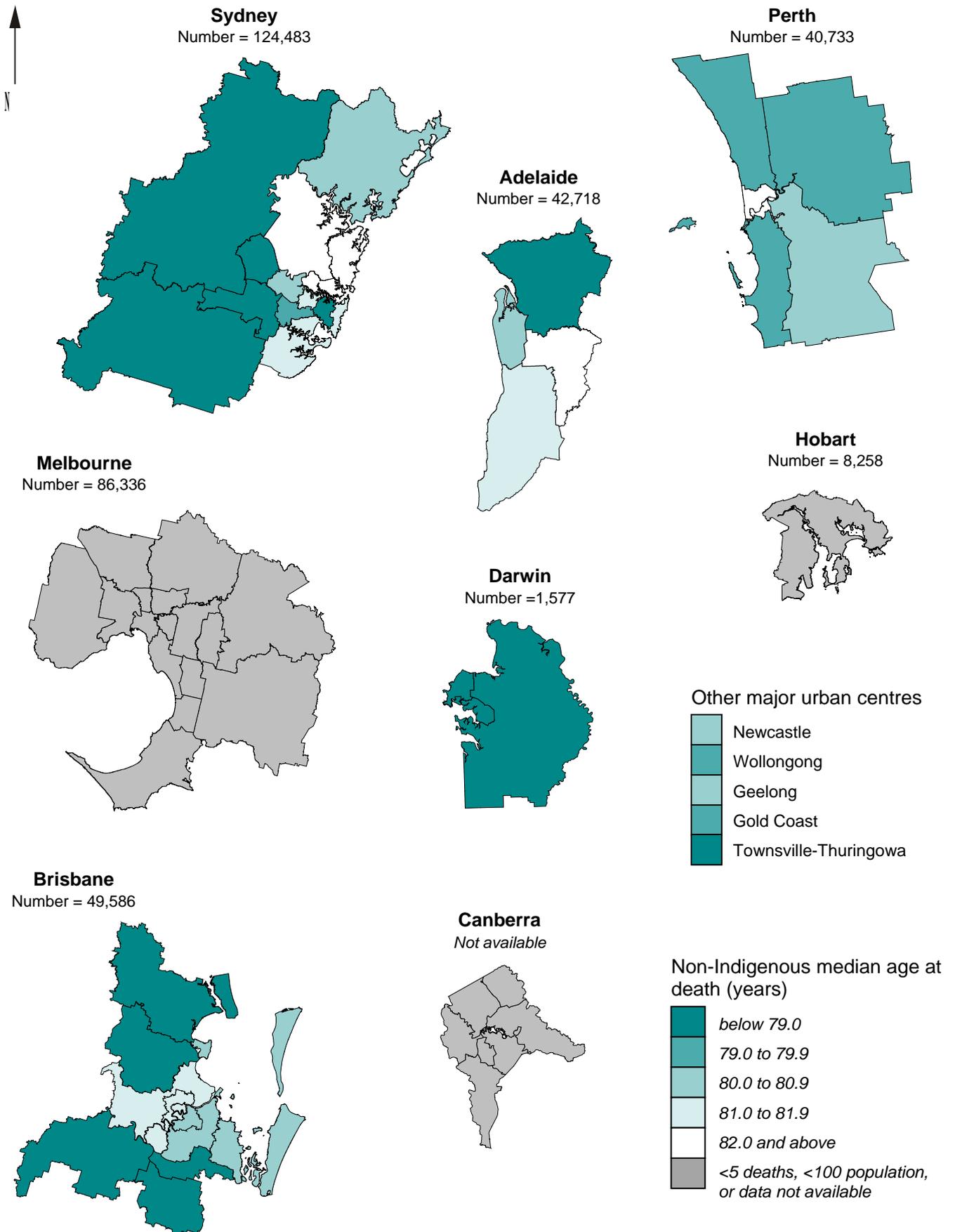
### Remoteness

The non-Indigenous median age at death (excluding Victoria, Tasmania and the Australian Capital Territory) decreases over the remoteness classes, from a median age at death of 80.0 years in the Major Cities to a median age at death of 74.0 years in the Very Remote areas.

**Figure 20: Non-Indigenous median age at death, by remoteness, 2003 to 2007**



Map 33: Non-Indigenous median age at death, major urban centres, 2003 to 2007  
 median age at death by Statistical Subdivision



Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths

## Non-Indigenous median age at death, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 35: Non-Indigenous median age at death, by State/ Territory, Australia, 2003 to 2007**

| Age (years)      |      |      |      |      |      |      |      |      |        |
|------------------|------|------|------|------|------|------|------|------|--------|
| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT  | Total* |
| Non-metropolitan | 80.0 | n.a. | 79.0 | 80.0 | 78.0 | n.a. | 69.0 | n.a. | 79.0   |
| Total            | 80.0 | n.a. | 79.0 | 80.0 | 79.0 | n.a. | 67.0 | n.a. | 80.0   |

\* 'Total' excludes data for Victoria, Tasmania and the Australian Capital Territory

### Non-metropolitan areas

The lowest median age at death was recorded for the non-metropolitan areas of the Northern Territory (69.0 years), some eleven years below that in the non-metropolitan areas of New South Wales, Victoria and South Australia (all 80.0 years). The median age was slightly lower in the majority of the non-metropolitan areas of each State and Territory than in the capital cities, apart from in New South Wales and Victoria (where the age was the same) and the Northern Territory (where it was two years higher).

The difference in the median ages at death between the more heavily populated and the rural and remote areas is clear in the map, even for these large geographical areas.

In the non-metropolitan areas of **New South Wales**, the lowest non-Indigenous median ages at death were in the far north and west of the State in Macquarie-Barwon, Upper Darling and Murray-Darling, as well as south of Sydney in Queanbeyan (all 77.0 years). The highest median ages were recorded for Lismore, Coffs Harbour, Port Macquarie and Orange (all 81.0 years).

As reliable data were not available for the Indigenous populations in **Victoria**, data for the non-Indigenous population have not been mapped.

A number of SSDs in non-metropolitan **Queensland** recorded median ages at death in the lowest range mapped (below 78.0 years) including the North West (74.0 years), Sunshine Coast Statistical Division (SD) Balance, Gold Coast North, Fitzroy SD Balance, Mackay SD Balance, Upper West Moreton, Gladstone and Cairns City Part A. There were no SSDs in the non-metropolitan areas of the State with median ages in the highest range mapped (81.0 years and above). Gold Coast East, Gold Coast West, Sunshine Coast and Toowoomba all recorded a median age at death of 80.0 years.

In non-metropolitan **South Australia**, the non-Indigenous median age at death was substantially lower in the northern-most SSD, the Far North, at 69.0 years. The next lowest median

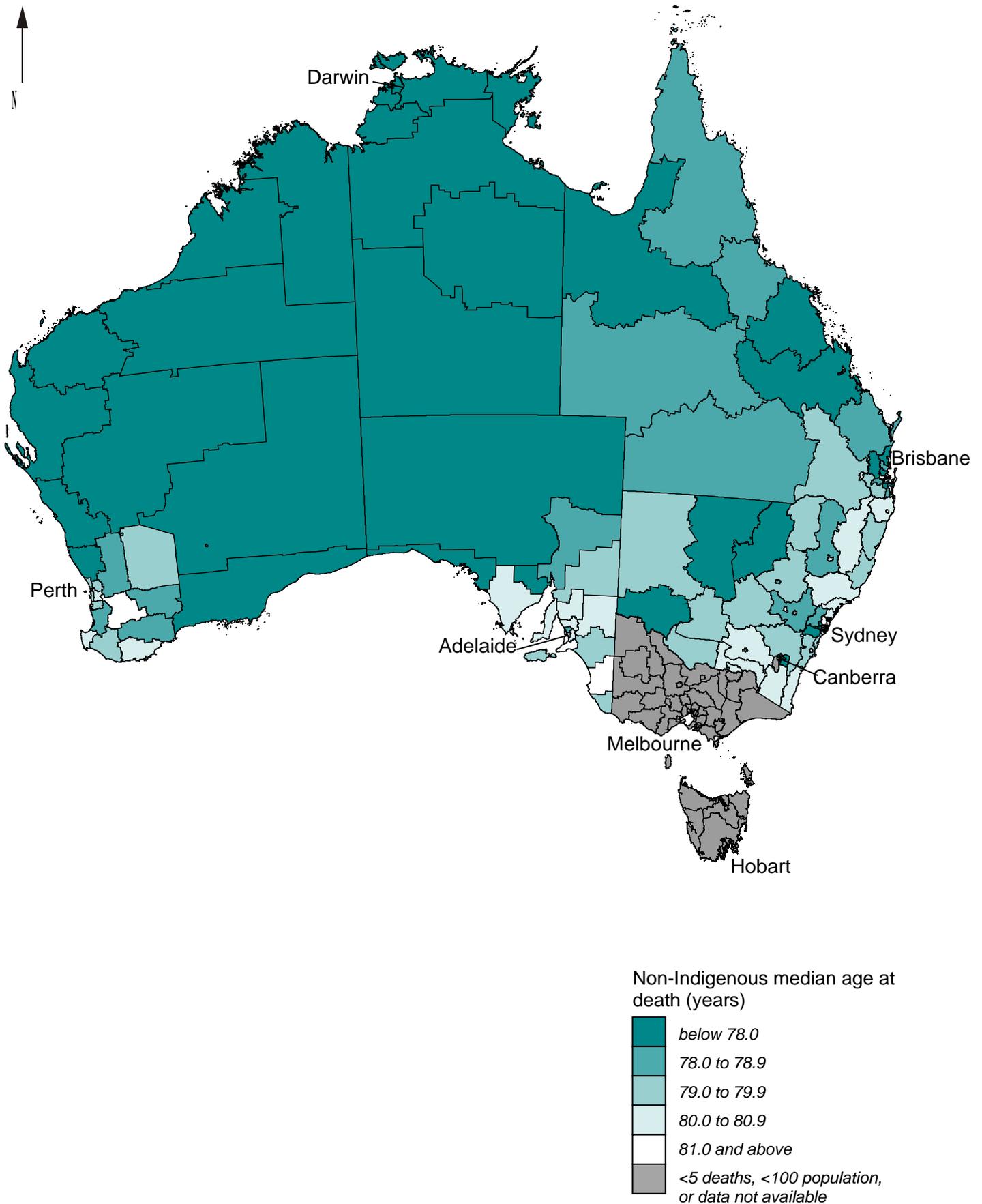
ages were in the far west and north of the State, in West Coast and Whyalla (both 77.0 years). Flinders Ranges, Kangaroo Island, Murray Mallee, Lower South East and Pirie SSDs also had median ages at death below 80.0 years for their non-Indigenous populations. The highest median ages at death were in the Upper South East (82.0 years) Fleurieu (81.0 years) SSDs.

SSDs with median ages at death in the lowest range mapped (below 78.0 years) covered the majority of **Western Australia**, with higher median ages evident only in the south-west of the State. In addition, some of these areas had the lowest median ages calculated for the non-Indigenous population, with ages below 70.0 years recorded for the SSDs of Fortescue (the lowest in Australia, at 60.0 years), Lefroy (63.0 years, and second lowest in Australia), Ord and Fitzroy (both 67.0 years), and De Grey (68.0 years). Again, this in part related to poor identification of Indigenous deaths. The highest median age at death was calculated for Hotham (81.0 years), followed by Bunbury, Vasse and King (all 80.0 years).

As reliable data were not available for the Indigenous populations in **Tasmania**, data for the non-Indigenous population have not been mapped.

All of the SSDs in the non-metropolitan areas of the **Northern Territory** recorded median ages at death below 77.0 years. Areas with a median age at death below 70.0 years included Finnis (64.0 years), Barkly (65.0 years), East Arnhem (68.0 years) and the Lower Top End NT (69.0 years). The highest median ages at death were calculated for Alligator and Bathurst-Melville (both 76.0 years).

Map 34: Non-Indigenous median age at death, Australia, 2003 to 2007  
 median age at death by Statistical Subdivision



Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths

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## Indicators of health status, risk factors, outcomes and use of services

As noted in Section 1, this atlas describes the extent and significance of inequalities in health and social inclusion across Australian society. As such, it reflects recognition within the health sector of the impact of socioeconomic disadvantage on health and wellbeing.<sup>124,125</sup>

Although some indicators of health status and outcomes are specifically covered by the indicators for social inclusion presented above (e.g., smoking in pregnancy, median age at death), details are presented in the following pages for a number of indicators (listed below) of health status, health risk factors and outcomes, and screening for bowel cancer.

### **Chronic diseases and associated risk factors:**

- Prevalence of circulatory system diseases;
- Prevalence of type 2 diabetes;
- Prevalence of smoking among males;
- Prevalence of smoking among females;
- Prevalence of obesity among males; and
- Prevalence of obesity among females.

### **Screening services:**

- National Bowel Cancer Screening Program, participation; and
- National Bowel Cancer Screening Program, positive test results.

### **Premature mortality:**

- Deaths from all causes; and
- Deaths from suicide and self-inflicted injury.

In addition to the indicators listed, a substantially larger number of indicators can be found online at [www.adelaide.edu.au/phidu/](http://www.adelaide.edu.au/phidu/). For example, services provided by general medical practitioners and funded through Medicare are available from the PHIDU website, with separate details for men and women, and for selected services, such as the 45 Year Old Health Check. Details are also available for a wider range of causes of death (and for a later period (2008-12) than is shown here), of other screening programs (breast and cervical cancer screening), and of other chronic diseases and associated risk factors; and information about children includes immunisation status at ages one, two and five years.

### **National Bowel Cancer Screening Program (NBCSP)**

Since 2006, the Australian Government has initiated a limited colorectal cancer screening program, which aims to reduce the incidence and death from bowel cancer, by using a one-time immunochemical faecal occult blood test (FOBT) for people aged 50, 55 and 65 years. The second phase of the NBCSP commenced on 1 July 2008 and offered testing to people turning 50 years of age between January 2008 and December 2010, and to those turning 55 or 65 between July 2008 and December 2010. From 2012, the program was expanded to include Australians turning 60 years of age, and from 2015, those turning 70 years. In 2017-18, the program will offer biennial screening, commencing with 72 year olds, as per the recommendations of the National Health and Medical Research Council for two-yearly screening.<sup>134</sup>

In addition to the NBCSP, a variety of FOBT kits are available in Australia to screen for bowel cancer; these are either available over the counter from pharmacies, through medical practitioners, or through other programs such as BowelScreen Australia (an education and screening initiative run by The Pharmacy Guild of Australia), and BowelCare (a community service project of various Rotary clubs and districts). The data contained within this report only represent participation within the NBCSP implemented by the Australian Government in partnership with State and Territory governments, and not the other programs. This is likely to have influenced the patterns evident in the maps of participation in testing, and of positive test results, published here. Additional notes are provided in Appendix A, page 205.

## Prevalence of circulatory system diseases, capital cities

*Circulatory system diseases are diseases of the heart and the vascular (blood vessel) system: ischaemic heart disease (IHD), stroke, hypertensive heart disease (due to the effects of high blood pressure), and rheumatic heart disease. In 2009, the leading cause of death in Australia was heart disease; and IHD and stroke combined contributed to 73.2% of deaths from diseases of the circulatory system.<sup>87</sup> Groups at increased risk of developing and dying from these diseases include Aboriginal and Torres Strait Islander Australians, people of lower socioeconomic status, males over the age of 45 years, males living in rural and remote areas, and people with diabetes and/or a family history of heart disease.<sup>88</sup>*

**Indicator definition:** Estimated population with circulatory system diseases as a long-term condition, expressed as a percentage (age-standardised); further details of these estimates are in Appendix B.

**Table 36: Estimated population with circulatory system diseases, by capital city, 2007-08**

*Per cent (age-standardised rate per 100 population)*

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 13.9   | 17.0      | 15.6     | 18.5     | 14.3  | 19.7   | 11.0   | 16.3     | 15.6  |

### Capital cities

The estimated rate of circulatory system diseases varied across the capital cities, with the highest rates in Hobart (19.7%) and Adelaide (18.5%), and the lowest rates in Darwin (11.0%) and Sydney (13.9%).

Rates were relatively low in **Sydney**, with the highest estimates in the outer north-eastern SLAs of Wyong - North-East (16.3%) and - South and West (16.2%), and Gosford - West (15.7%); and the western SLAs of Parramatta - South (15.6%), and Bankstown - North-West (16.2%) and - South (15.5%). The lowest rates were estimated for the inner city areas of Sydney - Inner and - East, and for North Sydney.

SLAs with the highest rates in **Melbourne** were located to the north (in Moreland - North (18.7%) and - Coburg (18.6%); Darebin - Preston (18.5%), Northcote (18.3%), and Hume Broadmeadows (18.3%); in the west, in a group from Maribyrnong (18.6%) to Wyndham West (18.3%); and in the south-east, in Cardinia - Pakenham (18.5%).

Areas with the highest rates of circulatory system diseases were generally along, or close to, the coast, and in the outer south and south-west of **Brisbane**, including Caboolture - Central (17.8%), Ipswich Central (17.6%), Redland Balance (17.3%) and Chermside West/Chermside (17.4%). The lowest estimated rates were in a number of inner city areas, including Spring Hill, Herston, Newstead, St Lucia, and Toowong.

In **Adelaide**, the highest estimated rates were in a band of SLAs from the north-west to the outer north: from Port Adelaide Enfield - Park (20.2%) and - Inner (19.7%) to Playford - West Central (20.6%) and - Elizabeth (20.3%); in the outer south, in Onkaparinga - Hackham (19.8%) and - South Coast (19.6%); and in the west, in

West Torrens - East (19.6%). The lowest rates were in Adelaide Hills - Ranges and - Central, and Burnside - North-East.

The estimated prevalence of circulatory system diseases was lower in **Perth**, with the highest rates in a mix of inner, middle and outer suburbs, including Kwinana (15.9%), Bassendean (15.8%), Belmont (15.7%) and Fremantle - Remainder (15.6%). The lowest rates were in the inner city SLAs of Perth - Remainder and Subiaco; and to the north, in Joondalup - North and - South.

Estimated rates were high in all SLAs in **Hobart**, with the highest in Brighton (22.1%), Derwent Valley - Part A (20.7%), Glenorchy (20.6%) and Sorell - Part A (20.5%). The lowest rates, in Kingborough - Part A and Hobart - Remainder, were still relatively high, at 18.5%.

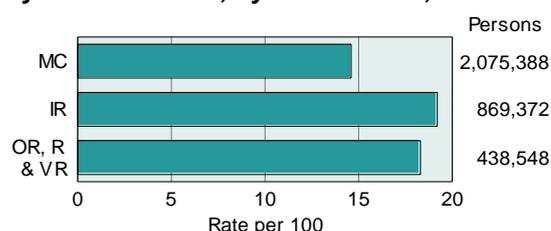
In **Darwin**, rates of circulatory system diseases were lower, ranging from 11.8% in Litchfield - Part B to 10.8% in Palmerston.

Rates in **Canberra** were highest in the SLAs of Eastern Fringe (17.5%), Canberra North (17.2%) and Canberra South (16.8%), with rates of above 16% in all of the Belconnen and Woden SLAs, other than Woden - Central.

### Remoteness

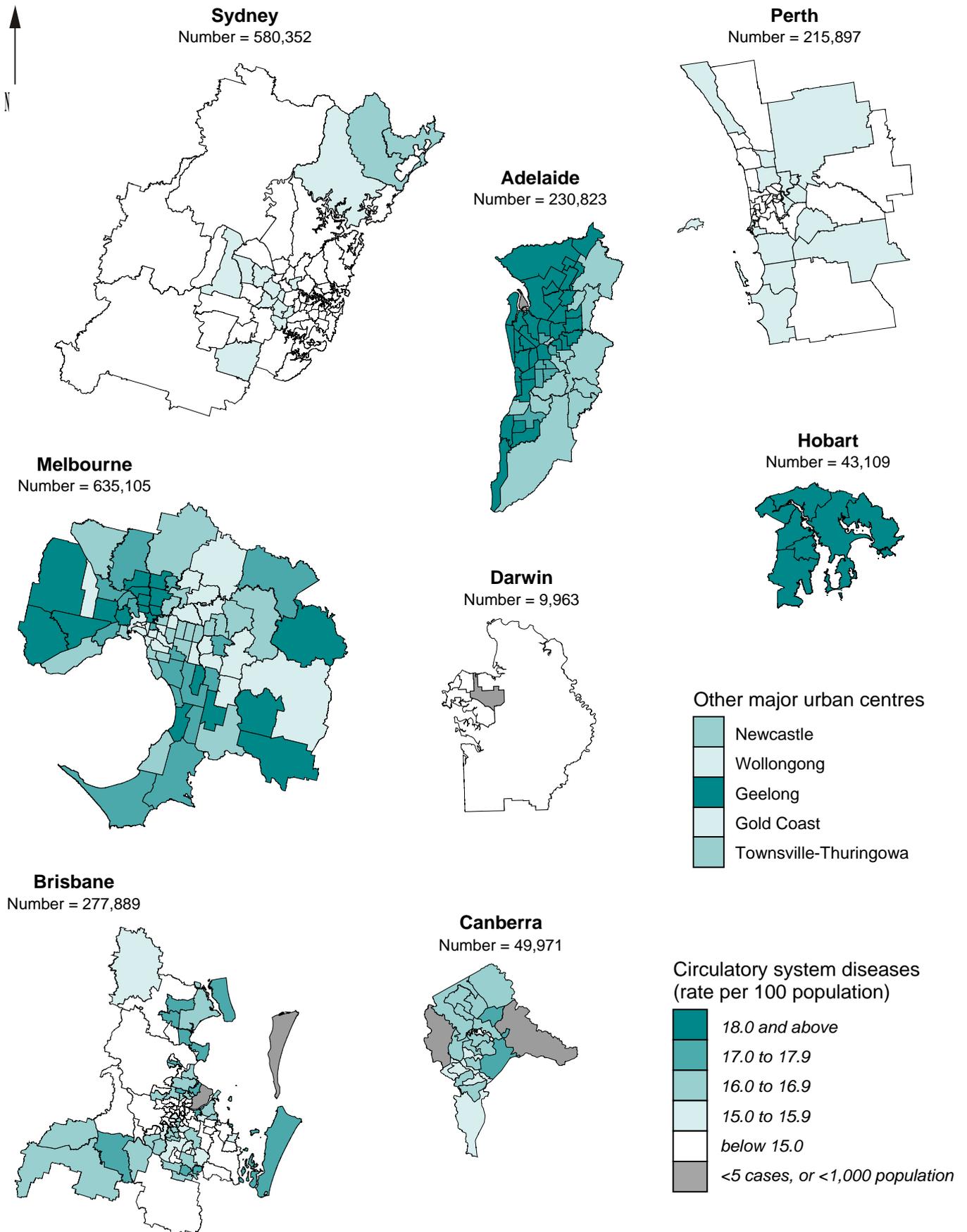
Rates of circulatory system diseases were highest outside of the Major Cities remoteness class.

**Figure 21: Estimated population with circulatory system diseases, by remoteness, 2007-08**



# Map 35: Estimated population with circulatory system diseases, major urban centres, 2007-08

standardised rate per 100 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (provided as a consultancy)

## Prevalence of circulatory system diseases, Australia

**Notes:** These estimates were not made for the most remote areas of Australia. This is of particular relevance to the Northern Territory; as a result, totals are not available for the Northern Territory. See comments on previous text page for other details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 37: Estimated population with circulatory system diseases, by State/ Territory, Australia, 2007-08**

*Per cent (age-standardised rate per 100 population)*

| Area                          | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT | ACT  | Total |
|-------------------------------|------|------|------|------|------|------|----|------|-------|
| Non-metropolitan <sup>1</sup> | 15.9 | 18.0 | 16.3 | 18.8 | 15.3 | 20.2 | .. | ..   | 16.7  |
| Total <sup>1</sup>            | 14.7 | 17.3 | 16.0 | 18.6 | 14.5 | 20.0 | .. | 16.3 | 16.0  |

<sup>1</sup> Estimates have not been made for SLAs in the remote areas of Australia: the 'Non-metropolitan' and 'Total' figures do not therefore represent the entire population of these areas. See Appendix B for further details.

### Non-metropolitan areas

In 2007-2008, estimated rates of circulatory system diseases in the non-metropolitan areas were highest in Tasmania (20.2%). The lowest rates were in Western Australia (15.3%) and New South Wales (15.9%). Rates in the non-metropolitan areas were higher than those in the capital cities.

High rates of circulatory system diseases in non-metropolitan **New South Wales** were estimated for the SLAs of Broken Hill (with the highest rate of 16.7%) in the far west; Wellington (16.6%) in the mid-west; and for a number of SLAs along the coast, with the highest rates in a group from Kempsey to Tweed Heads (both 16.4%).

Although areas with low rates were quite widespread across the State, those with the lowest rates were generally in the far south and south-west of the State.

In the non-metropolitan areas of **Victoria**, the highest estimated rates of circulatory system diseases were dispersed across the State, largely in towns and regional centres, including all of the SLAs in Bendigo - Central (19.3%) to - Strathfieldsaye (16.4%); Wangaratta - Central (18.9%); Ballarat - Central (18.9%), - South (18.7%) and - Inner North (18.6%); and Latrobe - Moe (18.7%), Morwell (18.5%) and - Traralgon (18.4%). Low rates were in SLAs located across the State, with the lowest in a cluster in and around Geelong.

Estimated rates of circulatory system diseases in non-metropolitan **Queensland** were highest to the north of Brisbane in coastal areas (around Hervey Bay (17.9% in Part B and 17.6% in Part A) and inner coastal areas (18.5% in Mount Morgan), and to the north-west and west of the city (17.6% in Laidley). Areas estimated to have the lowest rates were in a group located south of Mackay, and around the Gold Coast, Cairns and Toowoomba.

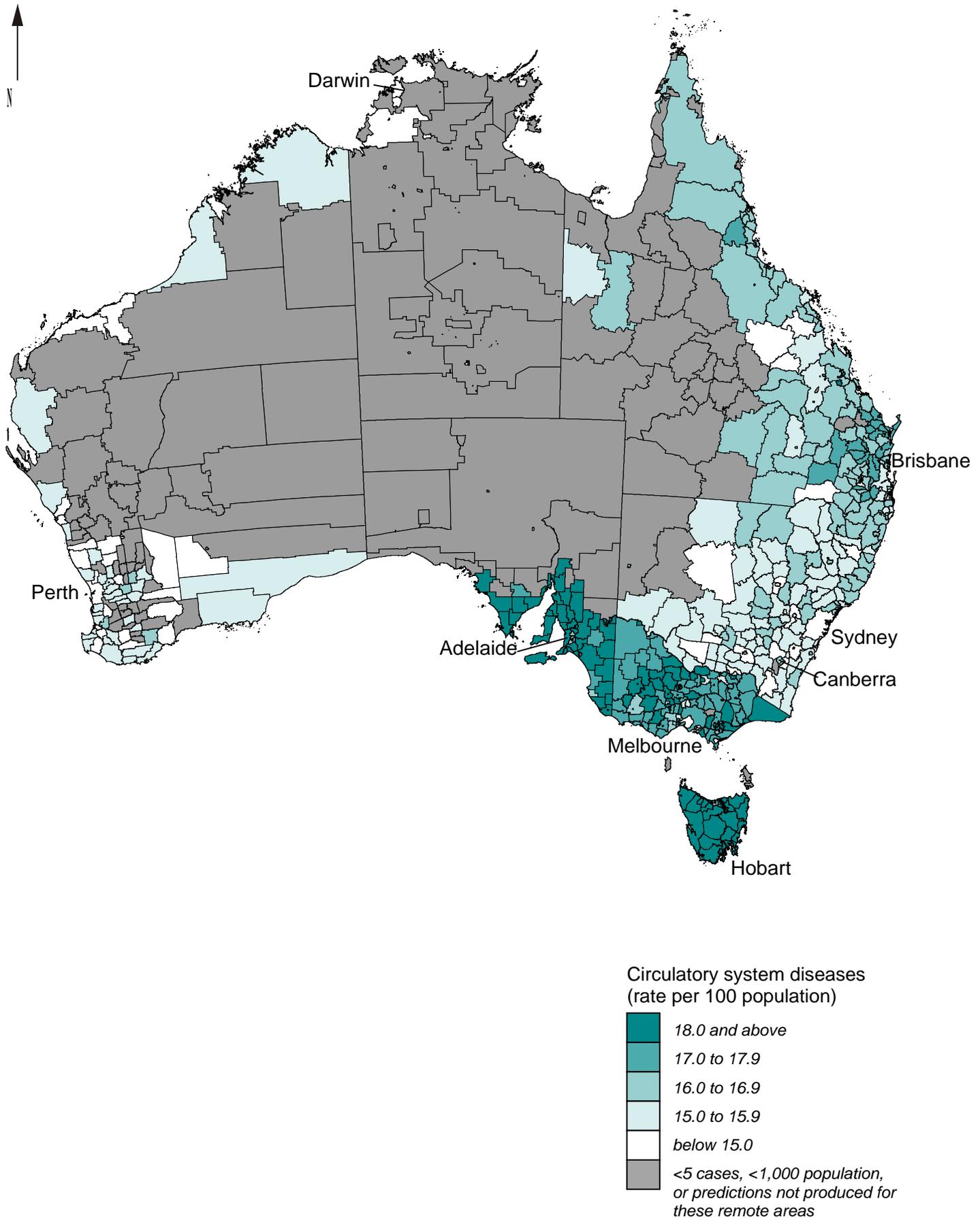
A number of towns and regional centres in **South Australia** had high estimated rates of circulatory system diseases, including Peterborough (19.9%), Whyalla (19.7%), Port Pirie City Districts - City (19.7%) and Port Augusta (19.5%), in the north; Murray Bridge (19.5%) and Mount Barker (19.4%), closer to Adelaide; and Berri and Barmera (19.2%), and Mount Gambier (19.1%). Several rural SLAs also had high rates. The lowest rates were in the SLAs of Roxby Downs in the far north, Adelaide Hills - North and Mount Barker - Balance to the east of Adelaide, and Robe, in the south-east.

Non-metropolitan SLAs in **Western Australia** with the highest estimated rates of circulatory system diseases were to the west in Kellerberin (16.7%), Northam (16.3%) and Quairading (16.5%); south-west (Gnowangerup (16.3%) and south (Collie (16.2%) of Perth. The SLAs with the lowest rates included Lake Grace in the south, and Port Hedland and Roebourne, in the north.

All of the SLAs in non-metropolitan **Tasmania** were estimated to have rates for circulatory system diseases above the national average. Rates of 20% or higher were estimated for the majority of SLAs on the north and west coasts, including Burnie - Part A (20.6%), Launceston - Part B (20.5%), George Town - Part A (20.5%), Devonport (20.4%); and in West Coast (20.6%), Southern Midlands (20.6%) and Central Highlands (20.5%). The lowest rates were in Kingborough - Part B and Glamorgan/Spring Bay.

Of the few areas mapped in non-metropolitan **Northern Territory**, the estimated rates of circulatory system diseases were all relatively low. Rates of 12% were estimated for Coomalie, Katherine and the Alice Springs SLAs of - Heavitree, - Larapinta and - Charles.

Map 36: Estimated population with circulatory system diseases, Australia, 2007-08  
 standardised rate per 100 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (provided as a consultancy)

## Prevalence of type 2 diabetes, capital cities

*Type 2 diabetes is the commonest form of diabetes, and its prevalence is increasing.<sup>89</sup> Control of modifiable risk factors (such as overweight, obesity and physical inactivity) is key to preventing type 2 diabetes and reducing its complications.<sup>89</sup> Aboriginal and Torres Strait Islander peoples are three times as likely as non-Indigenous people to have diabetes; and have higher hospitalisation and death rates than other Australians.<sup>89</sup> Diabetes prevalence and death rates for the poorest fifth of the population are also nearly twice as high as for the most affluent fifth of the population.<sup>89</sup>*

**Indicator definition:** Estimated population with type 2 diabetes as a long-term condition, expressed as a percentage (age-standardised); further details of these estimates are in Appendix B.

**Table 38: Estimated population with type 2 diabetes, by capital city, 2007-08**

*Per cent (age-standardised rate per 100 population)*

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 3.3    | 3.4       | 3.4      | 3.5      | 3.3   | 2.5    | 3.6    | 3.1      | 3.3   |

### Capital cities

There was little variation in the estimated rate of type 2 diabetes between the capital cities, apart from the lower rate in Hobart (2.5%).

Areas in **Sydney** for which the highest rates of type 2 diabetes were estimated were in a band from Sydney - South to Blacktown - South West (both 3.9%), and south to Liverpool - East (3.7%), including Parramatta - South (4.1%) and Fairfield - East and Bankstown - North-East (3.9%). Similar rates were estimated for Wyong - North-East (3.8%) and Wyong - South and West (3.7%). The lowest rates were in Woollahra and a number of SLAs on the north shore.

A cluster of SLAs to the north of **Melbourne** had some of the highest rates, including Moreland - North (4.0%), - Brunswick (3.8%) and - Coburg (3.8%); Hume - Broadmeadows (4.0%); Whittlesea - South-West (4.0%); and Darebin - Preston (3.9%). Rates were equally high in the west, in Maribyrnong and Brimbank - Sunshine (both 4.0%); and in the south-east, in Greater Dandenong - Dandenong (3.9%) and Balance (3.7%). Rates are lowest in Nillumbik - South and Balance in the outer north-east, and in Melbourne - Southbank Docklands.

SLAs with the highest estimated rates of type 2 diabetes were dispersed across **Brisbane**, in Darra-Sumner/Wacol (4.2%), to the south-west; Stretton-Karawatha/Kingston (4.0%) and Marsden and Loganlea (both 3.9%), to the south; Redland Balance (4.1%) and Caboolture - Central (4.0%), on the coast; and in Dutton Park/Woolloongabba (4.0%) and Rocklea (3.9%). The lowest estimated rates were generally in the inner and middle suburbs.

Rates of type 2 diabetes in **Adelaide** were estimated to be highest in the outer north in the SLAs of Playford - Elizabeth and - West Central both 4.3%) and Salisbury - Inner North (4.1%);

and in the north-west, in Port Adelaide Enfield - Park (4.3%), - Port (4.1%) and - Inner (4.0%), and Charles Sturt - North-East (4.0%); and in Onkaparinga - North Coast and - Hackham (both 3.9%). Areas to the east and south of the city had the lowest rates.

The highest estimated rate of type 2 diabetes in **Perth** was in Perth - Inner (4.6%), with other high rates in the inner and middle SLAs of Kwinana (3.9%), Belmont (3.7%), Wanneroo -South (3.6%) and Bassendean (3.6%). The lowest rates were largely in inner SLAs, with a low rate also estimated for Joondalup - North and - South.

In **Hobart**, Brighton, Derwent Valley - Part A, Glenorchy and Sorell - Part A had rates of 2.8% to 3.0%; with 2.5% in Clarence and 2.4% in Kingborough - Part A; and the lowest, in Hobart Remainder (2.1%).

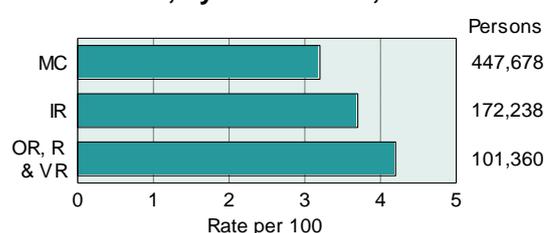
In **Darwin**, the prevalence of type 2 diabetes varied from 4.0% in Palmerston, to 3.2% in Litchfield - Part A.

The rate of type 2 diabetes in **Canberra** was estimated to be highest in Canberra North (3.4%), Eastern Fringe (3.3%), Canberra South (3.2%), Woden Central (3.2%), and the Belconnen SLA groups.

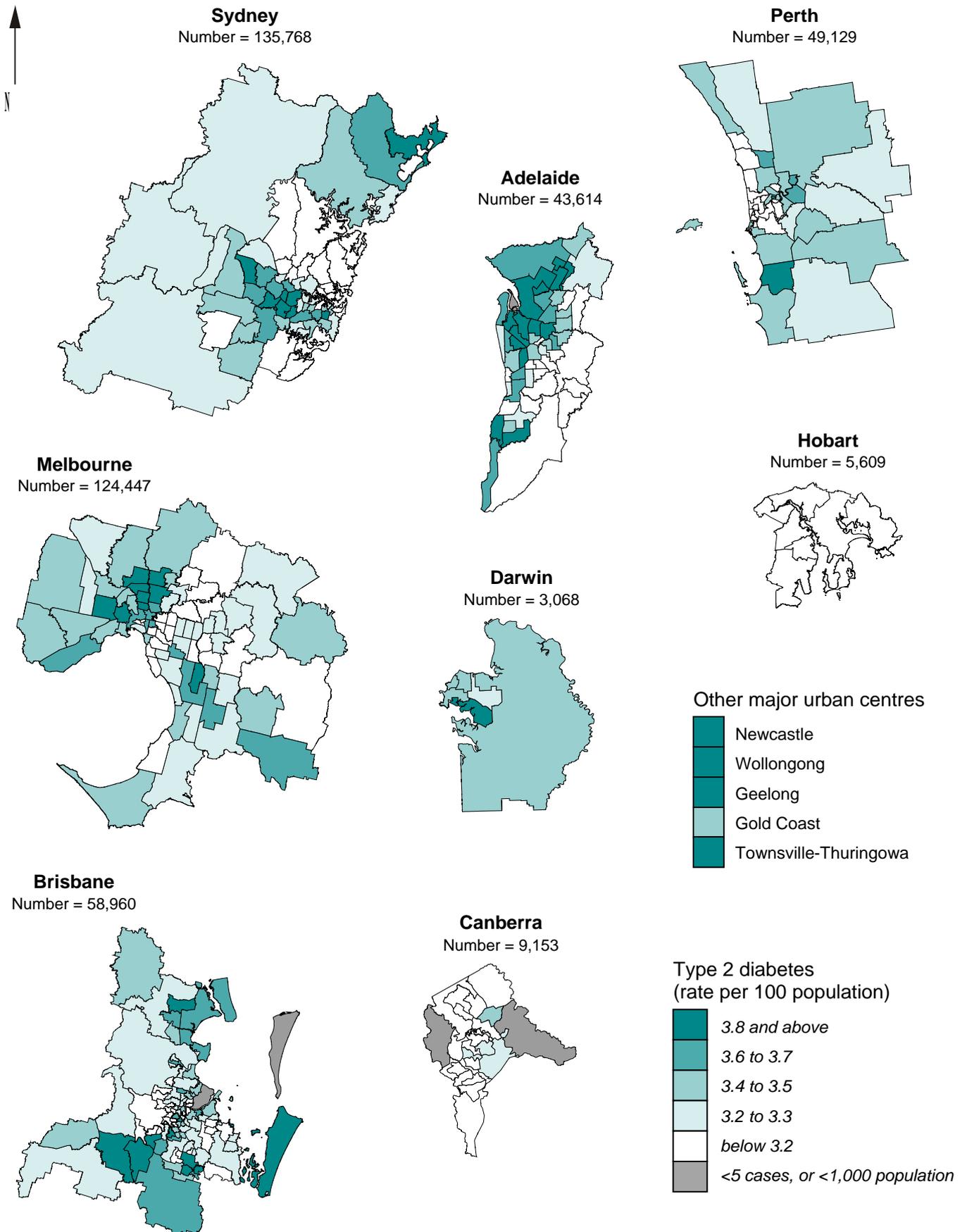
### Remoteness

Rates increased steadily across the remoteness classes, from a rate of 3.2% in the Major Cities to 4.2% in the combined Outer Regional, Remote and Very Remote classes.

**Figure 22: Estimated population with type 2 diabetes, by remoteness, 2007-08**



Map 37: Estimated population with type 2 diabetes, major urban centres, 2007-08  
 standardised rate per 100 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (provided as a consultancy)

## Prevalence of type 2 diabetes, Australia

**Notes:** These estimates were not made for the most remote areas of Australia. This is of particular relevance to the Northern Territory; as a result, totals are not available for the Northern Territory. See comments on previous text page for other details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 39: Estimated population with type 2 diabetes, by State/ Territory, Australia, 2007-08**

*Per cent (age-standardised rate per 100 population)*

| Area                          | NSW | Vic. | Qld | SA  | WA  | Tas. | NT | ACT | Total |
|-------------------------------|-----|------|-----|-----|-----|------|----|-----|-------|
| Non-metropolitan <sup>1</sup> | 3.7 | 3.5  | 3.5 | 3.5 | 3.5 | 2.8  | .. | ..  | 3.5   |
| Total <sup>1</sup>            | 3.5 | 3.4  | 3.5 | 3.5 | 3.3 | 2.7  | .. | 3.1 | 3.4   |

<sup>1</sup> Estimates have not been made for SLAs in the remote areas of Australia: the 'Non-metropolitan' and 'Total' figures do not therefore represent the entire population of these areas. See Appendix B for further details.

### Non-metropolitan areas

There is little variation in the estimated population with type 2 diabetes across the non-metropolitan areas, other than in Tasmania, with a lower rate of 2.8%. The estimated rates for the non-metropolitan areas were higher than those for the capital cities, apart from South Australia, where the rates were the same.

A cluster of areas along the northern State border had the highest rates in **New South Wales**, including the SLAs of Brewarrina (6.5%), Walgett (4.9%), Bourke (4.7%), and Coonamble (4.3%). High rates were also estimated for Wellington, further south; and for Clarence Valley Balance, Richmond Valley Balance and Kempsey in the north-east. The lowest rates were estimated for SLAs across the south and south-east and extending to the north as far as Armidale Dumaresq Balance. They included Palerang - Part A, Snowy River, Greater Hume Shire - Part A, Yass Valley, Wingecarribee, Wagga Wagga - Part B, and Goulburn Mulwaree Balance.

The highest rates of type 2 diabetes in the non-metropolitan areas of **Victoria** were estimated for the SLAs of Central Goldfields - Maryborough (3.8%) and Balance (4.0%), and Greater Bendigo - Central (3.9%) and - Eaglehawk (3.8%); further south in Ballarat - South and Corio - Inner (both 3.8%); and east, in Latrobe - Moe and - Morwell, and Wellington - Rosedale (all 3.8%). Rates were lowest in areas to the north and west of Melbourne, extending through the south of the State to the Grampians; and in central eastern Victoria.

In **Queensland**, the highest rates were in a number of coastal and inner coastal SLAs north of Brisbane, including Mount Morgan (a rate of 4.6%), Hervey Bay - Part B (4.3%), and Kolan (4.1%); further north, in Herberton (4.2%), Dalrymple (4.0%), Cairns - City (4.1%) and Cook (4.0%); to the far west, in Mount Isa (4.1%) and Cloncurry (4.0%); and in the south, in Tara (4.1%). Rates were lowest closer to Brisbane,

in the SLAs of Beaudesert - Part C, Cambooya - Part B and Noosa - Noosa-Noosaville; and in a cluster of areas in the mid-north, including Broadsound, Nebo, Peak Downs, Belyando, Duinga and Bungil.

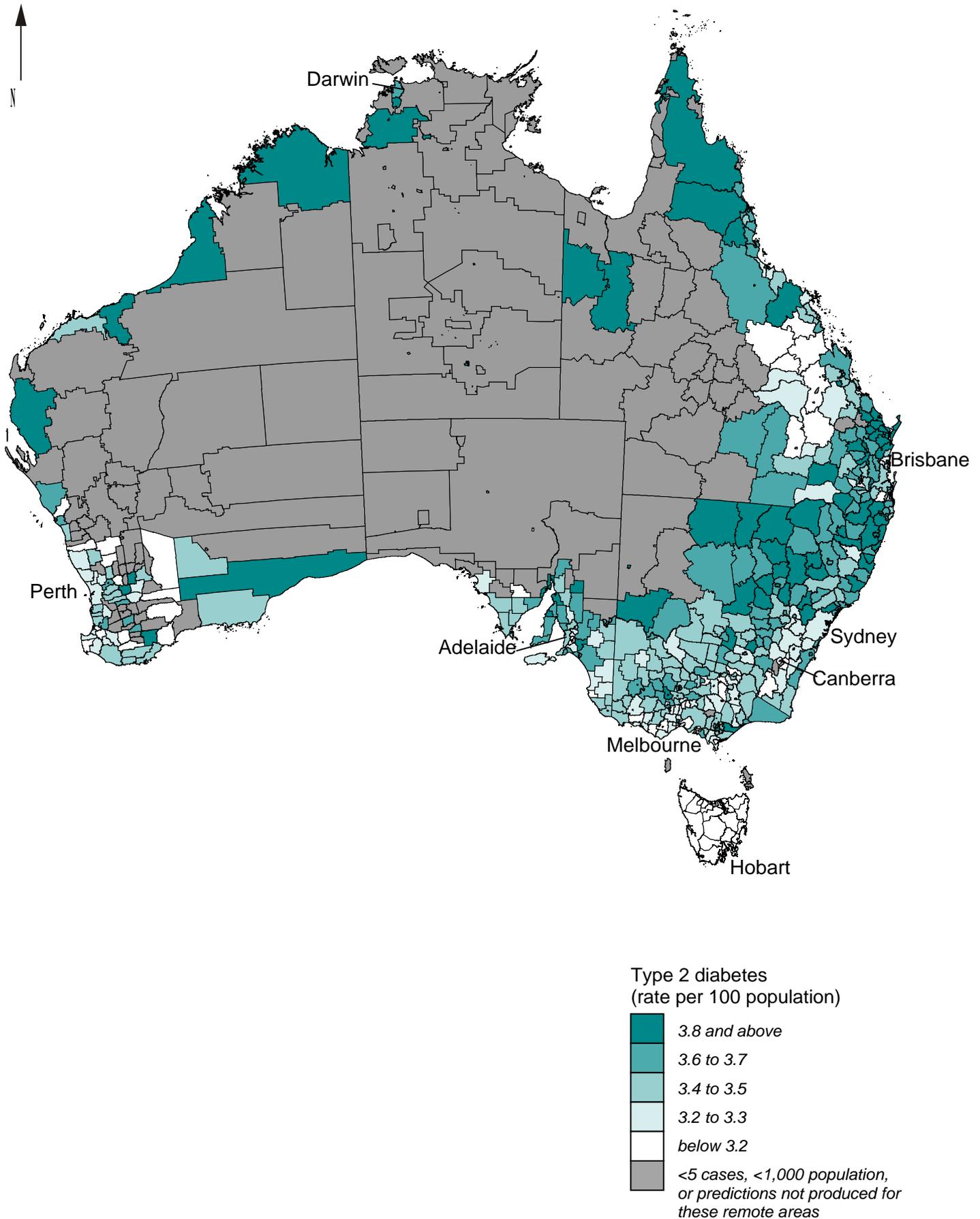
The highest rates of type 2 diabetes in the non-metropolitan areas of **South Australia** were estimated for the northern SLAs of Port Augusta and Peterborough (both with rates of 4.2%), Whyalla, Port Pirie City Districts - City and Balance, and Copper Coast; and closer to Adelaide, in Murray Bridge. Roxby Downs in the far north, Robe in the south-east, and Kimba in the west had the lowest rates. Low rates were also estimated for SLAs to the east of Adelaide, in Adelaide Hills - North and Balance, and Mount Barker Balance.

The highest rates in non-metropolitan **Western Australia** included the SLAs of Wyndham-East Kimberley (6.0%), Broome (5.1%) and Port Hedland (3.9%) on the far north coast; Carnarvon (4.4%) on the mid-west coast; and Dundas (4.0%), Kellerberrin (4.0%), Quairading (3.9%) and Gnowangerup (3.9%), in the south. The lowest rates were in SLAs dispersed across the south-west of the State including Lake Grace, Yilgarn, Dalwallinu, Cranbrook, Coorow, Jerramungup, and Kojonup.

The highest rates in the non-metropolitan areas of **Tasmania** were estimated for the SLAs of Tasman (3.2%), Break O'Day (3.1%) and Waratah/Wynyard - Part B (3.1%). A cluster of areas in the north of the State had the lowest rates: these included Launceston - Part C, Meander Valley - Part A, and Northern Midlands - Part A; with a low rate also in Kingborough - Part B, in the south.

Of the few areas mapped in the **Northern Territory**, the highest rate of type 2 diabetes was estimated for the SLA of Daly (7.6%) and the lowest for Jabiru (3.0%). The SLAs in Alice Springs were all estimated to have rates of around four or five per cent.

Map 38: Estimated population with type 2 diabetes, Australia, 2007-08  
 standardised rate per 100 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (provided as a consultancy)

## Prevalence of smoking among males, capital cities

*Tobacco smoking is the greatest single cause of premature death and a leading preventable cause of morbidity in Australia.<sup>90</sup> Smoking rates among Australian adults have declined since the early 1970s. In 2007, 21% of adult males were current smokers, compared to 18% of adult females, with the highest rates for both in the 25-29 year age group (males 30%, females 26%).<sup>90</sup> For the period 2004-05, tobacco smoking was estimated to cost \$31.5 billion annually in health care, lost productivity and other costs.<sup>91</sup> The prevalence of smoking is significantly higher among lower socioeconomic groups, particularly those facing multiple personal and social challenges.<sup>90</sup>*

**Indicator definition:** Estimated male population aged 18 years and over who were current smokers, expressed as a percentage (age-standardised); further details of these estimates are in Appendix B.

**Table 40: Estimated male population who were current smokers, 18 years and over, by capital city, 2007-08**

Per cent (age-standardised rate per 100 males)

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 20.7   | 21.0      | 22.0     | 21.9     | 21.9  | 22.3   | 24.4   | 17.1     | 21.2  |

### Capital cities

There was little variation in estimated smoking rates for adult males between the capital cities, other than for Canberra and Darwin.

A cluster of SLAs in the west of **Sydney**, including Fairfield - East (27.4%), Parramatta - South (26.8%), Bankstown - North-East (25.4%) and - North-West (24.9%), and Auburn (25.0%), were estimated to have the highest rates of male smokers. Rates were also high further west in Blacktown - South-West (26.6%) and Penrith - East (25.4%), and to the north, in Wyong - North-East (28.1%), and - South and West (25.3%). A group of SLAs to the east and to the north of the city had the lowest rates.

High rates were estimated for SLAs throughout **Melbourne**, including in the north, Hume - Broadmeadows (28.4%) and Whittlesea - South-West; in the west, Melton Balance (26.1%), Brimbank - Sunshine, Altona and Wyndham - West; in the outer south-east, Casey - Cranbourne (26.3%) and - South, Cardinia - South and - Pakenham, and Greater Dandenong - Dandenong and Balance; and in the north-east, Yarra Ranges - Central (25.9%) and - North. The lowest rates were in a number of inner eastern, south-eastern and north-eastern SLAs.

The highest rates in **Brisbane** were estimated for SLAs located to the south, south-west and south-east: in Redland Balance, Darra-Sumner/Wacol, Stretton-Karawatha/Kingston, Marsden, Waterford West and Loganlea; and in the north, in Caboolture - Hinterland and - Central, and Deception Bay. A large group of SLAs to the east and west of the city centre had the lowest rates.

The highest rates in **Adelaide** were estimated for areas in the outer north, in Playford - Elizabeth (30.4%) and - West Central (29.6%), and Salisbury - Inner North (27.4%) and - Central (27.0%); in the south, in Onkaparinga - North Coast (27.8%) and

- Hackham (27.0%); and in the west, in Port Adelaide Enfield - Port (27.2%) and - Park (27.1%). Rates were lowest in SLAs to the east, south and south-east, and in Walkerville, just north of the city.

The highest rates of adult male smokers in **Perth**, were estimated for a group of SLAs in the south, including Kwinana (27.6%), Serpentine-Jarrahdale (25.5%), Rockingham (25.5%), Armadale (25.0%) and Gosnells (24.5%); to the east, in Belmont (25.1%); and to the north, in the Wanneroo SLAs (around 24.5%); as well as in Perth - Inner (24.7%). The lowest rates were in inner and middle suburbs between the city and the coast.

In **Hobart**, the highest rates were estimated for Derwent Valley - Part A (28.5%) and Brighton (28.1%); and the lowest for Hobart - Remainder (18.3%) and Kingborough - Part A (18.9%).

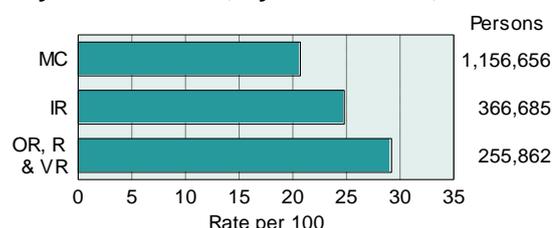
Smoking rates for males in **Darwin** ranged from 27.3% in Litchfield - Part B and 26.3% in Palmerston, to 22.5% in Darwin North East.

Rates in **Canberra** were estimated to be highest in the outer north-west and south, in particular in Eastern Fringe (29.4%); and lowest in Woden North (12.7%) and South (13.7%).

### Remoteness

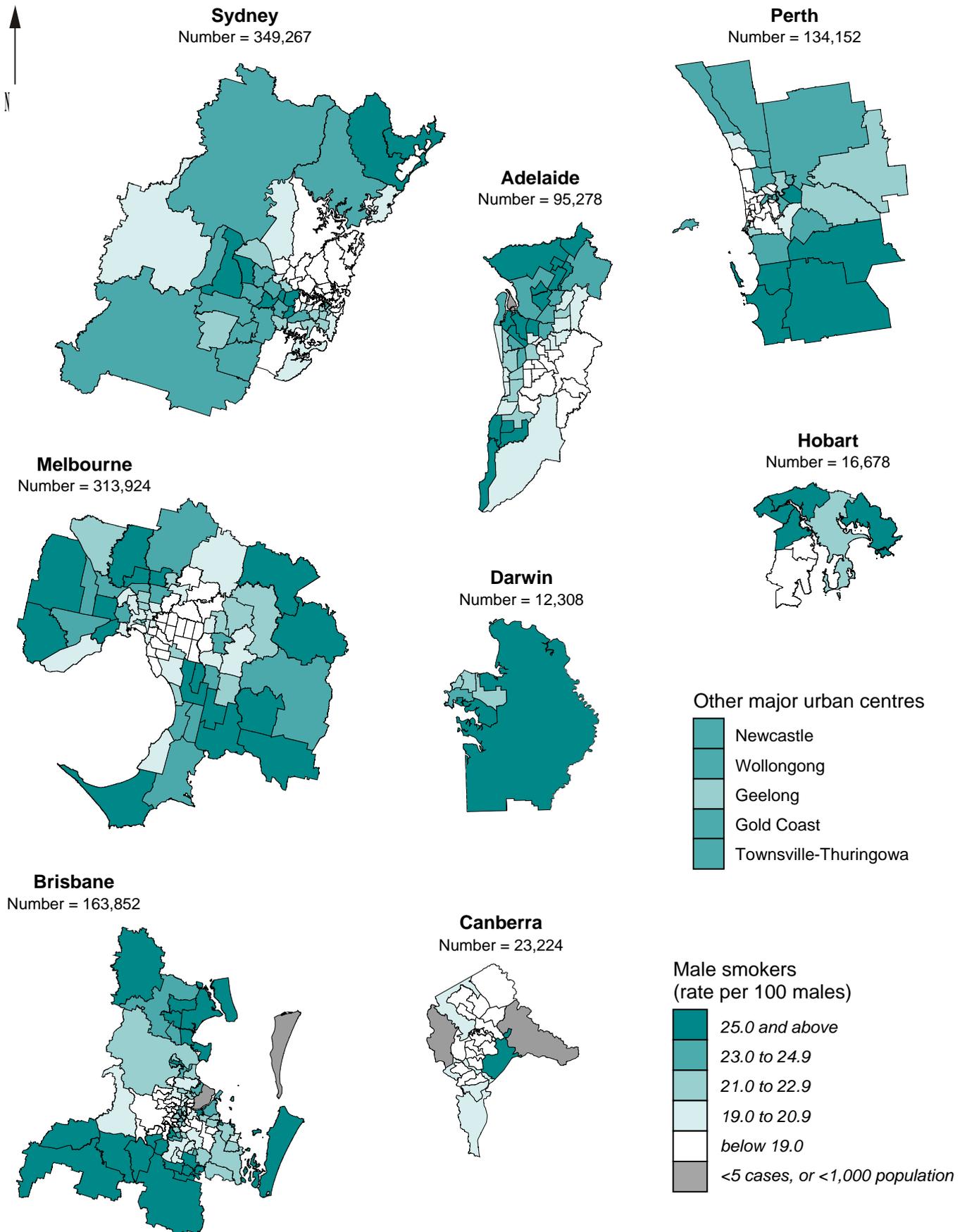
Rates increased steadily across the remoteness classes, from 20.7% in the Major Cities to 29.2% in the combined Outer Regional, Remote and Very Remote classes.

**Figure 23: Estimated male smokers, 18 years and over, by remoteness, 2007-08**



# Map 39: Estimated male population who were current smokers, 18 years and over, major urban centres, 2007-08

standardised rate per 100 males by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy

## Prevalence of smoking among males, Australia

**Notes:** These estimates were not made for the most remote areas of Australia. This is of particular relevance to the Northern Territory; as a result, totals are not available for the Northern Territory. See comments on previous text page for other details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 41: Estimated male population who were current smokers, 18 years and over, by State/ Territory, Australia, 2007-08**

*Per cent (age-standardised rate per 100 males)*

| Area                          | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT | ACT  | Total |
|-------------------------------|------|------|------|------|------|------|----|------|-------|
| Non-metropolitan <sup>1</sup> | 24.5 | 24.5 | 24.7 | 25.0 | 25.8 | 26.3 | .. | ..   | 24.8  |
| Total <sup>1</sup>            | 22.0 | 21.9 | 23.4 | 22.7 | 22.8 | 24.6 | .. | 17.1 | 22.4  |

<sup>1</sup> Estimates have not been made for SLAs in the remote areas of Australia: the 'Non-metropolitan' and 'Total' figures do not therefore represent the entire population of these areas. See Appendix B for further details.

### Non-metropolitan areas

There was little variation between the States in estimated smoking rates for males aged 18 years and over. The rates in the non-metropolitan areas were higher than those in the capital cities.

Rates in **New South Wales** were above 27.0% in Brewarrina (33.8%), Walgett (30.7%) and Bourke (27.7%), along the northern State border; on or near the north coast, in Kempsey (29.1%), Nambucca (28.7%), Richmond Valley - Casino (27.9%), and Clarence Valley - Coast (27.9%) and Balance (27.5%). Rates were also high in Junee in the south; and in Cessnock and Lithgow to the north and west of Sydney. The lowest rates were in the northern areas of Armidale Dumaresq Balance and - City; and in the south, including Palerang - Part A, Kiama, Jerilderie, Conargo, Yass Valley, Wagga Wagga - Part B and Lockhart.

The highest estimated rates of male smokers in non-metropolitan **Victoria** were in the mid-northern SLAs of Central Goldfields - Maryborough (29.0%) and Balance (28.1%), Greater Bendigo - Eaglehawk (28.1%) and Loddon - South and Pyrenees - North (both 27.5%). High rates were also estimated for East Gippsland - Orbost (28.6%), Balance (27.5%) and - Bairnsdale (27.4%), and Wellington - Rosedale; and in Glenelg - North on the south-western border. Rates were lowest in the south/south coastal areas of Queenscliffe, Newtown, South Barwon - Inner and Surf Coast - East; just north of Melbourne, in Macedon Ranges Balance; and in Yarriambiack - North in the north-west of the State.

In **Queensland**, over 28.0% of males were estimated to be smokers in a large group of SLAs from the west of Brisbane to north of Gladstone, including Mount Morgan, Hervey Bay - Part B, Nanango, Wondai, Miriam Vale, Tiaro, Kolan and Biggenden; and further north in Cook, Herberton, Cairns - Central Suburbs, Bowen and Dalrymple. Rates are lowest just to the west of

Brisbane in Crow's Nest - Part A, Toowoomba - North-East and South-East, and Cambooya - Part B; in Hope Island on the Gold Coast, and in Bauhinia.

Non-metropolitan areas in **South Australia** with the highest estimated rates of male smokers included the northern SLAs of Peterborough (29.9%), Port Augusta (29.6%), Flinders Ranges (29.6%) and Port Pirie Central Districts - City (27.8%); to the east of Adelaide, Murray Bridge and Mid Murray (both 27.7%); and Copper Coast (27.4%) on Yorke Peninsula. SLAs with the lowest rates were near Adelaide, although others were more widespread, on the west coast (Cleve and Kimba); and in the far north (Roxby Downs).

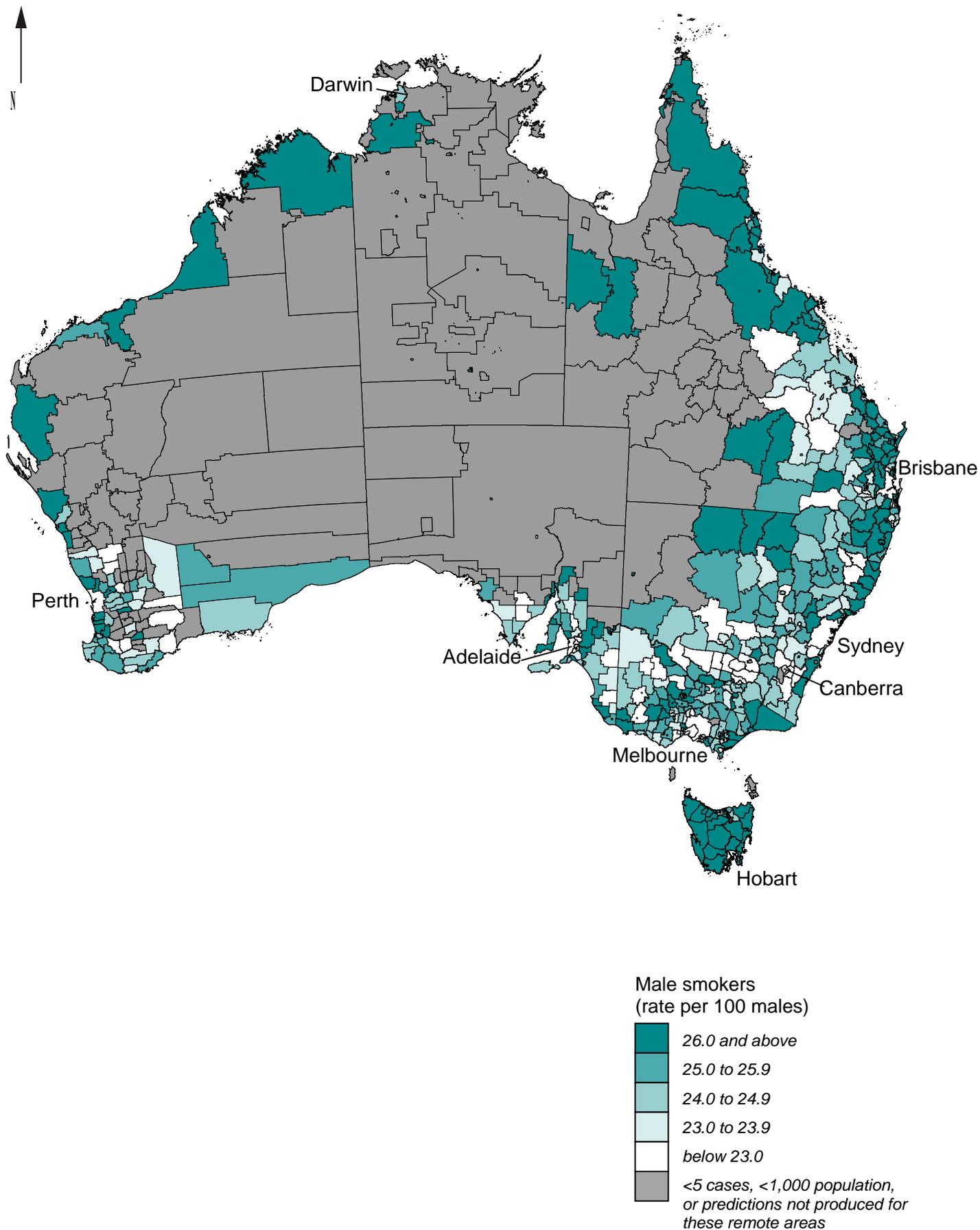
In **Western Australia**, areas with the highest rates of male smokers were the far northern SLAs of Wyndham-East Kimberley (30.2%), Broome and Port Hedland; further south, in Greenough - Part B (30.1%), Carnarvon, Geraldton and Irwin; and south of Perth, in Collie (27.7%), Dardanup - Part A (27.7%) and Harvey - Part B. The lowest rates were in the south-east of the State, in Lake Grace, Jerramungup and Boyup Brook; and just north-east of Perth, in Wongan-Ballidu and Cunderdin.

SLAs in **Tasmania** with the highest rates included George Town - Part A (29.4%), Break O'Day (29.2%), Kentish (29.0%), Tasman (28.6%), Central Highlands (28.5%), West Coast (28.4%), Circular Head (28.5%) and Dorset (28.1%). A cluster of areas in the north had the lowest rates: West Tamar - Part A, Meander Valley - Part A, and Launceston - Part B and - Part C; with a low rate also in Kingborough - Part B in the south.

Of the few areas that could be mapped in the **Northern Territory**, the rates of male smokers were generally high, with 36.7% in Daly, 33.2% in Coomalie, 28.5% in Alice Springs - Heavitree and 28.5% in Katherine. The lowest rates were estimated for Alice Springs - Ross (24.0%) and - Larapinta (25.3%), and Jabiru (25.7%).

# Map 40: Estimated male population who were current smokers, 18 years and over, Australia, 2007-08

standardised rate per 100 males by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## Prevalence of smoking among females, capital cities

*Tobacco smoking is the greatest single cause of premature death and a leading preventable cause of morbidity in Australia.<sup>90</sup> Smoking rates among Australian adults have declined since the early 1970s. In 2007, 18% of adult females were current smokers, compared to 21% of adult males, with the highest rates for both in the 25-29 year age group (females 26%, males 30%).<sup>90</sup> For the period 2004-05, tobacco smoking was estimated to cost \$31.5 billion annually in health care, lost productivity and other costs.<sup>91</sup> The prevalence of smoking is significantly higher among lower socioeconomic groups, particularly those facing multiple personal and social challenges.<sup>90</sup>*

**Indicator definition:** Estimated female population aged 18 years and over who were current smokers, expressed as a percentage (age-standardised); further details of these estimates are in Appendix B.

**Table 42: Estimated female population who were current smokers, 18 years and over, by capital city, 2007-08**

Per cent (age-standardised rate per 100 females)

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 15.8   | 16.7      | 18.5     | 16.0     | 15.7  | 18.1   | 23.7   | 17.7     | 16.5  |

### Capital cities

The estimated rate of current female smokers aged 18 years and over showed little variation across the capital cities, except for Darwin, where the rate was higher, at 23.7%.

The highest rates in **Sydney** were estimated for SLAs in the north, in Wyong - North-East (23.3%), - South and West (both 21.5%), and Gosford - West (20.2%); in the south, in Campbelltown - South (20.6%) and - North (19.8%); and in the west, in Blacktown - South-West (20.6%) and Penrith - East (20.4%). SLAs with the lowest rates were on the north shore, other than Strathfield, Burwood and Woollahra.

In **Melbourne**, the highest estimated smoking rates for females were in the western areas of Melton Balance (22.2%) and Wyndham - West (21.2%); in the north, in Hume - Broadmeadows (21.3%); in the south, in Cardinia - Pakenham (21.4%) and - South (20.6%); in the outer east, in Yarra Ranges - Central (21.0%); and in the south-east in Casey - Cranbourne (20.8%), Frankston - West (20.7%) and - East (20.5%), and Mornington Peninsula - East (20.3%) and - South (20.2%). The lowest rates were located in the eastern suburbs.

Areas with the highest rates in **Brisbane** included Redland Balance (26.4%), Marsden (24.6%), Deception Bay (24.3%), Loganlea (24.2%), Waterford West (24.1%), Stretton-Karawatha/Kingston (23.8%), Bethania-Waterford/Eagleby and Coomera-Cedar Creek in the south and south-east; Ipswich - Central (22.3%) and - East (22.0%) in the south-west; and Deception Bay (24.3%), Caboolture - Central (23.9%), and Morayfield (22.7%), in the north. SLAs in a number of inner suburbs, and middle suburbs to the east and west of the city, had the lowest rates.

In **Adelaide**, the highest estimated rates of female smokers were in the outer north, in Playford - West Central (24.3%) and - Elizabeth (24.2%)

and Salisbury - Inner North (21.0%) and - Central (20.0%); and in the outer south, in Onkaparinga SLAs of - North Coast (20.8%), - Hackham (20.3%), - South Coast and - Morphett (both 19.7%). The lowest rates were in SLAs close to Adelaide, to the north, east and south; and in middle suburbs to the east, south and south-east.

In **Perth**, the highest rates were in the outer areas, in Kwinana (20.8%), Rockingham (18.9%) and Armadale (18.8%) in the south; Wanneroo - North-West (18.8%) and North-East (17.9%) in the outer north; and in Belmont (18.2%), in the east. The lowest rates were estimated for a number of inner and middle SLAs.

Female smoking rates in **Hobart** were estimated to be highest in the SLAs of Brighton (23.7%), Sorell - Part A (23.0%) and Derwent Valley - Part A (22.5%); and lowest in Hobart - Remainder (14.1%) and Kingborough - Part A (15.3%).

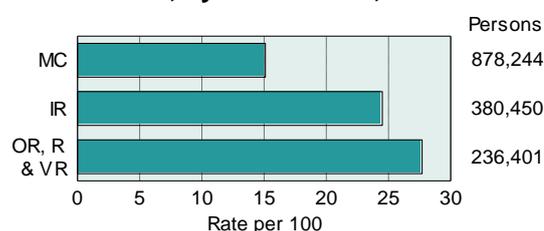
Rates in **Darwin** were all estimated to be above 20.0%. The highest rates were in Palmerston (26.2%) and Litchfield - Part B (24.1%).

Rates in **Canberra** were highest in Eastern Fringe (21.6%), and lowest in Woden North (11.3%) and South (11.4%).

### Remoteness

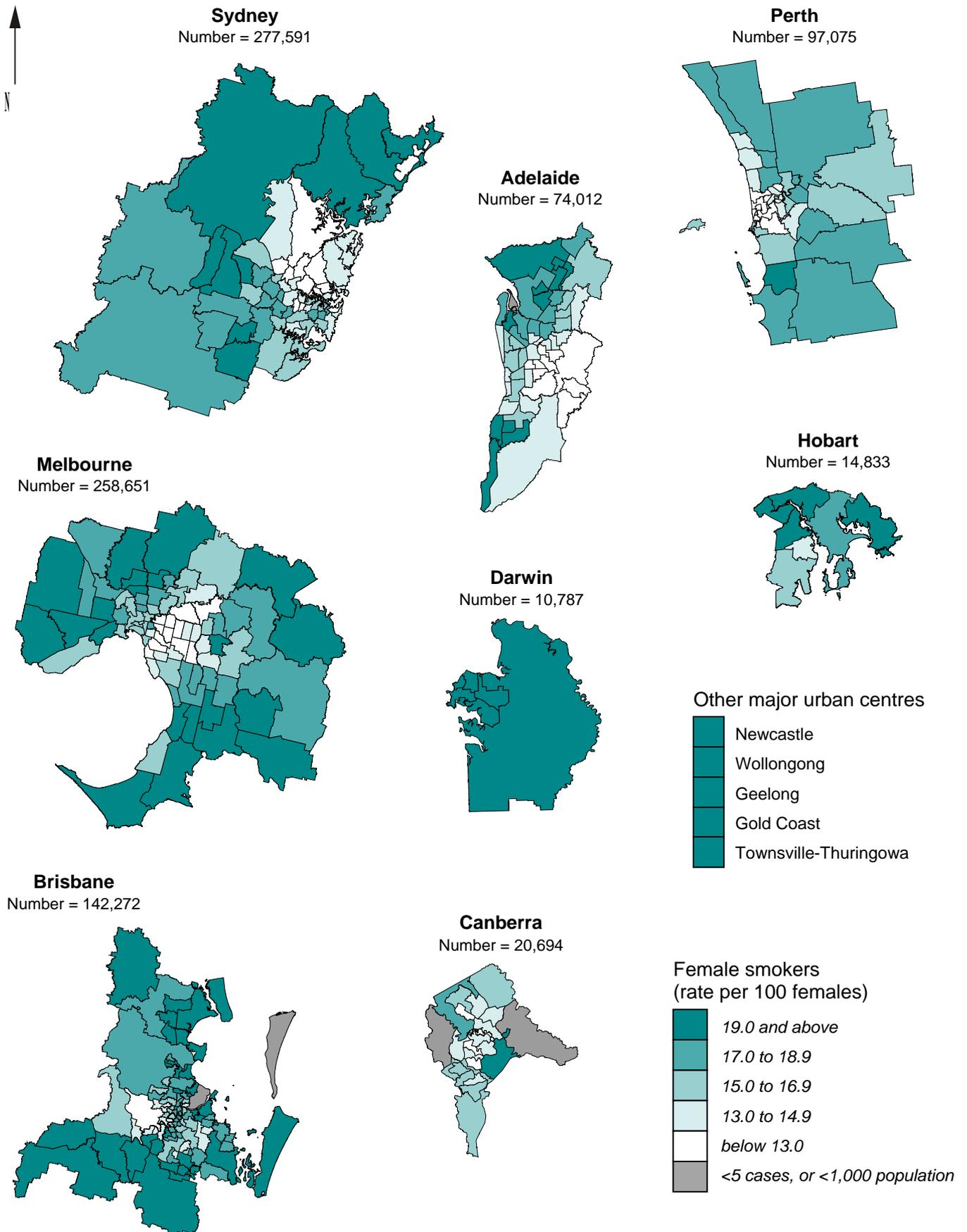
Rates increased across the remoteness classes, from 15.1% in the Major Cities to 27.7% in the combined Outer Regional, Remote and Very Remote classes.

**Figure 24: Estimated female smokers, 18 years and over, by remoteness, 2007-08**



# Map 41: Estimated female population who were current smokers, 18 years and over, major urban centres, 2007-08

standardised rate per 100 females by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## Prevalence of smoking among females, Australia

**Notes:** These estimates were not made for the most remote areas of Australia. This is of particular relevance to the Northern Territory; as a result, totals are not available for the Northern Territory. See comments on previous text page for other details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 43: Estimated female population who were current smokers, 18 years and over, by State/ Territory, Australia, 2007-08**

*Per cent (age-standardised rate per 100 females)*

| Area                          | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT | ACT  | Total |
|-------------------------------|------|------|------|------|------|------|----|------|-------|
| Non-metropolitan <sup>1</sup> | 21.5 | 20.9 | 21.7 | 20.8 | 21.8 | 22.4 | .. | ..   | 21.5  |
| Total <sup>1</sup>            | 17.8 | 17.8 | 20.2 | 17.2 | 17.1 | 20.5 | .. | 14.7 | 18.2  |

<sup>1</sup> Estimates have not been made for SLAs in the remote areas of Australia: the 'Non-metropolitan' and 'Total' figures do not therefore represent the entire population of these areas. See Appendix B for further details.

### Non-metropolitan areas

There was little variation between the States in the estimated rate of smoking by adult females, with rates in the non-metropolitan areas higher than in the capital cities.

High estimated smoking rates were evident for females across much of **New South Wales**, from the north-east to the south-west, with the highest in Brewarrina (37.5%), Walgett (32.2%), Coonamble (32.2%), Bourke (30.5%), Bogan (28.0%) and Cobar (27.0%). High rates were also evident in Wellington (28.6%), in central New South Wales; Nambucca (28.3%), on the north coast; and Broken Hill (27.9%), in the far west. The lowest rates were in areas closer to the coast, to the east, south-east and north-east of Sydney; in the south of the State; and to the north, in a number of SLAs near the coast.

The highest smoking rates were estimated for females in the outer eastern and western areas of **Victoria**. These included the SLAs of East Gippsland - Orbost (27.4%) and - Bairnsdale (26.7%), in the east; Glenelg - Portland (26.0%) and - North (25.3%), in the south-west; Swan Hill - Central (25.9%) and - Robinvale (25.0%), and Mildura - Part A (25.9%) along the State's northern border; and Horsham - Central (25.4%) and Hindmarsh (25.0%), in the west. The lowest rates were predominantly in two groups of SLAs: one from south of Geelong to Macedon Ranges, and another in the north-west of the State, around Wangaratta and Shepparton.

Rates in **Queensland** were highest in the far north, in Cook (31.3%), Herberton (29.6%) and Cairns - Central Suburbs (27.9%); in the far west, in Cloncurry (28.6%) and Mount Isa (28.3%); to the west of Brisbane in a group from Tara (26.6%) to Murweh (27.7%); and north of Brisbane, from Wondai (26.1%) to Miriam Vale (26.8%) and Mount Morgan (26.6%). Areas with the lowest rates were largely close to Brisbane, to the west,

south, and north; and further north, around Livingstone - Part A.

In **South Australia**, female smoking rates were estimated to be highest in the mid north of the State, in Peterborough (26.6%), Port Augusta (26.4%), Port Pirie (25.5%), Whyalla (24.7%), and Flinders Ranges (24.4%); on the Eyre Peninsula, in Port Lincoln (26.3%); in Yorke Peninsula - South (24.6%) and Copper Coast (24.3%); and in the Riverland, in Barmera (24.2%) and Berri (24.0%). Areas on the fringe of the metropolitan area, from Light to Yankalilla, had the lowest rates.

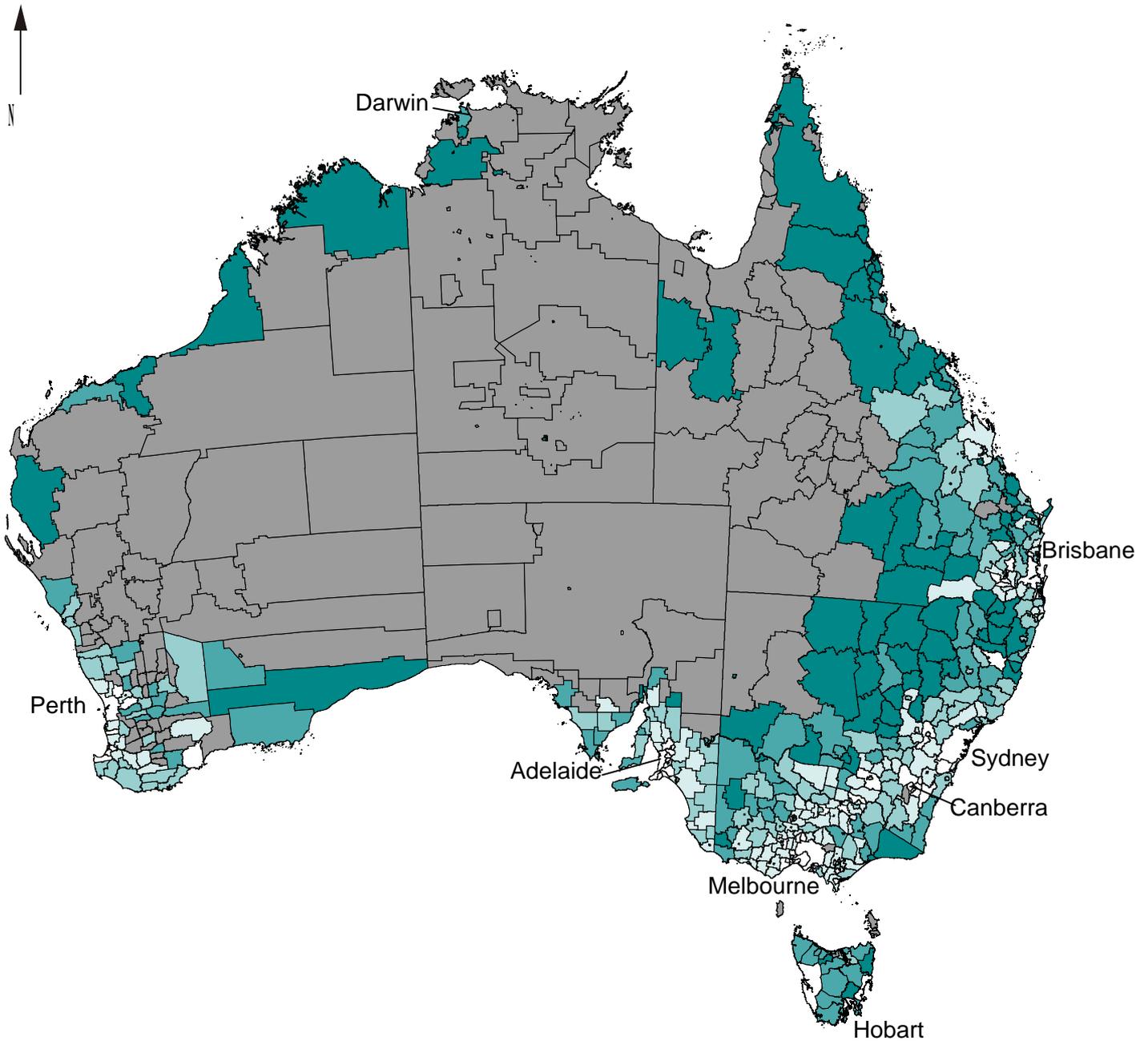
The highest female smoking rates in **Western Australia** were in coastal SLAs including Wyndham-East Kimberley (29.6%), Broome (28.6%) and Port Hedland (26.1%), in the far north; on the mid-west coast in Carnarvon (29.6%) and Geraldton (29.3%); and in the south-west, in Dundas (27.2%). A small number of areas to the west of Perth also had high rates. The lowest rates were in SLAs to the north and east of Perth; in a group from Mandurah to Busselton; and in Jerramungup and Lake Grace.

The highest rates of female smokers estimated for **Tasmania**, included the north coast SLAs of George Town - Part A (27.4%), Burnie - Part A (26.3%), Waratah/ Wynyard - Part A (26.0%), Central Coast - Part A (25.7%), Break O'Day (25.7%), and nearby Kentish (25.9%); and Southern Midlands (26.2%), north of Hobart. The SLAs of West Coast, Glamorgan/Spring Bay, and a number of SLAs in and around the Tamar Valley, had the lowest rates.

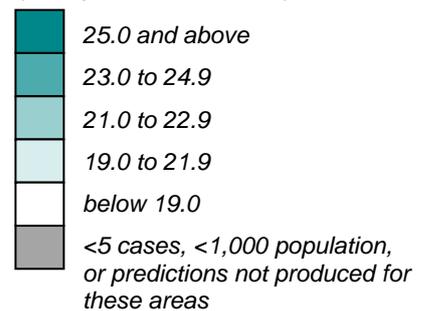
Of the few areas that could be mapped in the **Northern Territory**, the estimated rates of female smokers was highest in Daly (34.7%), Katherine (28.8%), and Alice Springs - Heavitree (28.6%) and - Stuart (28.5%). The lowest rates were estimated for Jabiru (23.7%) and Alice Springs - Ross (25.5%).

# Map 42: Estimated female population who were current smokers, 18 years and over, Australia, 2007-08

standardised rate per 100 females by Statistical Local Area/ Statistical Local Area group



Female smokers  
(rate per 100 females)



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## Prevalence of obesity among males, capital cities

In 2007-08, an estimated 61.4% of the Australian population were either overweight or obese, with 25.6% of adult males classified as obese (Body Mass Index > 30.0 kg/m<sup>2</sup>).<sup>92</sup> For adults, the health problems and consequences of obesity are many and varied, and include musculoskeletal problems, cardiovascular disease, some cancers, sleep apnoea, type 2 diabetes, and hypertension.<sup>93</sup> Many of these health problems are preventable: for example, regular physical activity reduces cardiovascular risk in its own right and also improves levels of cardiovascular risk factors such as overweight, high blood pressure, and Type 2 diabetes.<sup>94</sup>

**Indicator definition:** Estimated male population aged 18 years and over who were obese based on BMI from self-reported height and weight, expressed as a percentage (age-standardised); further details of these estimates are in Appendix B.

**Table 44: Estimated male population who were obese, 18 years and over, by capital city, 2007-08**

Per cent (age-standardised rate per 100 males)

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 20.3   | 17.0      | 19.9     | 17.3     | 15.7  | 15.4   | 24.0   | 16.5     | 18.4  |

### Capital cities

The estimated population of obese adult males varied across the capital cities, from 24.0% in Darwin, to 15.4% in Hobart and 15.7% in Perth.

The highest estimated rate of male obesity in **Sydney** was in the western SLA of Blacktown - South-West (29.4%), with high rates also in a group of SLAs including Liverpool - East (28.9%), Bankstown - North-East (28.2%) and - North-West (28.1%), Auburn (26.7%), Canterbury (26.6%) and Campbelltown - North (23.9%) and - South (23.3%). The lowest rates were in Strathfield and Burwood, south of the city centre; and on the north shore, in Ku-ring-gai, Willoughby, Hornsby - South and Baulkham Hills - South.

In **Melbourne**, only Whittlesea - South-West (26.3%) had a very high rate. Other high rates were estimated for Melton Balance (21.7%), in the north-west; Greater Dandenong - Dandenong (25.3%), Cardinia - South (22.3%) and Casey - Cranbourne (20.9%), in the south-east; and Yarra Ranges - Central (21.4%), in the outer east. The lowest rates were in the city centre, and in a large group of inner and middle SLAs to the east and south-east.

Obesity rates for males in **Brisbane** were high, at over 25%, in the south in Marsden (30.8%), Loganlea (29.7%), Waterford West (28.6%) and Inala/Richlands (27.9%); in the north in Deception Bay (30.1%) and Caboolture - Central (29.9%); and in the south-east, in Redland Balance (26.8%). A group of SLAs to the west of the Brisbane River, and another group in the south, had the lowest rates.

Areas in **Adelaide** with the highest rates included Salisbury - Inner North (26.3%) and - Central (25.1%) in the outer north; Onkaparinga - Hackham (26.1%) and - Morphett (25.1%) in the outer south; and Charles Sturt - North-East

(23.7%) to the north-west of the city. Rates were lowest in the City of Adelaide and in SLAs to the east, south and south-east.

Obesity rates for males were lower in **Perth**, with the highest rates estimated for Kwinana (20.9%), Armadale (20.0%), Belmont (19.0%), Wanneroo - South (19.0%) and Bassendean (19.0%). The inner SLAs of Peppermint Grove, Claremont, Subiaco, Nedlands and South Perth had the lowest rates; with low rates also in Melville, Canning, Mosman Park and Cambridge.

In **Hobart**, estimated male obesity rates were much higher in Glenorchy (23.4%) than in the other SLAs, where rates ranged from 11.1% in Hobart - Remainder to 17.8% in Kingborough - Part A.

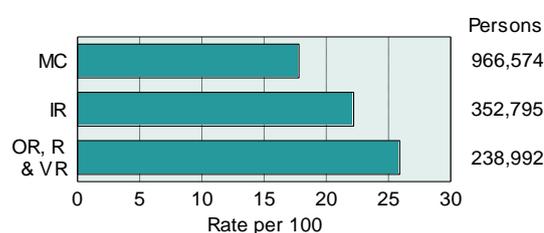
Rates in **Darwin** were relatively high in Palmerston (27.7%), Litchfield - Part A (26.2%), and Darwin North East (25.3%). Darwin North West, Darwin South West and Litchfield Part B had the lowest rates.

There was little variation in male obesity rates in **Canberra**, ranging from 15.8 to 17.9 per 100 males, apart from in Eastern Fringe (21.5 per 100 males). Rates were higher in the outer SLAs.

### Remoteness

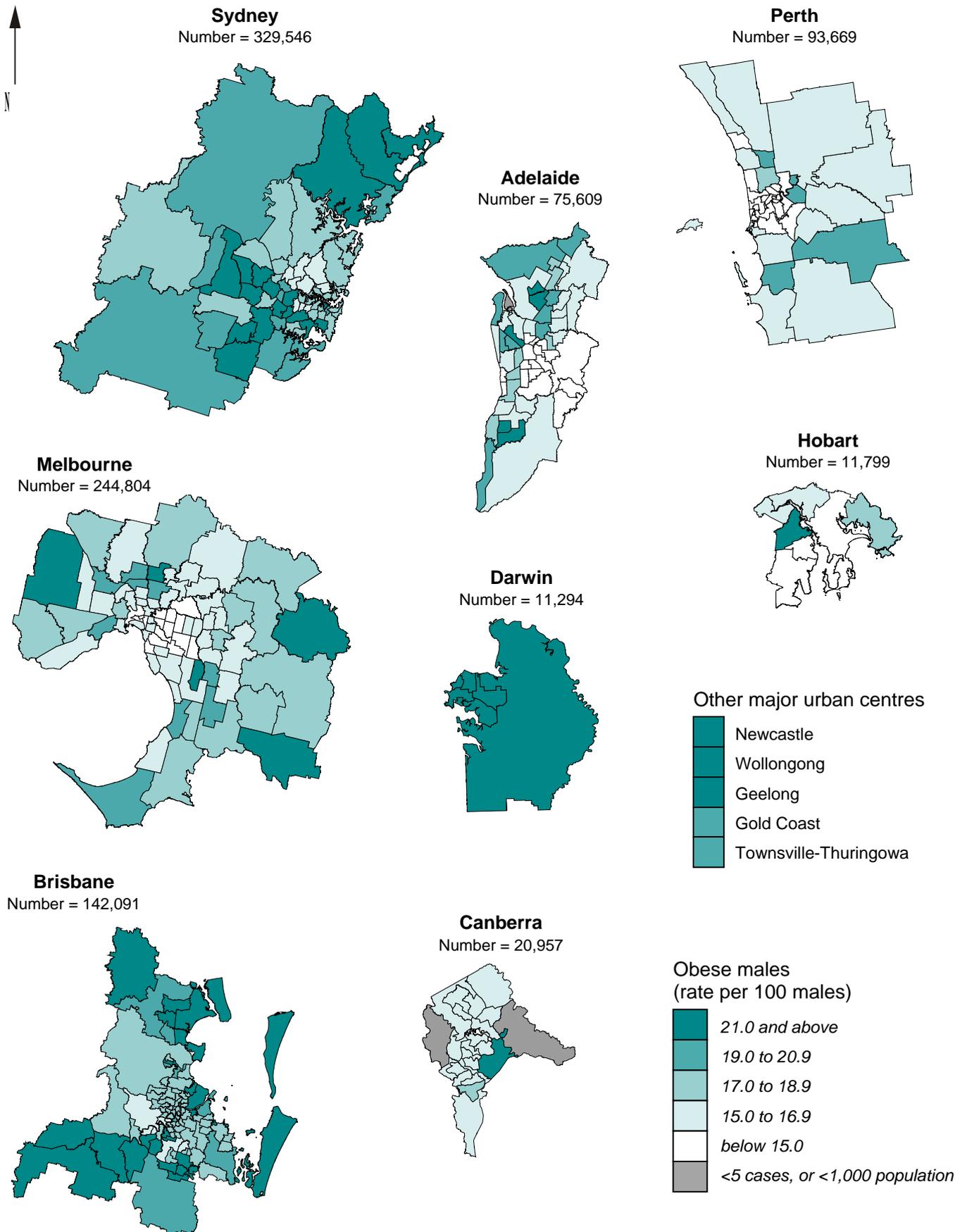
Male obesity rates increased from a rate of 17.8 per 100 males in Major Cities to 25.9 in the combined Outer Regional to Very Remote classes.

**Figure 25: Estimated male population who were obese, 18 years and over, by remoteness, 2007-08**



# Map 43: Estimated male population who were obese, 18 years and over, major urban centres, 2007-08

standardised rate per 100 males by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## Prevalence of obesity among males, Australia

**Notes:** These estimates were not made for the most remote areas of Australia. This is of particular relevance to the Northern Territory; as a result, totals are not available for the Northern Territory. See comments on previous text page for other details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 45: Estimated male population who were obese, 18 years and over, by State/ Territory, Australia, 2007-08**

*Per cent (age-standardised rate per 100 males)*

| Area                          | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT | ACT  | Total |
|-------------------------------|------|------|------|------|------|------|----|------|-------|
| Non-metropolitan <sup>1</sup> | 23.8 | 20.7 | 21.6 | 19.4 | 19.0 | 19.0 | .. | ..   | 21.8  |
| Total <sup>1</sup>            | 21.6 | 18.0 | 20.9 | 17.9 | 16.5 | 17.5 | .. | 16.5 | 19.6  |

<sup>1</sup> Estimates have not been made for SLAs in the remote areas of Australia: the 'Non-metropolitan' and 'Total' figures do not therefore represent the entire population of these areas. See Appendix B for further details.

### Non-metropolitan areas

There was little variation between the States in the rate of obesity among males aged 18 years and over, apart from a higher rate, of 23.8%, in New South Wales. Rates in the non-metropolitan areas were higher than those in the capital cities.

Areas with the highest rates of male obesity in **New South Wales** were widely dispersed, including the rural SLAs of Junee (30.8%), Inverell - Part B (30.4%), Gilgandra (30.3%), Bourke (30.1%), Narrandera (30.0%), Lachlan (29.9%) and Gunnedah (29.8%); and regional centres such as Goulburn (29.8%), Grafton (29.8%) and Broken Hill (29.7%). The lowest rates were evident in SLAs to the south of Sydney.

Male obesity rates of 26.0% or higher in the non-metropolitan areas of **Victoria** were located in the regional centres of Bendigo (the SLAs of - Eaglehawk (28.1%) and - Central (27.5%)), and Maryborough (27.3%), in the mid-west of the State; in Swan Hill - Robinvale (27.6%), on the State border; in Corio - Inner (27.0%), in the south-west; and in Latrobe - Moe (26.9%) and - Morwell (26.5%), in the south-east. The rural SLAs of Loddon - South (26.2%), and Pyrenees - North (26.0%) also had high rates. The lowest rates were in a group of SLAs to the south-west, west and north of Melbourne; in the north-east of the State; and in the Bendigo SLAs of - Inner East and - Strathfieldsaye.

In **Queensland**, rates of 29.0% or higher were estimated for areas to the west and south-west of Brisbane, in Booringa (31.0%), Toowoomba - North-East (30.0%) and Warwick - Central (30.2%); to the north in Cooloola - Gympie (29.9%), Bundaberg (29.7%), Mundubbera (29.5%), Gayndah (29.4%), Maryborough (29.1%), Wondai (29.1%) and Kilkivan (29.0%); and further north in Charters Towers (29.5%). The lowest rates were largely in SLAs located in the Sunshine Coast and Gold Coast; further north, inland from Mackay; and in some parts of Cairns.

Areas in non-metropolitan **South Australia**, with rates of 24.0% or higher, included Renmark Paringa - Renmark (26.0%), Loxton Waikerie - West (25.9%), Murray Bridge (25.7%), Berri & Barmera - Barmera (25.4%) and Mid Murray (24.0%) in the Murray Valley; on Yorke Peninsula, in Copper Coast; and in the north, in Flinders Ranges (26.0%) and Port Augusta (25.9%). Roxby Downs in the far north had the lowest rate (12.5%), with low rates also in areas close to Adelaide, from Alexandrina - Strathalbyn, in the south, to Clare and Gilbert Valleys, in the north.

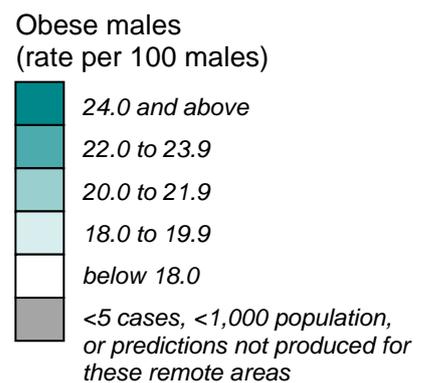
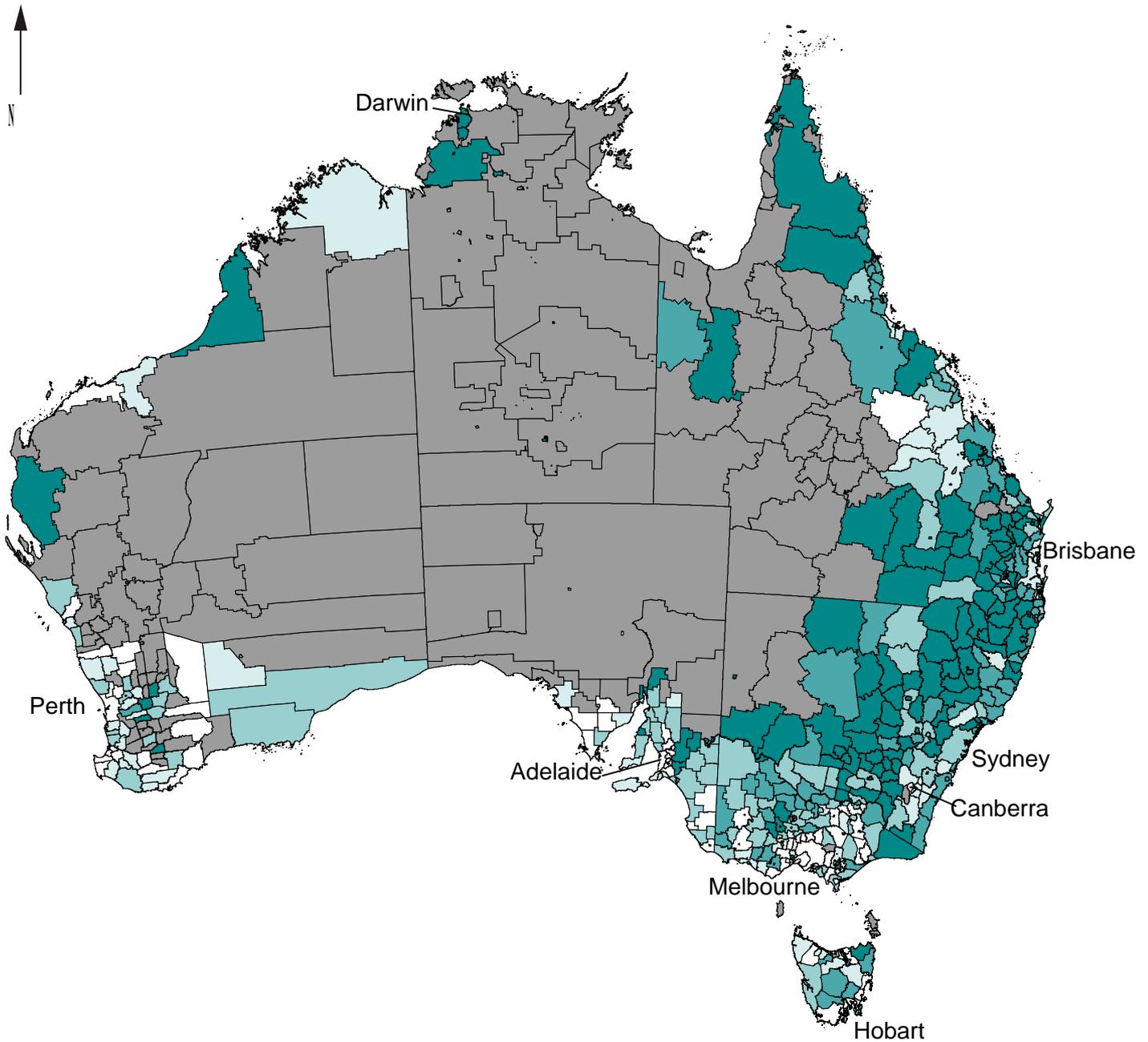
In non-metropolitan **Western Australia**, areas with the highest estimated populations of obese males were largely located in the south-west of the State, including Quairading (26.7%), Northam (26.5%), Katanning (25.8%) and Pingelly; along the mid-western coast in Geraldton (25.9%), and further north in Carnarvon (25.2%) and Broome (25.3%). SLAs with the lowest rates included Roebourne, on the north coast; Busselton and Capel - Part A, and Augusta-Margaret River in the south-west; and Kalgoorlie/Boulder - Part A in the far west.

Male obesity rates were highest in northern **Tasmania**, in the non-metropolitan SLAs of Dorset (24.2%), Burnie - Part A (23.8%), Devonport (23.5%), Waratah/ Wynyard - Part A (23.4%) and Kentish (23%); and in the SLA of Central Highlands (23.5%). Rates were lowest in Kingborough - Part B and West Tamar - Part A.

Of the areas that could be mapped in non-metropolitan **Northern Territory**, the estimated rates of obese males were generally high. Rates of 28.0% or higher were estimated for the Alice Springs SLAs of - Stuart (31.5%) and - Charles (28.2%), and Daly (28.3%). The lowest rates were estimated for Jabiru and Alice Springs - Ross.

# Map 44: Estimated male population who were obese, 18 years and over, Australia, 2007-08

standardised rate per 100 males by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## Prevalence of obesity among females, capital cities

In 2007-08, an estimated 61.4% of the Australian population were either overweight or obese, with 24.0% of adult females classified as obese (Body Mass Index > 30.0 kg/m<sup>2</sup>).<sup>92</sup> For adults, the health problems and consequences of obesity are many and varied, and include musculoskeletal problems, cardiovascular disease, some cancers, sleep apnoea, type 2 diabetes, and hypertension.<sup>93</sup> Many of these health problems are preventable: for example, regular physical activity reduces cardiovascular risk in its own right and also improves levels of cardiovascular risk factors such as overweight, high blood pressure, and Type 2 diabetes.<sup>94</sup>

**Indicator definition:** Estimated female population aged 18 years and over who were obese based on BMI from self-reported height and weight, expressed as a percentage (age-standardised); further details of these estimates are in Appendix B.

**Table 46: Estimated female population who were obese, 18 years and over, by capital city, 2007-08**

Per cent (age-standardised rate per 100 females)

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 15.6   | 15.5      | 16.1     | 16.7     | 15.1  | 16.2   | 17.5   | 13.6     | 15.7  |

### Capital cities

The lower rate in Canberra and the higher rate in Darwin were the main variations in the estimated rate of obesity for females aged 18 years and over across the capital cities.

In **Sydney**, the highest rates of obesity were estimated for females in Wyong - North East (19.8%) and - South and West (19.3%) and Gosford - West (19.0%), in the outer north-east; in the west, in Parramatta - South (19.2%), and further west, in Penrith - East (19.4%) and - West (19.1%); and to the south-west, in Campbelltown - South (19.2%) and - North (19.0%), and Liverpool - East (19.0%). The lowest rates were in a large group of SLAs on the north shore, and in Woollahra.

The highest rates in **Melbourne** were in the northern SLAs of Hume - Broadmeadows (19.8%) and - Craigieburn (19.3%), Moreland - North (19.6%) and Whittlesea - South-West (19.3%); in the west, in Melton Balance (19.7%) and Wyndham - North (19.1%); and in the south-east, in Cardinia - Pakenham (19.8%) and Casey - Cranbourne (19.2%). The lowest rates were in the city centre, and in a large group of inner and middle SLAs to the east and south-east.

In **Brisbane**, female obesity rates were estimated to be highest in the south, in Marsden (21.0%), Waterford West and Loganlea (both 20.4%); in the west, in Ipswich Central and - East; and in the north, in Deception Bay (20.2%) and Caboolture - Central (20.1%). SLAs with the lowest rates were in inner and middle suburbs to the west of the Brisbane River.

The highest rates in **Adelaide** were estimated to be in the outer north, in Playford - West Central (21.3%), - Elizabeth (20.7%), - East Central (20.0%) and - West (19.7%), and in Salisbury - Inner North (20.1%) and - North-East (19.3%); the north-western SLA of Charles Sturt - Inner

(19.2%); and in the outer south, in Onkaparinga - South Coast (19.6%) and - North Coast (19.4%). The lowest rates were in inner suburbs to the east, south and south-east of the city.

Estimated rates of obesity for females in **Perth** were highest in the outer south in Kwinana (20.5%); the outer north in Wanneroo - North-West (19.7%); and in Perth - Inner (19.0%). A near-city cluster of SLAs including Peppermint Grove, Nedlands, Claremont, Perth - Remainder, Subiaco, Canning, Melville, Mosman Park and South Perth had the lowest rates.

In **Hobart**, the highest rates were in Brighton (19.0%) and Derwent Valley - Part A (19.0%); and the lowest were in Hobart - Remainder and Kingborough - Part A.

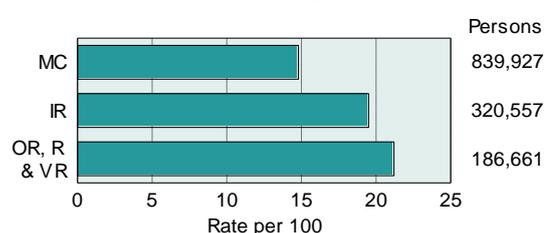
There was little variation in the estimated rate of female obesity in **Darwin**, other than for the highest rate in Palmerston (18.5%) and the lowest rate in Litchfield - Part A (15.7%).

Apart from the high rate in Eastern Fringe (19.8%), female obesity rates in **Canberra** varied little, with the highest rates in the outer suburbs.

### Remoteness

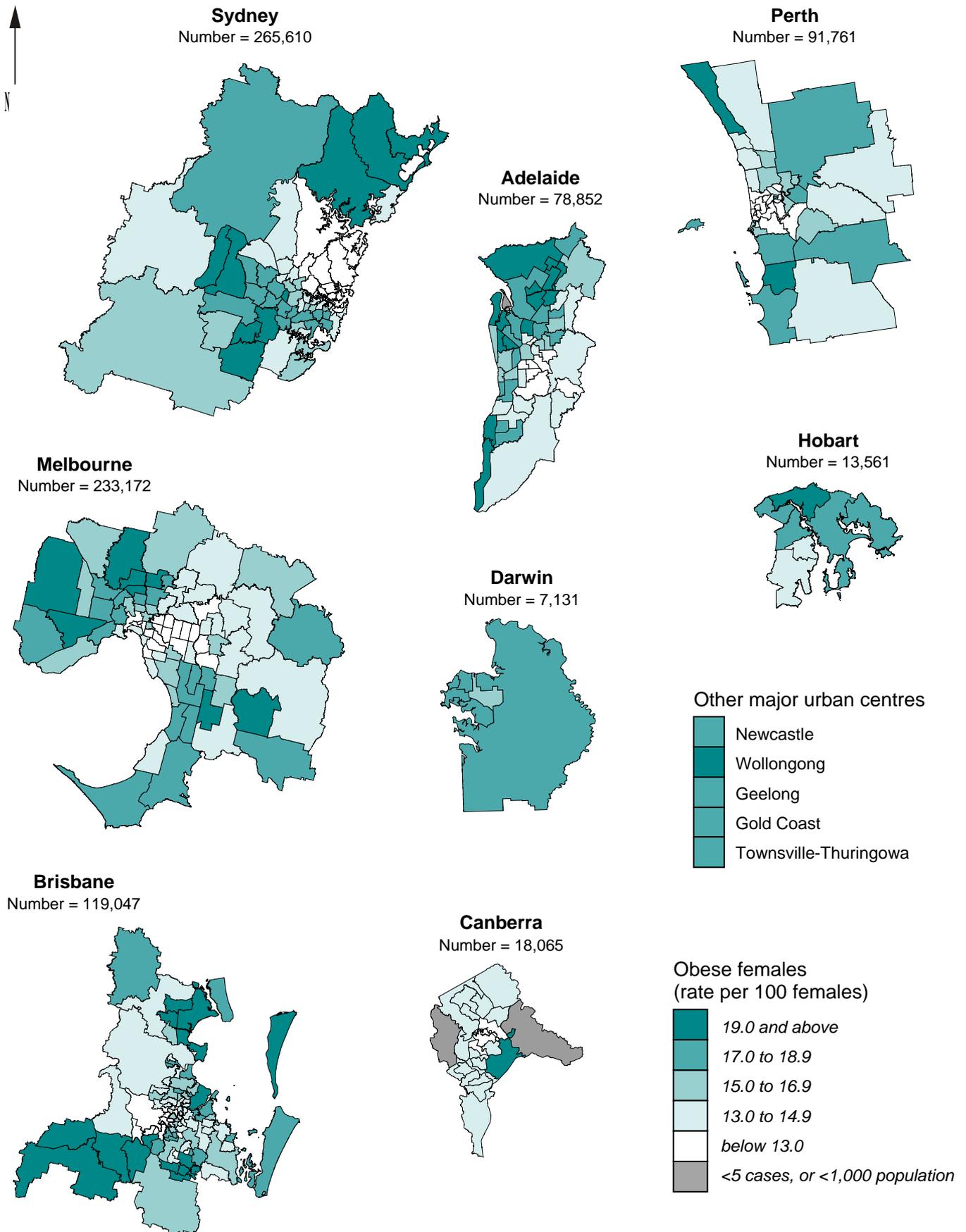
Female obesity rates increased steadily across the remoteness classes, from 14.8% females in the Major Cities to 21.2% in the combined Outer Regional, Remote and Very Remote classes.

**Figure 26: Estimated female population who were obese, 18 years and over, by remoteness, 2007-08**



# Map 45: Estimated female population who were obese, 18 years and over, major urban centres, 2007-08

standardised rate per 100 females by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## Prevalence of obesity among females, Australia

**Notes:** These estimates were not made for the most remote areas of Australia. This is of particular relevance to the Northern Territory; as a result, totals are not available for the Northern Territory. See comments on previous text page for other details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 47: Estimated female population who were obese, 18 years and over, by State/ Territory, Australia, 2007-08**

*Per cent (age-standardised rate per 100 females)*

| Area                          | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT | ACT  | Total |
|-------------------------------|------|------|------|------|------|------|----|------|-------|
| Non-metropolitan <sup>1</sup> | 17.9 | 17.4 | 17.9 | 18.0 | 17.7 | 17.8 | .. | ..   | 17.8  |
| Total <sup>1</sup>            | 16.5 | 16.0 | 17.1 | 17.0 | 15.8 | 17.1 | .. | 13.6 | 16.4  |

<sup>1</sup> Estimates have not been made for SLAs in the remote areas of Australia: the 'Non-metropolitan' and 'Total' figures do not therefore represent the entire population of these areas. See Appendix B for further details.

### Non-metropolitan areas

There was little variation between the States in the estimated rate of female obesity at age 18 years, with rates in the non-metropolitan areas higher than those in the capital cities.

The highest rates in the non-metropolitan areas of **New South Wales** were in SLAs located on the northern State border in Walgett (20.6%), Brewarinna (19.7%) and Gwydir (19.5%); the north coast in Kempsey (19.7%) and surrounding SLAs; south of Sydney, in Shellharbour (20.0%) and Wollongong Balance (19.5%); in the far south, in Junee (19.9%), Murrumbidgee (19.7%) and Tumbarumba (19.6%); and, to the west of Sydney, in Lithgow (19.5%). Areas with the lowest rates were largely in the south of the State and included Palerang - Part A, Greater Hume Shire - Part A, Wagga Wagga - Part B, Yass Valley, Snowy River and Conargo; in the north, in Armidale Dumaresq Balance; mid-state in Bathurst Regional - Part B and Dubbo - Part B; and, just south of Sydney, in Kiama.

In **Victoria**, the non-metropolitan SLAs estimated to have the highest rates of obesity among females included Latrobe - Moe and - Morwell east of Melbourne; Central Goldfields - Maryborough and Balance in the middle of the State; Moira - West on the mid-northern State border; Swan Hill - Robinvale on the north-western State border; Mitchell - South just north of Melbourne; and Hindmarsh and Yarriambiack - South in the far west. Areas with the lowest rates were south in Queenscliffe, Surf Coast - East and - West, and Newtown; in Macedon Ranges Balance, just north of Melbourne; further north, in Greater Bendigo - Strathfieldsaye; and in the far north-east, in Wangaratta - North.

Many areas had high rates of obesity among females in **Queensland**, including the SLAs of Tara (20.3%), Rosalie - Part B (20.0%) and Laidley (19.9%) west of Brisbane; and a large number of areas, in a band running north of Brisbane,

from Tiaro (20.1%), through Kolan (20.0%), Gladstone (19.9%) and Calliope - Part B (19.9%), to Mount Morgan (20.1%); and further north in Sarina (19.9%), Bowen (20.0%) and Cairns - Central Suburbs (19.5%). The lowest rates were in regional centres, including Toowoomba and a number of the Cairns SLAs, and on the Gold Coast.

In non-metropolitan **South Australia**, the highest rates of obesity for females were in the north of the State, in Port Augusta (20.5%), Peterborough (20.4%) and Whyalla (20.3%); on the west coast, in Elliston (20.3%); and in Southern Mallee (20.2%), Murray Bridge (19.8%) and Loxton Waikerie - West (19.5%). Rates were lowest in Roxby Downs in the far north; just east of the Adelaide metropolitan area in Mount Barker Balance, Adelaide Hills - North and Balance; and in Robe, in the south-east.

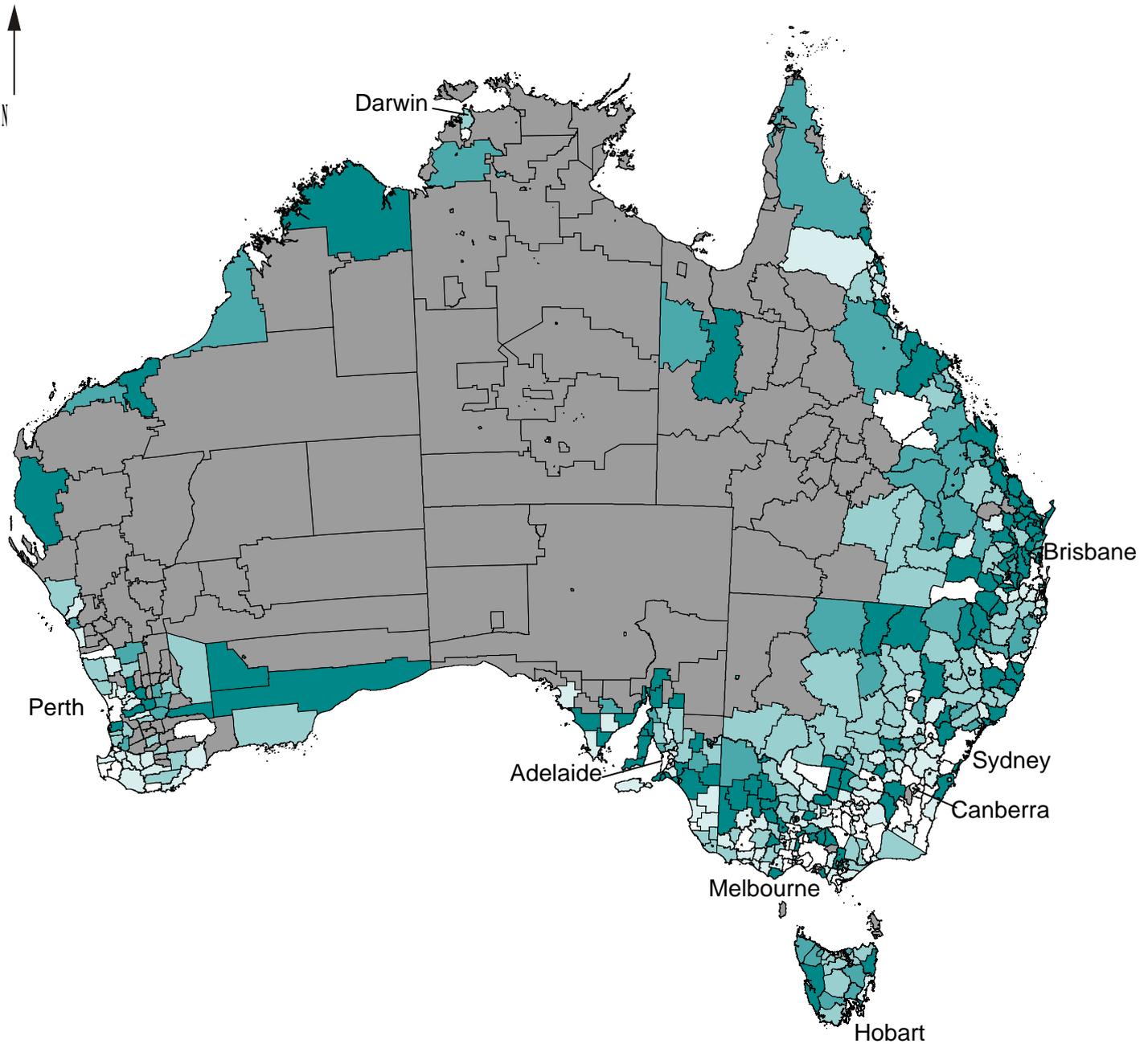
In **Western Australia**, the six highest obesity rates were estimated for females in a band of SLAs to the east and north-east of Perth, including Quairading (20.0%), Cunderdin (19.8%), Beverley (19.5%) and Goomalling (19.3%); and south of Perth, in Murray (19.4%) and Mandurah (19.3%). The lowest rates were also in the south-west, in Dardanup - Part B, Capel - Part A and Harvey - Part A; further east, in Lake Grace; and on the mid-west coast, in Greenough - Part A.

Obesity rates for females in **Tasmania** showed less variation, ranging from 16.5 to 20.5 per 100 females. The highest rates were in the coastal SLAs of George Town - Part A, West Coast, Latrobe - Part B, Break O'Day and Sorell - Part B. The lowest rates were in Kingborough - Part B, West Tamar - Part A, and Tasman.

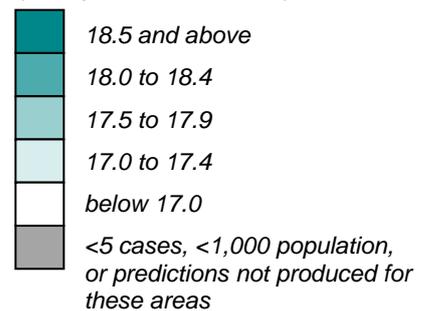
Of the areas that could be mapped in the **Northern Territory**, rates were also low, ranging from 13.9% in Alice Springs - Ross to 18.9% in Alice Springs - Stuart, with 18.2% in both Daly and Katherine.

# Map 46: Estimated female population who were obese, 18 years and over, Australia, 2007-08

standardised rate per 100 females by Statistical Local Area/ Statistical Local Area group



Obese females  
(rate per 100 females)



Source: Compiled in PHIDU based on unpublished data supplied by ABS (produced as a consultancy)

## National Bowel Cancer Screening Program, participation, capital cities

Colorectal cancer, also known as bowel cancer, is one of the commonest forms of cancer, with around 80 Australians dying each week from the disease. Bowel cancer can be treated successfully if detected in its early stages, but currently fewer than 40 per cent of bowel cancers are detected early. Screening has been shown in randomised trials to reduce the incidence of and mortality from colorectal cancer.<sup>132,133</sup> (See the additional notes on page 127 and in Appendix A, page 205, regarding the National Bowel Cancer Screening Program (NBCSP)).

**Indicator definition:** Number of people aged 50, 55 or 65 years who participated in the NBCSP, as a proportion of the number of people at those ages who were invited to participate in the Program.

**Table 48: National Bowel Cancer Screening Program, participants aged 50, 55 or 65 years, by capital city, 2010**

Per cent

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 33.2   | 35.6      | 35.2     | 41.4     | 40.5  | 40.9   | 29.1   | 39.2     | 36.0  |

### Capital cities

Participation in the NBCSP ranged from 29.1% in Darwin to 41.4% in Adelaide.

In **Sydney**, participation rates in the NBCSP were lowest in a band of SLAs stretching from the coast to the west and south of the city. Some of the lowest rates were in Sydney - Inner (25.5%), - East (27.0%) and - South (29.8%), Blacktown - South-West (25.8%), Parramatta - South (26.6%), Bankstown North-East (27.1%), Woollahra (28.4%), Liverpool - West (28.9%) and - East (29.2%), Canterbury (29.3%), Campbelltown - North and Strathfield (both 29.4%), and Waverley (29.8%). No areas had participation rates of 40% or more.

Participation in **Melbourne** was lowest in the north, in Hume - Broadmeadows (29.8%) and - Craigieburn (30.9%), and Whittlesea - South-West (30.2%); and in Monash - South-West (30.0%), Greater Dandenong - Dandenong (30.6%) and Casey - Cranbourne (30.6%) in the south-east. Rates of 40% or more were recorded in Banyule - North and - Heidelberg, Nillumbik - South-West and - South, Mornington Peninsula - West, Manningham - East, Whitehorse - Nunawading East and Boroondara - Camberwell South.

A number of SLAs south of **Brisbane** recorded low participation rates, including Marsden (24.8%), Chandler-Capalaba West (25.7%) and Stretton-Karawatha/Kingston (27.6%). Several other areas to the north and south of the Brisbane River also recorded very low participation rates. Areas with rates of 40% or more included Bribie Island, Albany Creek, Anstead/Moggill, Hills District and Burpengary-Narangba.

Over half of the SLAs in **Adelaide** recorded participation rates of above 40%. These

included the four highest capital city participation rates, in Holdfast Bay - South (49.4%) and - North (47.4%), and Onkaparinga -

Hills (47.4%) and - Reservoir (46.9%). Port Adelaide Enfield - Port (29.7%) recorded the lowest rate.

Similarly, participation rates in **Perth** were generally high, with SLAs in the coastal strip north of the city, including Joondalup - South (45.6%) and - North (44.8%), Cambridge (44.9%) and Stirling - Coastal (44.6%), the highest of these. Fremantle - Inner (17.9%, 7 participants) and Perth - Inner (29.5%) had the lowest rates.

Rates in **Hobart** were relatively high, including in Kingborough - Part A (44.7%), Hobart - Remainder (42.2%), Clarence (41.8%) and Sorrell - Part A (41.4%).

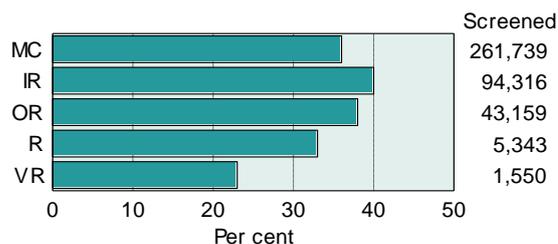
Participation in **Darwin** was relatively low, ranging from 26.5% in Darwin South West to 32.4% in Litchfield - Part A.

The SLA of Eastern Fringe (17.8%, 16 participants) recorded the lowest participation rate in **Canberra**. SLAs with rates above 40% included Belconnen South, Weston Creek, Woden South and North, and Canberra North.

### Remoteness

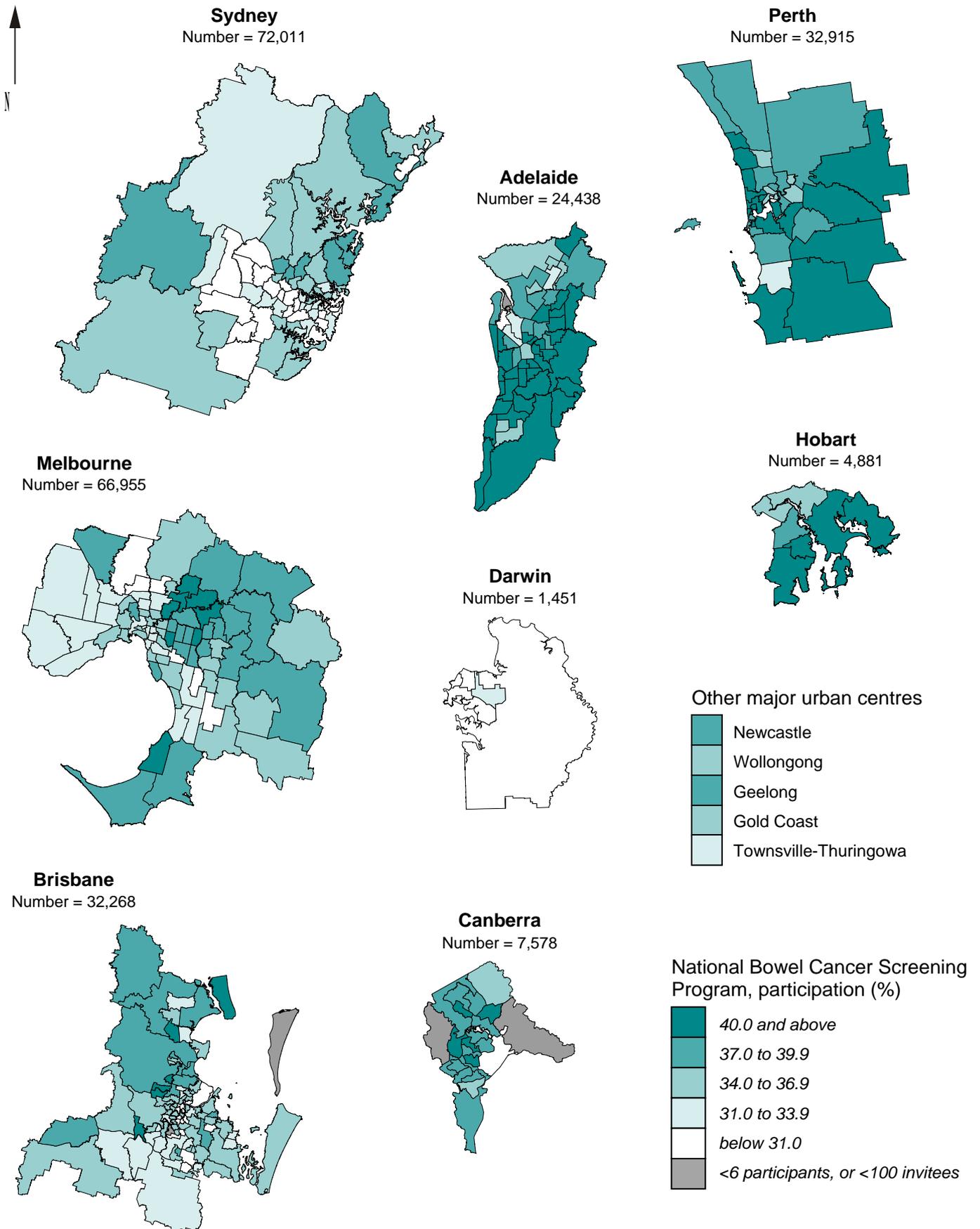
Participation rates were similar in the first three remoteness classes, before declining to lower rates in the Remote (33.3%) and Very Remote (22.8%) areas.

**Figure 27: NBCSP, participants aged 50, 55 or 65 years, by remoteness, 2010**



# Map 47: National Bowel Cancer Screening Program, participants aged 50, 55 or 65 years, major urban centres, 2010

per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data provided by DoHA from the National Bowel Cancer Screening Program

## National Bowel Cancer Screening Program, participation, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 49: National Bowel Cancer Screening Program, participants aged 50, 55 or 65 years, by State/ Territory, Australia, 2010**

| <i>Per cent</i>  |      |      |      |      |      |      |      |      |       |
|------------------|------|------|------|------|------|------|------|------|-------|
| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT  | Total |
| Non-metropolitan | 37.4 | 40.7 | 36.7 | 43.1 | 38.7 | 41.3 | 24.6 | ..   | 38.2  |
| Total            | 34.9 | 37.1 | 36.1 | 41.9 | 40.1 | 41.1 | 24.0 | 39.1 | 36.9  |

### Non-metropolitan areas

Participation rates in the non-metropolitan areas ranged from 36.7% in Queensland to 43.1% in South Australia, other than for a lower rate of 24.6% in the Northern Territory (the only instance where the non-metropolitan rate was below the capital city rate).

Participation in the NBCSP by invitees aged 50, 55 and 65 years was lowest in a group of areas in the outer far west of non-metropolitan **New South Wales**, from the northern to near the southern border. SLAs in this category included Bourke (22.2%), Brewarrina (22.7%), Walgett (25.6%), Central Darling (26.6%), Balranald (27.3%), Coonamble (27.6%), Cobar (28.0%), Bland (29.1%), and Blayney and Lachlan (both 29.2%). Areas with the highest participation by invitees included Lord Howe Island (54.2%, 13 participants), Urana (44.1%), Dungog (44.0%), Hastings - Part B (43.4%) and Bega Valley (43.2%).

In non-metropolitan **Victoria**, Swan Hill - Robinvale (25.8%) was the only SLA with a participation rate below 30%. Areas in the next lowest range (of between 30% to less than 35%) included Yarra Ranges - Part B, Hepburn - East, Moyne - North-East, Loddon - South and Mitchell - North. A number of areas recorded participation rates of 45% or more, with the highest of these including Queenscliffe (49.1%), South Gippsland (48.3%), Ballarat - North and Glenelg - North (both 47.4%), and Murrindindi - East (47.3%).

Participation in the NBCSP in **Queensland** was lowest in the far north, north-west and west of the State. Areas with the lowest rates included Torres (9.4%, 13 participants), Carpentaria (13.7%), Etheridge (15.9%, 7 participants), Aramac (18.9%, 7 participants), Quilpie (20.6%), Cloncurry (21.9%), Winton (23.3%) and Weipa (25.6%). Higher participation rates were predominant in SLAs around Brisbane, and to the north, along the coast. The highest were in Gayndah (52.6%), Mundubbera (49.0%), Tambo (48.6%, 18 participants), Blackall (46.2%), and Cambooya - Part B and Kingaroy (both 45.2%).

Rates were relatively high in non-metropolitan **South Australia**, with the highest in SLAs in the south-east, the mid north, and on the Yorke and Eyre Peninsulas. The highest of these - with rates above 50% - included the SLAs of Robe and Kimba (both 53.8%), Yorke Peninsula - South (53.4%), Tumby Bay (52.7%) and Barunga West (52.4%). Roxby Downs (30.6%) had the lowest rate of participation, followed by Unincorporated Flinders Ranges (34.8%) and Ceduna (35.0%).

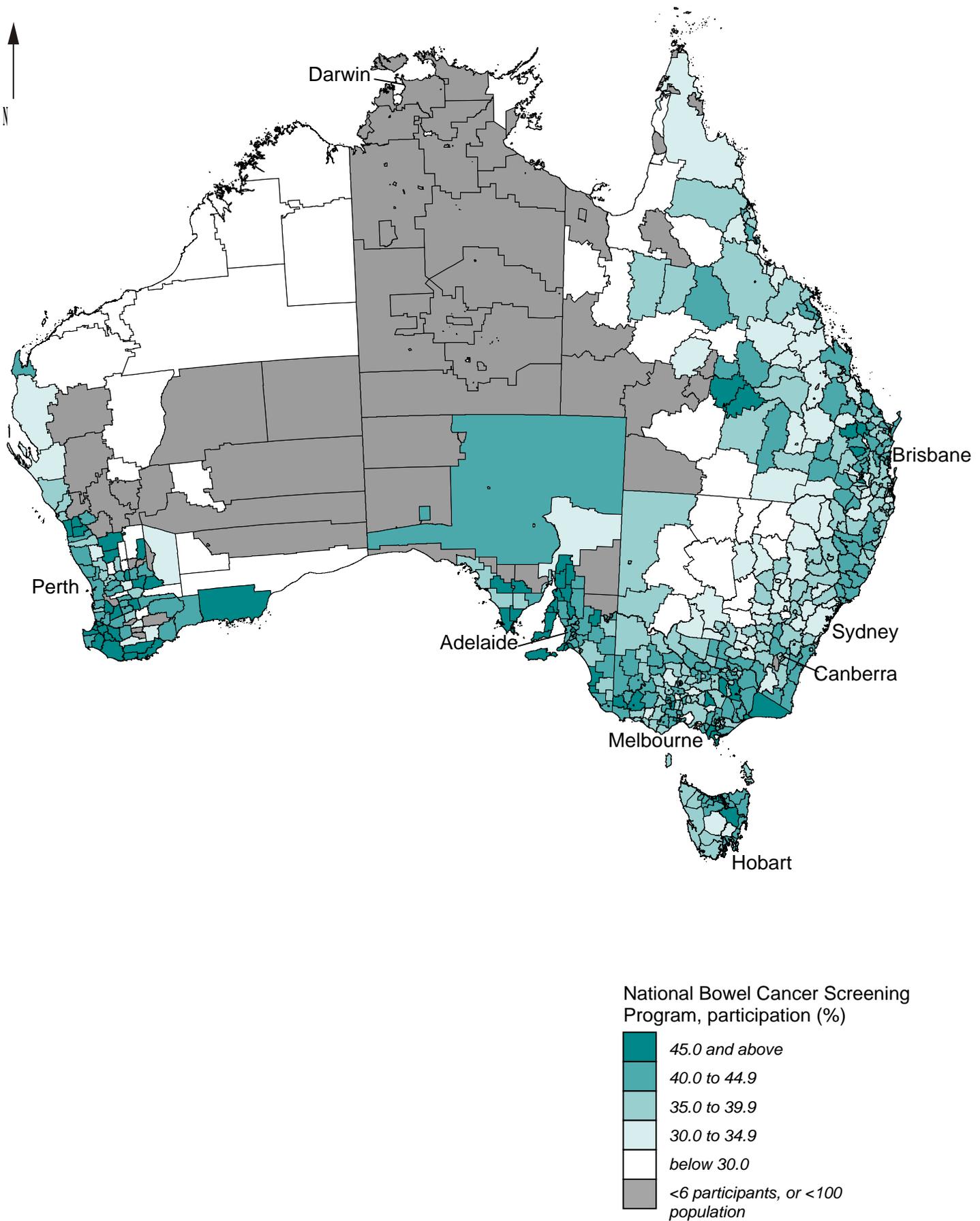
In non-metropolitan **Western Australia**, participation in the NBCSP by invitees aged 50, 55 and 65 years varied more widely than in some of the other States. SLAs with participation rates of 50% or more included Mukinbudin (57.6%, the highest SLA rate in Australia, 19 participants), Wickiepin (55.4%, the second highest), Wongan - Ballidu (52.6%), and Narembeen, Williams, Nannup and Dardanup - Part B (all 50%). Areas with low rates covered much of the State, other than the south-west. Of areas with 20 or more participants, those recording the lowest rates included Derby - West Kimberley (15.8%), Port Hedland (23.8%), Wyndham - East Kimberley (25.6%), East Pilbara (25.7%), Broome (25.9%), Coolgardie (27.2%), Roebourne (28.3%) and Ashburton (28.6%).

Participation rates in **Tasmania** were lowest in the Southern Midlands (33.3%) and Central Highlands (34.8%) SLAs; and were highest in Kingborough - Part B (49.5%), West Tamar - Part B (46.8%) and Northern Midlands - Part B (46.0%).

Of the small number of areas where participation rates in the non-metropolitan areas of the **Northern Territory** are available, rates were all below 30%, ranging from 11.0% in East Arnhem - Balance (15 participants) to 26.7% (16 participants) in Coomalie.

Map 48: National Bowel Cancer Screening Program, participants aged 50, 55 or 65 years, Australia, 2010

per cent by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data provided by DoHA from the National Bowel Cancer Screening Program

## National Bowel Cancer Screening Program, positive test results, capital cities

The National Bowel Cancer Screening Program (NBCSP) offers a faecal occult blood test (FOBT) for bowel cancer to eligible adults who do not have any obvious symptoms of the disease.<sup>133</sup> A 'positive test result' indicates that blood has been found in the sample provided by a participant, and further medical follow up is then indicated.

**Indicator definition:** Number of participants aged 50, 55 or 65 years who received a positive test result from the FOBT in the NBCSP, expressed as an age-standardised rate per 100 participants in the NBCSP at these ages.

**Table 50: NBCSP positive test results, participants aged 50, 55 or 65 years, by capital city, 2010**

Age-standardised rate per 100 participants

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 8.2    | 8.3       | 7.9      | 8.5      | 8.3   | 10.1   | 10.7   | 7.8      | 8.2   |

### Capital cities

The highest rates of positive test results were recorded in Darwin (10.7 people aged 50, 55 or 65 years with a positive result per 100 people who participated in the NBCSP) and Hobart (10.1 per 100 participants); the lowest was recorded in Brisbane (7.9 per 100 participants).

Fairfield - East (with a rate of 10.8 positive results per 100 people who participated), Bankstown - South (10.0 per 100) and Canterbury (10.0 per 100) recorded the highest rates in **Sydney**. The lowest rates were found in the inner city and in areas to the north, east and south of the city; and included Hunters Hill (5.3 per 100), Waverley (5.7 per 100), Pittwater (5.8 per 100), Manly (5.9 per 100) and Mosman (5.9 per 100).

In **Melbourne**, the highest rate was in Yarra - Richmond (11.4 per 100 participants), east of the inner city. Other high rates included areas to the north, in Moreland - Coburg (10.7 per 100) and - North (10.5 per 100) and Hume - Broadmeadows (10.7 per 100); in the outer west, in Hume - Sunbury (11.3 per 100), Wyndham - West (10.6 per 100) and Hobsons Bay - Altona (10.5 per 100); and in the south-east, in Cardinia - Pakenham (11.0 per 100) and Casey - Hallam (10.3 per 100) and - South (10.2 per 100). Areas with the lowest rates were largely in the inner city, and to the east.

High rates of positive test results in **Brisbane** were recorded in outer northern and southern SLAs, of which the highest were in Marsden (11.7 per 100 participants), Bribie Island (11.0 per 100), Deception Bay (10.5 per 100) and Ipswich - West (10.2 per 100). Fewer than three positive test results per 100 people who participated were found in the inner areas of Camp Hill/Carindale and Stafford Heights/Mitchelton (both 1.1 per 100), Upper Brookfield/Fig Tree Pocket (2.0 per 100) and Lota/Manly/Manly West (2.3 per 100).

SLAs in the northern areas of **Adelaide** had the highest rates, including in Salisbury - North-East (12.9 per 100) and - Inner North (11.7 per 100),

and in Playford - Elizabeth (11.9 per 100) and - East Central (11.7 per 100). Similarly high rates were also recorded in the outer southern SLA of Onkaparinga - North Coast (12.2 per 100) and the north-western area of Port Adelaide Enfield - Port (11.8 per 100). Unley - West (4.2 per 100), Adelaide (5.2 per 100) and Onkaparinga - Hills (5.8 per 100) recorded the lowest rates.

The highest rates of positive test results in **Perth** were in outer areas, including Wanneroo - North-West (11.1 per 100 participants) and Kwinana (11.0 per 100). The inner areas of Mosman Park (4.4 per 100), Subiaco (4.8 per 100) and Claremont (4.9 per 100) had the lowest rates of positive test results.

In **Hobart**, high rates of positive test results were found in Sorell - Part A (12.5 per 100 participants) and Glenorchy (12.2 per 100), with the lowest rates in Derwent Valley - Part A (6.6 per 100) and Kingborough - Part A (8.6 per 100).

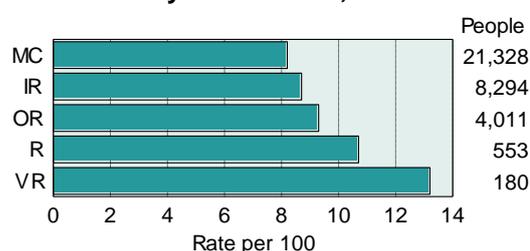
Litchfield - Part B was the only SLA in **Darwin** to be mapped, with 9.3 positive test results per 100 people who participated.

The rates of positive test results in **Canberra** were generally low, ranging from 1.4 per 100 in Belconnen North, to 8.5 per 100 in Kambah.

### Remoteness

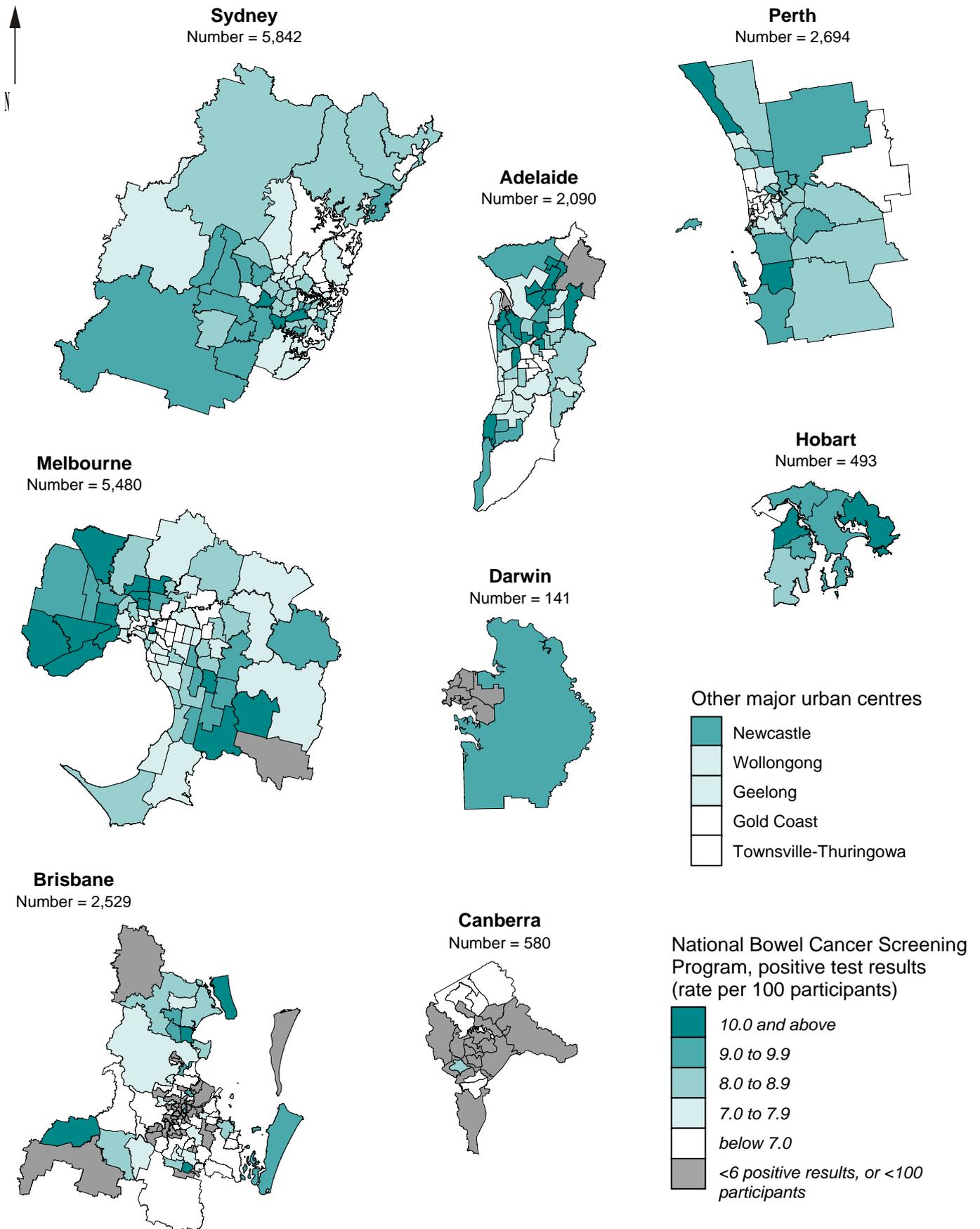
The rate of positive test results increased steadily across the remoteness classes from the Major Cities (8.2 per 100 people) to the Remote areas (10.7 per 100), with a more substantial increase, to 13.2 per 100, in the Very Remote areas.

**Figure 28: NBCSP, positive test results, participants aged 50, 55 or 65 years, by remoteness, 2010**



Map 49: National Bowel Cancer Screening Program, positive test results, participants aged 50, 55 or 65 years, major urban centres, 2010

standardised rate per 100 participants by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data provided by DoHA from the National Bowel Cancer Screening Program

## National Bowel Cancer Screening Program, positive test results, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 51: National Bowel Cancer Screening Program, positive test results, participants aged 50, 55 or 65 years, by State/ Territory, Australia, 2010**

*Age-standardised rate per 100 participants*

| Area             | NSW | Vic. | Qld | SA  | WA  | Tas. | NT   | ACT | Total |
|------------------|-----|------|-----|-----|-----|------|------|-----|-------|
| Non-metropolitan | 8.7 | 8.8  | 8.5 | 9.6 | 9.3 | 9.6  | 15.1 | ..  | 8.8   |
| Total            | 8.4 | 8.4  | 8.2 | 8.9 | 8.5 | 9.8  | 11.5 | 7.8 | 8.4   |

### Non-metropolitan areas

By far the highest rate of positive test results of people aged 50, 55 or 65 years who participated in the NBCSP was recorded in the non-metropolitan areas of the Northern Territory (15.1 per 100 people). Queensland had the lowest non-metropolitan rate (8.5 per 100).

Many areas have been mapped in grey, as the numbers were considered too small to be reliable.

High rates of positive test results in **New South Wales** were recorded in SLAs in a group from Newcastle, inland and north-west to the border; and from Wollongong, inland and south-west to the border. The highest of these were recorded in Walgett (17.4 per 100 participants), Greater Hume Shire (15.7 per 100), Tumut Shire (13.3 per 100), Wellington (13.2 per 100), Gwydir (12.9 per 100) and Bombala (12.6 per 100). Fewer than five positive test results per 100 participants were recorded in Snowy River (4.7 per 100), Kyogle (4.7 per 100) and Cootamundra (4.8 per 100).

SLAs with the highest rates of positive test results of those who participated in the NBCSP were scattered across **Victoria**, including Corangamite - South (14.4 per 100 participants), Gannawarra (12.4 per 100), Surf Coast - West (11.9 per 100) and Mount Alexander Balance (11.8 per 100). Areas with low rates were also widespread throughout the State, of which the lowest were recorded in Hepburn - West (3.3 per 100), Greater Bendigo - Strathfieldsaye (3.8 per 100), Hepburn - East and Glenelg - Heywood (both 4.2 per 100), and Wangaratta - South (4.4 per 100).

In the non-metropolitan areas of **Queensland**, the highest rates of positive test results were in Pittsworth (16.5 per 100 participants), Murweh (15.3 per 100), Rockhampton - Mount Morgan (12.7 per 100), and Bundaberg - Isis (12.3 per 100). The Townsville areas of Townsville Coastal/Magnetic Island (1.4 positive test results per 100 participants), Townsville South East (3.0 per 100) and Murray/Mt Louisa (3.8 per 100) recorded the lowest rates, with 3.8 positive test results per 100 participants also recorded in Isaac - Belyando.

Relatively few areas in **South Australia** had sufficient numbers for the publication of results. Of these, the far northern areas of Roxby Downs (17.0 per 100 participants) and Unincorporated Far North (14.9 per 100) recorded the highest rates, with high proportions also recorded in the mid northern areas of Mid Murray (13.7 per 100), Port Augusta (12.5 per 100), Mallala (12.2 per 100) and Wakefield (12.0 per 100). The lowest rates were recorded in the Riverland SLAs of Loxton Waikerie - Berri (3.6 per 100) and Berri & Barmera - Berri (4.2 per 100).

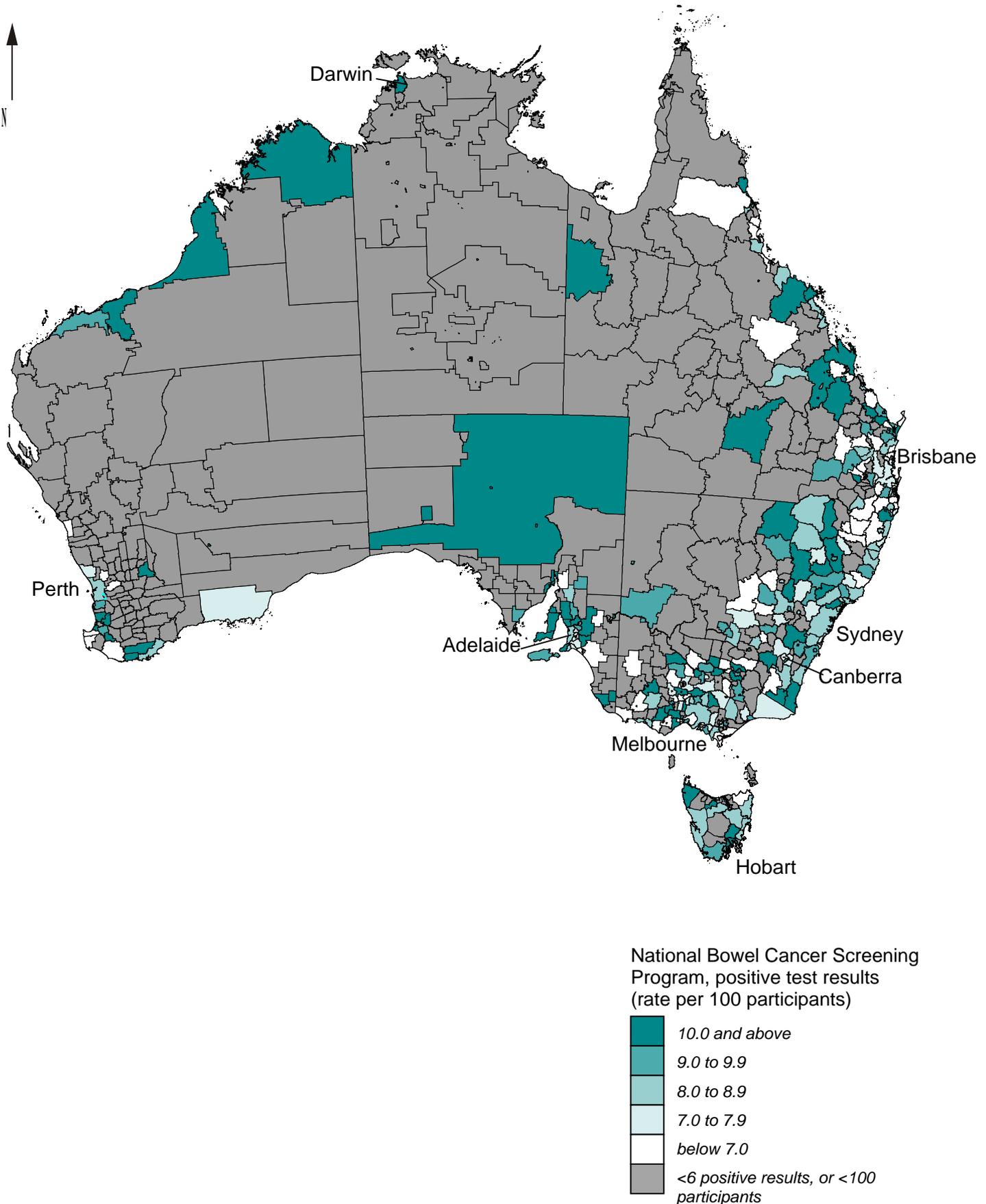
A majority of the non-metropolitan areas in **Western Australia** also had too few positive test results to be mapped. The highest rate was in Plantagenet (13.5 per 100 participants in the NBCSP), with a rate of 12.7 per 100 in Merredin. Other high rates were in Port Hedland and Broome (both 11.7 per 100) in the far north; and in Bridgetown-Greenbushes (11.5 per 100) in the south-west. Dardanup - Part A (with a rate of 4.2 per 100), in the south-west; Toodyay (4.4 per 100), north of Perth; Irwin (4.6 per 100), on the north coast; and York (4.9 per 100), to the east of the city, recorded the lowest rates.

In the non-metropolitan areas of **Tasmania**, the highest rates of positive test results were recorded in the SLAs of Southern Midlands (12.5 per 100 people who participated, located to the north of Hobart), Kentish (11.8 per 100, in the north) and Circular Head (11.0 per 100, in the north-west). The lowest rate (5.7 per 100) was recorded in both Kingborough - Part B, and in Dorset.

No SLAs in the non-metropolitan areas of **Northern Territory** were mapped, as there were too few positive test results.

Map 50: National Bowel Cancer Screening Program, positive test results, participants aged 50, 55 or 65 years, Australia, 2010

standardised rate per 100 participants by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data provided by DoHA from the National Bowel Cancer Screening Program

## Premature mortality, all causes, capital cities

Deaths before the age of 75 years are deemed premature, given the life expectancy of Australians of 79.0 years for males and 83.7 years for females for the period, 2005 to 2007.<sup>97</sup> Diseases of the circulatory system, malignant neoplasms (cancer), and the combined external causes of accidents, poisonings and violence were the main causes of premature death of Australians in 2005.<sup>98</sup>

**Indicator definition:** Deaths at ages 0 to 74 years, expressed as an age-standardised rate per 100,000 population.

**Table 52: Premature mortality (deaths at ages 0 to 74 years), by capital city, 2003 to 2007**

Age-standardised rate per 100,000 population

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 233.6  | 222.9     | 246.6    | 251.9    | 229.7 | 294.7  | 357.2  | 216.5    | 235.0 |

### Capital cities

Premature mortality rates are highest in Darwin (a rate of 357.2 deaths per 100,000 population) and Hobart (294.7), and lowest in Canberra (216.5) and Melbourne (222.9). There is a strong association at the SLA level with high premature death rates and socioeconomic disadvantage in Melbourne and Brisbane, and a very strong association in Sydney, Adelaide and Perth.

The highest rates of premature mortality in **Sydney** were found in Blacktown - South-West (341 per 100,000 population) and - South-East (288), in the outer west; Sydney - South (337) and - East (297) and Marrickville (298) in the inner city; Parramatta - Inner (306) and - South (280) to the west; Campbelltown - North (293) in the outer south; and in the outer north in Wyong - South and West (326) and - North-East (289). SLAs on the north shore had the lowest rates.

High rates were widespread across **Melbourne**, in the outer south-east, in Cardinia - South (315 per 100,000 population) and Casey - Cranbourne (282); in the outer west, in Melton Balance (289); and closer to the city, in Maribyrnong (313), Port Phillip - St Kilda (290), and Hobson's Bay - Williamstown (278). The lowest rates were in the inner city and in SLAs to the east and north-east.

Premature death rates in **Brisbane** were very high, particularly in many SLAs in and around the city centre (generally to the east of the Brisbane River), and in the south, south-west and the outer north. The highest rates were in Dutton Park/ Woolloongabba (463 per 100,000 population), Stretton-Karawatha/Kingston (383), Rocklea (374), Annerley/Fairfield (360) and Murarrie (354). Areas with low rates were scattered throughout Brisbane and included the SLA groups of St Lucia, Chandler-Capalaba West, Calamvale and Gumdale/ Wakerley.

High rates of premature mortality in **Adelaide** were located in three distinct areas: to the north-west and outer north and south of the city centre. The highest were in Playford - West Central (418) and - Elizabeth (396), Salisbury - Inner North

(337); Port Adelaide Enfield - Coast (392), - Inner (354), - Park (346) and - Port (341); and Onkaparinga - North Coast (327). SLAs in the east and south-east had the lowest rates.

Premature death rates in **Perth** were highest in SLAs to the east of Victoria Park (390 per 100,000 population), Belmont (308) and Bassendean (303); and to the south, in Kwinana (295) and Armadale (280). Perth - Inner had a rate of 283 deaths per 100,000 population. The lowest rates were in the near-city SLAs of Peppermint Grove, Cottesloe, Claremont and Cambridge.

In **Hobart**, premature mortality rates were very high in Derwent Valley Part A (412 per 100,000), Hobart Inner (392, Brighton (376) and Glenorchy (352). Only Kingborough - Part A (238) had a rate close to the capital city average.

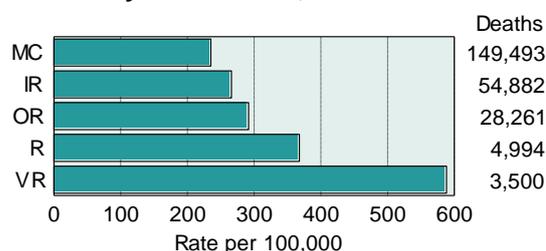
Premature death rates in **Darwin** were all above average, with rates of 393 in Palmerston, 289 in Darwin South West, 353 in Litchfield - Part B, 351 in Darwin North West, 305 in Darwin North East and 258 in Litchfield - Part A.

Rates in **Canberra** were highest in Canberra South (275 deaths per 100,000 population) and North (253), with rates of 244 and above in the outer parts of Tuggeranong and Belconnen, and in Eastern Fringe.

### Remoteness

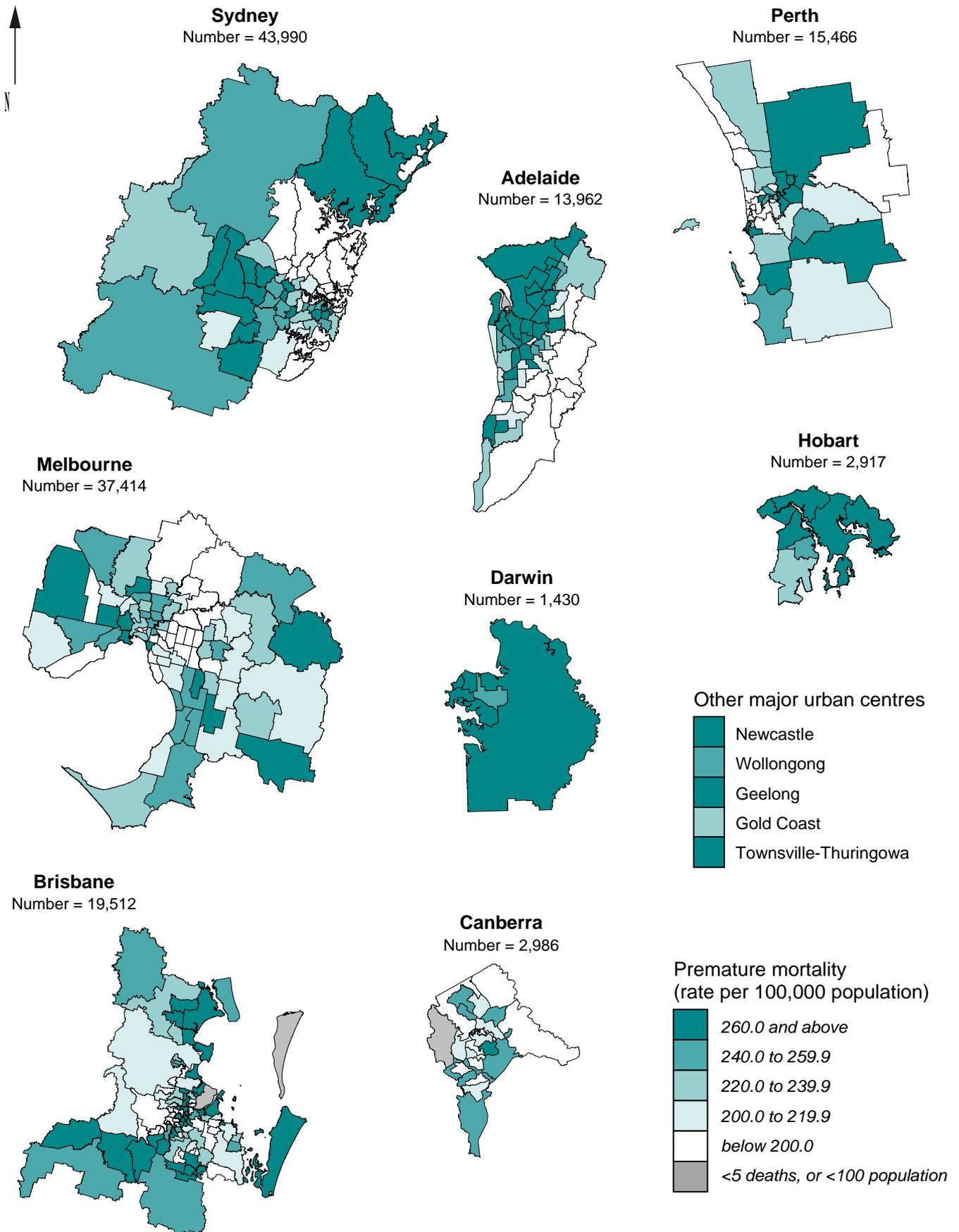
Premature mortality rates increased strongly across the first four remoteness classes (from 93 to 146 deaths per 100,000 population), before increasing substantially in the Very Remote class, to 233 deaths per 100,000 population, two and a half times the rate in the major cities' areas.

**Figure 29: Deaths at ages 0 to 74 years, by remoteness, 2003 to 2007**



Map 51: Premature mortality (deaths at ages 0 to 74 years), major urban centres, 2003 to 2007

standardised rate per 100,000 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths

## Premature mortality, all causes, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 53: Premature mortality (deaths at ages 0 to 74 years), by State/ Territory, Australia, 2003 to 2007**

*Age-standardised rate per 100,000 population*

| Area             | NSW   | Vic.  | Qld   | SA    | WA    | Tas.  | NT    | ACT   | Total |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Non-metropolitan | 280.9 | 269.9 | 262.3 | 277.3 | 283.4 | 294.3 | 716.7 | ..    | 277.5 |
| Total            | 253.1 | 236.8 | 255.6 | 259.1 | 244.2 | 294.5 | 508.3 | 216.4 | 252.2 |

### Non-metropolitan areas

The rate of premature death of 716.7 deaths per 100,000 population in the Northern Territory was more than twice the rate of the next highest, Tasmania, with a rate of 294.3. All of the non-metropolitan areas had relatively high rates, reflecting the high rates of premature death among the Indigenous population.

The highest (of many high) premature mortality rates were recorded in a group of SLAs across inland **New South Wales**, from Walgett (471 deaths per 100,000 population), through Brewarrina (684), Bourke (609) and Central Darling (514) in the north, to Balranald (458) and Jerilderie (651), in the south. Areas with low rates were generally located in the eastern parts of the State, and along the coast, with the lowest rates in Dubbo - Part B, Wagga Wagga - Part B, Bathurst Regional - Part B, Kiama and Armidale Dumaresq Balance.

Rates were well below the non-metropolitan average in all SLAs in **Victoria**. The majority of SLAs with the State's highest rates were to the west and north-west of Melbourne, with a small number to the east. These included Ballarat - North (400 deaths per 100,000 population) and - South (324), Southern Grampians - Wannon (377), Greater Bendigo - Eaglehawk (349), Pyrenees - South (342), Loddon - South (335), Northern Grampians - Stawell (330); on the coast, Glenelg - Portland (344) and Geelong West (340); and in the east, Wellington - Sale (353) and Latrobe - Morwell (350). SLAs with below average rates of premature death were generally located closer to Melbourne, and in the north-east of the State.

The highest of many very high premature death rates in the non-metropolitan areas of **Queensland** were largely in remote areas of the State: on Cape York and in the Torres Strait, in some northern coastal communities, and along the border with the Northern Territory. Highly elevated rates (more than five times the Australian average) were found in the remote areas of Doomadgee (1,632 deaths per 100,000 population), Mornington (1,402), Pormpuraaw (1,290) and Hope Vale (1,268), and in

Cherbourg (1,624), north-west of Brisbane. The lowest rates were largely recorded in areas to the west of Brisbane, and in and around the Gold Coast and Sunshine Coast.

A majority of SLAs in the far north and west of **South Australia** had very high premature mortality rates, including Unincorporated West Coast (936 deaths per 100,000 population), Anangu Pitjantjatjara (725), Unincorporated Whyalla (712), Unincorporated Far North (658), Coober Pedy (541) and Ceduna (522). SLAs with the lowest rates were in the north, in Roxby Downs; to the east and south-east of Adelaide in Adelaide Hills - North, Alexandrina - Strathalbyn and Mount Barker Balance; in the south-east of the State in Karoonda East Murray and Robe; and in Franklin Harbour, on the Eyre Peninsula.

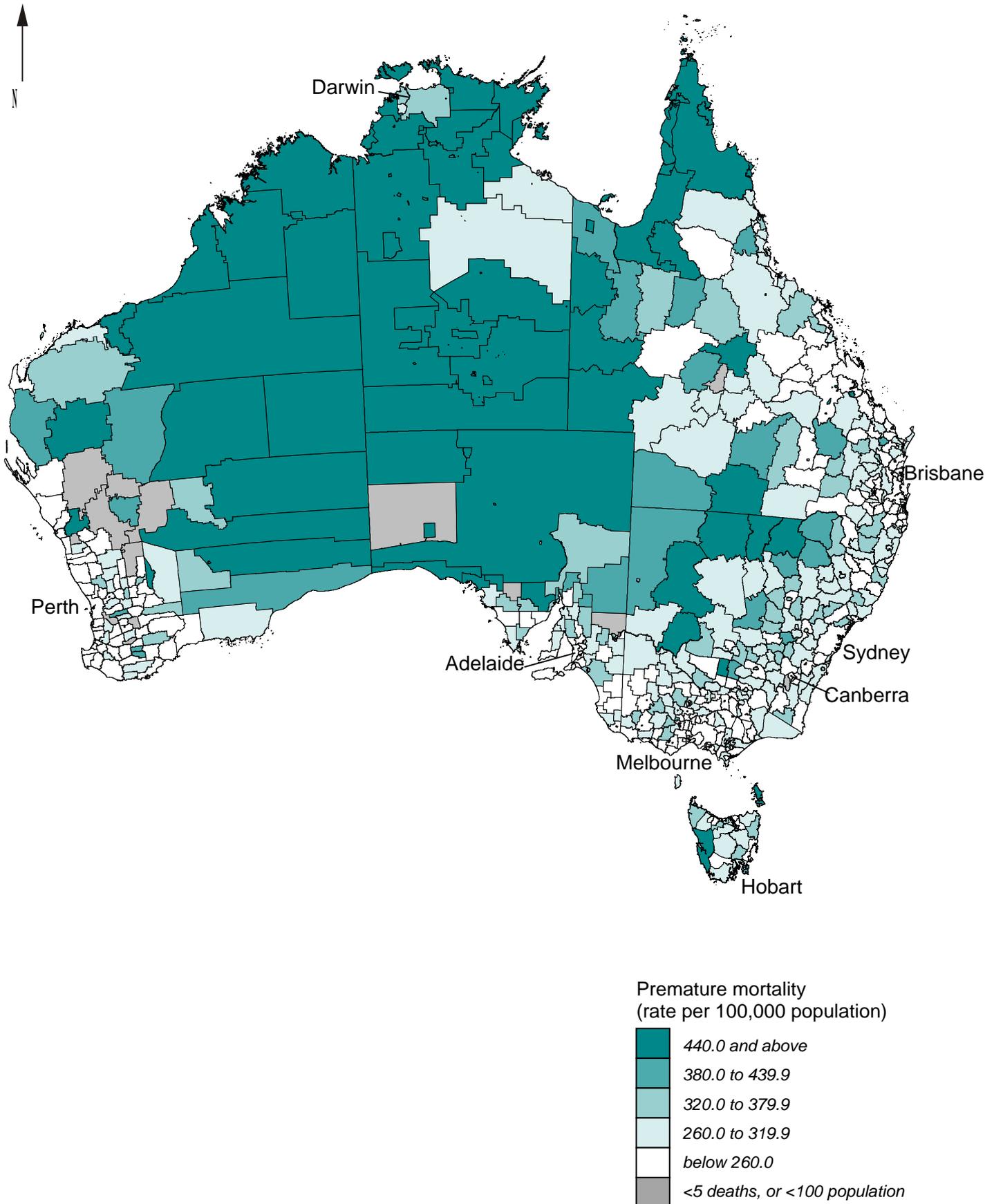
SLAs with high rates of premature death covered much of **Western Australia**, from Kalgoorlie/ Boulder - Part B (1,165 deaths per 100,000 population) to Wyndham-East Kimberley (662), and Halls Creek (1,1135), Derby-West Kimberley (976), Ngaanyatjarraku (910), Wiluna (774), Menzies (563), Broome (554) and East Pilbara (478). Similar rates were recorded in Mulewa (657) and Upper Gascoyne (528). The lowest rates were largely in SLAs in the south-west of the State, and to the north of Perth.

The SLAs of Flinders (206 per 100,000 population) and West Coast (188) had the highest premature mortality rates in **Tasmania**, with high rates also in a number of other coastal SLAs. The lowest rates were largely in SLAs located in the north of the State, including Burnie - Part B, Central Coast - Part B, George Town - Part B, Meander Valley - Part A and West Tamar - Part A; and, in the south, Derwent Valley - Part B.

More than three-quarters of the SLAs in the non-metropolitan areas of **Northern Territory** had premature death rates of more than twice the Australian average. Rates were more than five and a half times the Australian average in the Indigenous communities of Belyuen (2,294), Lajamanu (1,584), Watiyananu (1,565), Kunbarllanjnja (1,529), Numbulwar Numburindi (1,463) and Tiwi Islands (1,426).

# Map 52: Premature mortality (deaths at ages 0 to 74 years), Australia, 2003 to 2007

standardised rate per 100,000 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths

## Premature mortality from suicide and self-inflicted injury, capital cities

*Suicide is the leading cause of death for adults under the age of 34 years, and for males under the age of 44 years.<sup>99</sup> Males comprised over three-quarters (77%) of all suicide deaths in 2007, the tenth leading cause of death of males.<sup>100</sup> Although death by suicide is a relatively uncommon event (occurring at a rate of about 1 per 10,000 population per year), the human and economic costs are substantial.<sup>100</sup> Suicide costs the nation over \$17 billion every year, but remains largely preventable, if early identification and effective treatment are available for those suffering mental illness, substance use and other related health problems.<sup>101</sup>*

**Indicator definition:** Deaths from suicide and self-inflicted injury at ages 0 to 74 years, expressed as an age-standardised rate per 100,000 population.

**Table 54: Deaths from suicide and self-inflicted injury at ages 0 to 74 years, by capital city, 2003 to 2007**

Age-standardised rate per 100,000 population

| Sydney | Melbourne | Brisbane | Adelaide | Perth | Hobart | Darwin | Canberra | Total |
|--------|-----------|----------|----------|-------|--------|--------|----------|-------|
| 8.5    | 10.2      | 10.3     | 13.1     | 10.7  | 15.4   | 19.4   | 9.5      | 10.1  |

### Capital cities

Death rates from suicide and self-inflicted injury before the age of 75 years were lowest in Sydney (8.5 deaths per 100,000 population) and Canberra (9.5), and highest in Darwin (19.4) and Hobart (15.4). The comments on the following text page as to the quality of suicide data should be read in conjunction with the information presented here.

The highest death rates from suicide and self-inflicted injury in **Sydney** were in the inner SLAs of Sydney - South (15.8 deaths per 100,000 population), - East (14.6) and - Inner (12.4), and the outer western SLA of Blue Mountains (15.1). SLAs in the inner west, the east and on the north shore had the lowest rates, including Pittwater, Strathfield, Lane Cove and Ashfield.

High death rates were most evident in the outer areas of **Melbourne**, in particular in the east and north-east, with by far the highest rate in Yarra Ranges - North (25.4 deaths per 100,000 population), followed by Frankston - West (16.3), Yarra Ranges - Central (15.9) and Yarra Ranges - Dandenongs (15.7). Other high rates were evident in areas throughout the city.

In **Brisbane**, the highest death rates from suicide were in the outer areas of Redland Balance (24.6 deaths per 100,000 population), Caboolture Central (23.8), Stretton-Karawatha/Kingston (19.6), Lawnton (19.1) and Browns Plains (18.5). Some inner city SLAs also had high rates. Dutton Park/Woolloongabba, Red Hill/Kelvin Groves and West End/Highgate Hill in the inner city, had the lowest rates.

In comparison, death rates from suicide and self-inflicted injury were relatively high across much of **Adelaide**, and there was a very strong association at the SLA level with socioeconomic disadvantage. The highest of these rates were in Port Adelaide Enfield - Port (29.2 deaths per 100,000 population), - Inner (23.3), - Coast and

- Park (both 20.1); Onkaparinga - North Coast (28.2) and Playford - Elizabeth (27.0) and - West Central (25.7)

The highest rates in **Perth** were in SLAs to the east of the city, in Belmont (19.8 deaths per 100,000 population) and Victoria Park (17.2); and to the west, in Mosman Park (14.5), Stirling - Coastal (13.3) and Cambridge (13.2). The lowest rates were in outer SLAs: no deaths from suicide were recorded for Peppermint Grove.

In **Hobart**, death rates from these causes were above the capital city average in each SLA other than Hobart - Inner (no suicide deaths recorded), with the highest rates in Brighton (22.5), Sorell - Part A (18.1) and Hobart - Remainder (16.5).

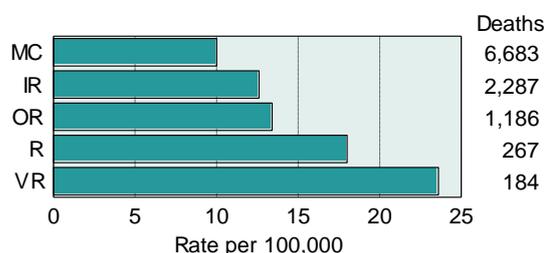
The highest rates in **Darwin** were in Litchfield - Part B (27.8), Darwin North West (22.4), South West (19.2) and North East (17.3). Palmerston had the lowest, although still relatively high rate, with 12.1 deaths per 100,000 population.

Death rates from suicide and self-inflicted injury were generally low across **Canberra**, with the highest in Woden South (15.4 deaths per 100,000 population), Belconnen West (12.4) and North (12.0), and Canberra Central (12.3)

### Remoteness

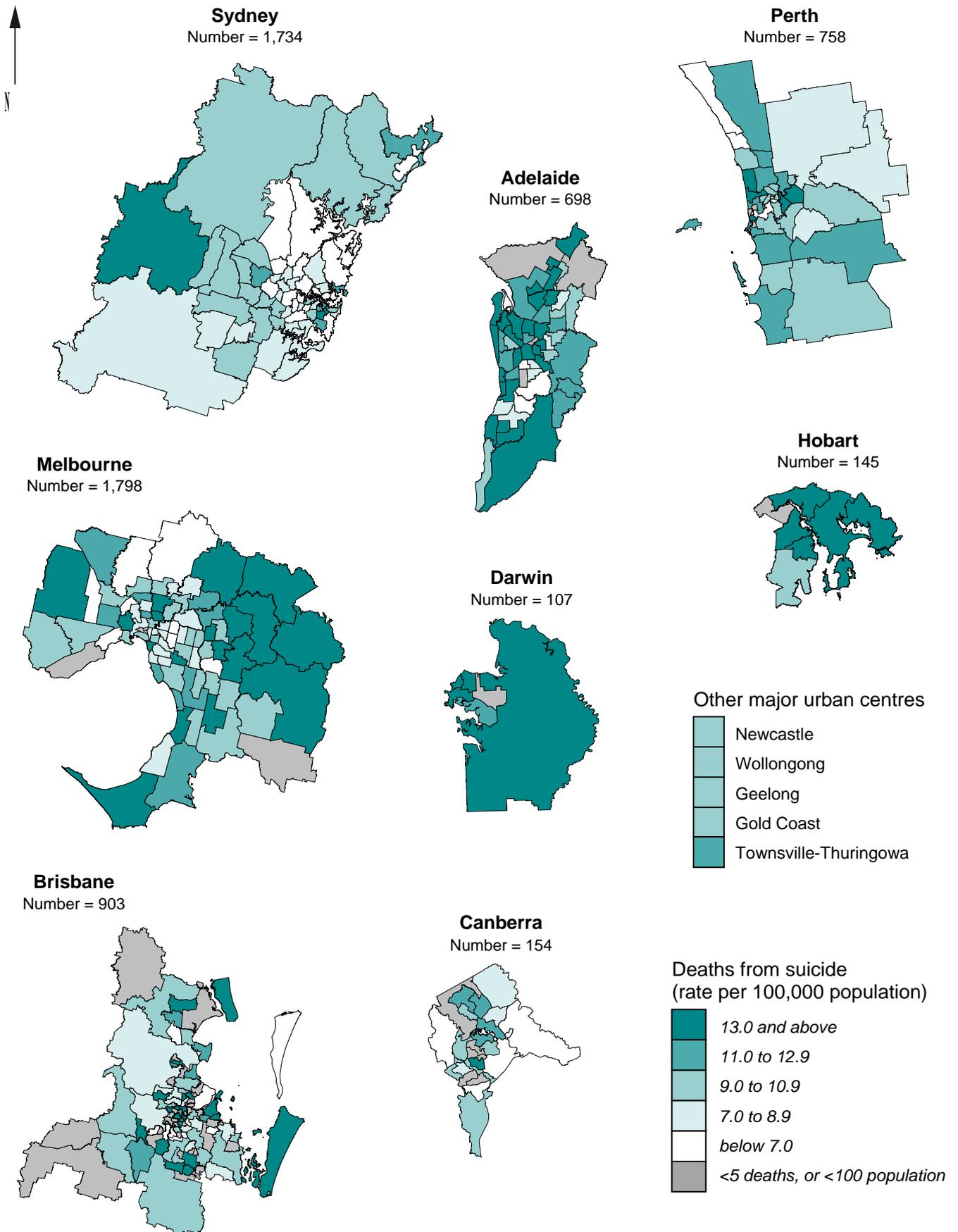
Death rates from suicide and self-inflicted injury increased steadily with increasing remoteness, from a rate of 10.0 deaths per 100,000 population in Major Cities to 23.6 in the Very Remote class.

**Figure 30: Deaths from suicide and self-inflicted injury at ages 0 to 74 years, by remoteness, 2003 to 2007**



# Map 53: Deaths from suicide and self-inflicted injury at ages 0 to 74 years, major urban centres, 2003 to 2007

standardised rate per 100,000 population by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths

## Premature mortality from suicide and self-inflicted injury, Australia

**Notes:** See comments on previous text page for details of this indicator. 'Non-metropolitan' refers to the area of the State or Territory outside of the capital city. 'Total' refers to the whole State or Territory.

**Table 55: Deaths from suicide and self-inflicted injury at ages 0 to 74 years, by State/ Territory, Australia, 2003 to 2007**

*Age-standardised rate per 100,000 population*

| Area             | NSW  | Vic. | Qld  | SA   | WA   | Tas. | NT   | ACT | Total |
|------------------|------|------|------|------|------|------|------|-----|-------|
| Non-metropolitan | 10.6 | 13.3 | 13.8 | 13.7 | 12.9 | 17.2 | 25.8 | ..  | 12.8  |
| Total            | 9.3  | 11.0 | 12.2 | 13.2 | 11.2 | 16.5 | 22.3 | 9.5 | 11.1  |

### Non-metropolitan areas

Death rates from suicide and self-inflicted injury were higher in the non-metropolitan areas of Australia than in the capital cities, with the highest in the Northern Territory, a rate of 25.8 deaths per 100,000 population; the rate of 17.2 in Tasmania was also relatively high.

#### Data quality: a cautionary note

Where there were fewer than five deaths in an SLA, data have not been mapped and have been 'greyed out' (so as to protect the privacy of small communities, and as small numbers may not be a reliable indicator of the actual situation), and this approach is particularly evident in this map. In addition to the many areas treated in this way, all but two of the areas mapped in white (areas with rates below six deaths per 100,000 population) had no deaths at all from these causes. This finding – that there were fewer than five deaths from suicide and self-inflicted injury over this five-year period in a large number of areas, many of which have relatively large Indigenous populations – is at odds with our general understanding of the high rates of suicide in Indigenous communities.

In this regard, the ABS advises that 'care should be taken in using and interpreting suicide data due to issues affecting data quality.' They add that 'a reluctance by Coroners to make a determination of "suicide" and the high number cases with a status of "open" on the NCIS (National Coroners Information System) have impacted on the 2007 suicide data.'<sup>102</sup> This comment is also applicable to data from the earlier years shown here.

The SLAs in the non-metropolitan areas of **New South Wales** mapped in white, including a number in the far north-west, had no deaths recorded from these causes. As noted in the box, above, this finding appears surprising. More than 19 deaths per 100,000 population from these causes were recorded in Cowra (39.0), Inverell - Part A (32.7), Walgett (19.9), Tumut Shire (19.8) and Richmond Valley - Casino (19.8).

In **Victoria**, 22 SLAs recorded rates above 19 deaths per 100,000 population, with the highest in Mildura - Part B (39.8), Pyrenees - South (33.2), Wellington - Avon (32.3), Northern Grampians - St Arnaud (32.0) and Murrindindi - East (31.3). Many areas had no deaths from these causes.

Deaths rates from suicide and self-inflicted injury in **Queensland** were as high as 164.1 per 100,000 population in Mornington and 108.7 in Doomadgee, with other high rates in Cook (55.2) and Tiaro (48.0). By contrast, a number of SLAs had no deaths recorded from these causes.

The remote area of Unincorporated Far North (74.6 deaths per 100,000 population) had the highest rate in non-metropolitan **South Australia**, followed by the SLAs of Peterborough (67.7), Anangu Pitjantjatjara (44.9), and Kangaroo Island (39.3). As noted above, many areas had no deaths recorded from these causes.

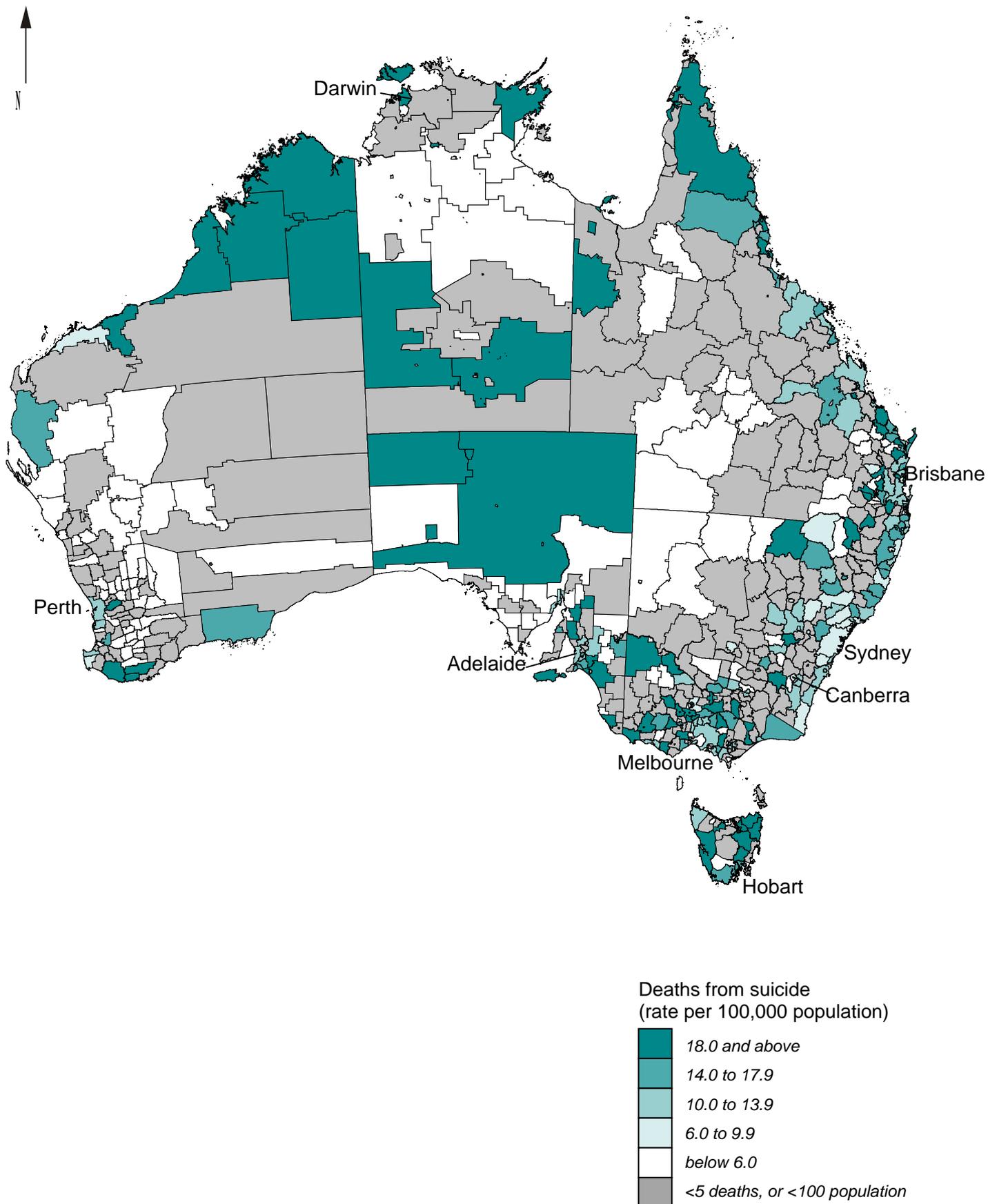
High suicide rates were evident in two areas of **Western Australia**, one in the south-west of the State, including York (46.4), Manjimup, Denmark, Northam and Plantagenet; and the other in the far north, including Halls Creek (34.1), Derby-West Kimberley, Wyndham-East Kimberley, Broome and Port Hedland. Again, many areas had no deaths recorded from these causes.

The majority of the SLAs mapped in **Tasmania** had death rates in the highest range; of these, the highest were in Kentish (37.5), Dorset (37.0), West Coast (36.5), Launceston - Part C (36.3) and Break O'Day (32.1). In areas with ten or more deaths, the lowest rates were recorded in Central Coast - Part A and West Tamar - Part A.

SLAs in the **Northern Territory** with no deaths recorded from these causes formed a group, running from Katherine, through to north of Tennant Creek. However, there were extremely high rates in several other SLAs, in particular the Tiwi Islands (127.1 deaths per 100,000 population), Sandover (70.2), Tanami (55.6), Tennant Creek (46.9), and East Arnhem Balance (28.9). The data for many areas, including those with no deaths, may not be reliable.

# Map 54: Deaths from suicide and self-inflicted injury at ages 0 to 74 years, Australia, 2003 to 2007

standardised rate per 100,000 population by Statistical Local Area/ Statistical Local Area group



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## Section 5

### Socioeconomic status – current, and change over time

**In this section ...**

Graphs by socioeconomic status, with comparisons over time, where data are available

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## Introduction

As described in detail in Section 2, different risk factors and determinants of health operate to varying extents across the life course. They include poor intra-uterine conditions, stress, violence and traumatic experiences, educational disadvantage, and inadequate living environments that fail to support healthy behaviours.<sup>103,104</sup> Such factors are generally more prevalent in communities characterised by low levels of educational attainment, high levels of unemployment, substantial levels of racism and discrimination, interpersonal violence and social exclusion, and long-term poverty. These characteristics tend to be more common for many remote Aboriginal and Torres Strait Islander communities and other groups living in substantially socioeconomically disadvantaged areas.<sup>103,105</sup>

A person's socioeconomic position in society - their socioeconomic status (SES) - is a strong predictor of health and risk of injury. It is well established that:

- the risk of adverse health outcomes increases with declining socioeconomic position;
- the relationship is widespread, and evident in many industrialised nations and during most periods of time;
- it is apparent for all age groups; and
- the strength of the association varies between groups, places, and over time.<sup>106</sup>

With some exceptions, the lower a person's SES, the shorter his or her life expectancy and the more prone he or she is to a wide range of chronic diseases and conditions. The link between SES and health begins before birth and continues through life, but the strength of the relationship varies at different life stages. It is also likely that the health effects of SES through a person's life are cumulative.<sup>35</sup> However, there is much more to the link between SES and health than the effects of poverty and adversity. In fact, health improves with each step up the SES ladder. The greatest individual burdens are found among those who are poor and disadvantaged, but the largest population-wide effects are found in the middle SES groups.<sup>107</sup>

There is a strong, but indirect, two-way association in which SES affects health and health affects SES.<sup>108</sup> The multiple components of SES, their impact on health, and the mechanisms and pathways by which this impact occurs are not fully understood. The main socioeconomic factors that are relevant to health (education, income, and wealth, employment status, and geographic area characteristics) also reinforce

While recognising the multiplicity of factors that contribute over the life course to chronic disease, risk factors and mortality, the role and the importance of any single factor for any particular outcome are likely to depend on time, place, life stage, history, and the social and cultural contexts. In contrast, social class, or socioeconomic position, has more pervasive effects across time and circumstances.<sup>110</sup> For example, adverse socioeconomic position across the life course increases coronary heart disease (CHD) risk cumulatively.<sup>111</sup> Thus, strategies for the prevention of socioeconomic inequalities in CHD need to reduce these inequalities in early life as well as in adulthood.<sup>111</sup> Money, knowledge, beneficial social networks, power and prestige are all associated with socioeconomic status, and permit more educated, affluent people to protect themselves from adversities and to take positive action to prevent or ameliorate a wide range of risks to health.<sup>112</sup> These advantages allow such people to lead a healthful life, to identify and avoid many dangers, to be health literate, and therefore able to access the latest biomedical technologies, treatments and services and a range of other beneficial people, information, and resources.<sup>112</sup>

For those in the population without these advantages, health outcomes in terms of the prevalence of risk factors and chronic diseases are generally poorer, and, to the extent that they are also avoidable and systematic, they are inequitable.<sup>114</sup> While health inequities persist across the population, they place considerable financial pressure as a result of increased health care and other costs on the sustainability of the Australian health care system.<sup>113</sup>

each other. One or more of these socioeconomic factors can be used to define socioeconomic groups within the population.

### Mechanisms for the association of socioeconomic status with health

There are multiple and complex pathways by which SES determines health. A comprehensive analysis includes macroeconomic contexts and social factors as well as more immediate social environments, individual psychological and behavioural factors, and biological and genetic predispositions and processes.<sup>109</sup> Some factors that can lead to SES effects on health include:

- differential access to high-quality health care;
- individual behaviours, such as smoking and other substance use; poor nutrition; stress and depression;

- environmental factors, such as pollution and overcrowding; and
- aspects of social environments, including families, work, neighbourhoods, kinship and cultural groups, and regional communities.<sup>109</sup>

Access to high-quality health care explains only part of the association between SES and health. Health-risky behaviours play a significant role in health outcomes, but are also the result of the interaction of individual characteristics and psychosocial processes with environmental constraints and opportunities.<sup>112</sup> Other factors contributing to the association between SES and health include the long-term impacts of prenatal and early childhood factors, the cumulative biologic effects of prolonged exposures to individual stressful events, reactions to societal factors such as rising levels of income inequality or unemployment, and discrimination.<sup>104-106</sup> However, the mechanisms behind these associations are still being determined, and further research is needed to enhance our understanding of the pathways by which socioeconomic factors affect the health of individuals and their communities.<sup>35,107</sup>

### Describing differences in socioeconomic status

A useful way to highlight differences in socioeconomic status between groups in the population for a particular indicator is to present the data by the socioeconomic status of the person to which the indicator relates.

The charts are of particular relevance to those seeking to implement policy to address inequalities in society, in that they frequently show that what change that has occurred has been most successful in reducing rates (of smoking, or premature death, etc.) in the most advantaged populations, with often limited success among the most disadvantaged; populations in the middle quintiles generally fare less well as the extent of socioeconomic disadvantage increases.

In the absence of information as to the socioeconomic status of individuals, as elsewhere in the atlas we have used the socioeconomic status of the SLA of the individual's address. SLAs in the major urban centres (the capital cities and other major urban centres were combined for this analysis) were first ranked by their 2006

IRSD score, and then allocated to one of five groups (quintiles), each with approximately 20% of the population. The data for each indicator were then allocated at the SLA level to the quintile into which the SLA fell, and rates were calculated for each quintile. This exercise was repeated for the non-metropolitan areas. The groupings are graphed and referred to as 'quintiles of socioeconomic disadvantage of area'.

Quintile data for the variables, for which estimates were produced by the modelled estimate method, were not compiled from the modelled data, but were provided by the ABS, directly from the original data.

A selection of the indicators presented in maps, above, is repeated in this way. Where data are available, the graphs are shown for both the current period and an earlier period, highlighting both absolute change, and relative change over time.

In the charts below, data for the major urban centres include the capital cities and other major urban centres with populations of 100,000 or more at the 2006 Census, of Newcastle, Wollongong, Geelong, Gold Coast and Townsville-Thuringowa.

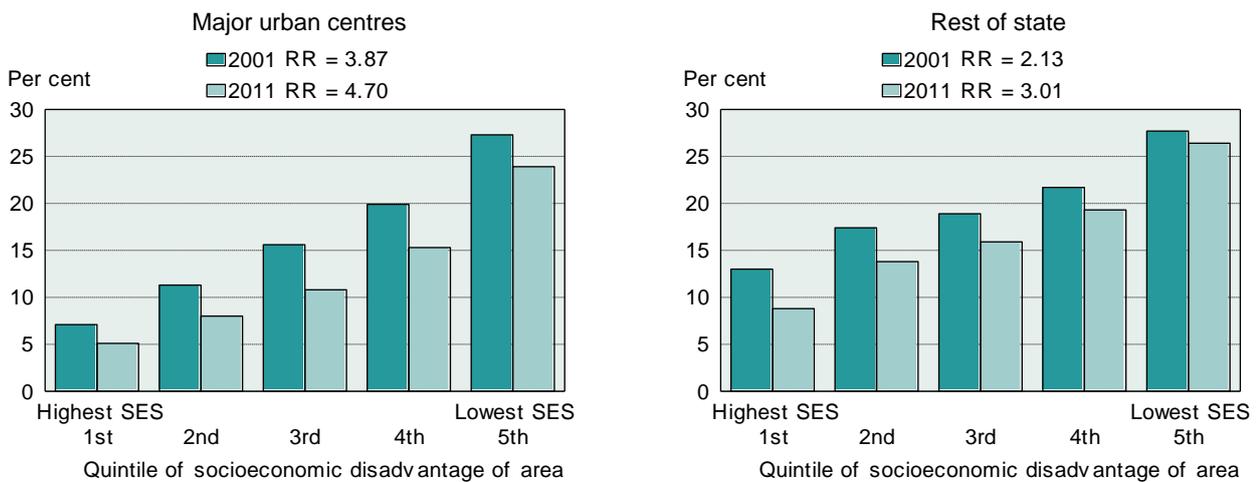
## Jobless families with children

Children living in jobless families are most highly concentrated in the most disadvantaged areas, although they are evident in all quintiles, and their numbers as a proportion of all children increase steadily with increasing socioeconomic disadvantage, a clear illustration of the social gradient (Figure 31).

Further, although there has been a decline in the absolute level of children living in jobless families in both the urban centres and the non-metropolitan areas, the gap in proportions between those living in the most disadvantaged areas and the least disadvantaged areas has widened over this ten-year period: this is evidenced in the increasing rate ratios noted in the charts below.

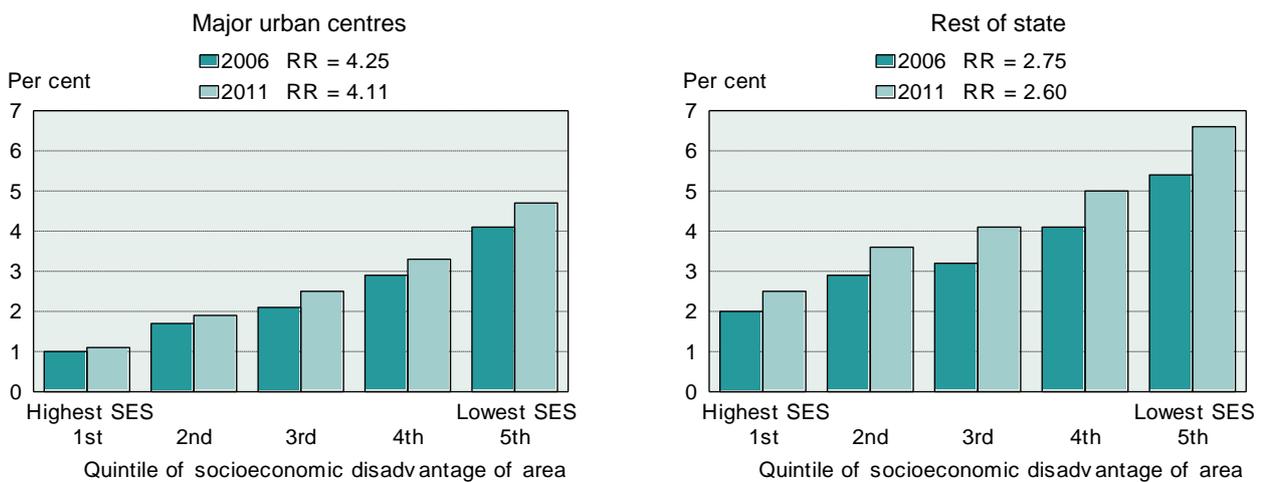
This increasing concentration is of concern as, in areas with high proportions of disadvantaged populations, people have lower incomes, and education, health, welfare and leisure facilities, and transport and other services are frequently not as well resourced.<sup>130</sup>

**Figure 31: Children under 15 years of age living in jobless families, by socioeconomic status, 2001 and 2011**



Over a five-year period, the workforce in long-term unemployment increased in both the major urban centres and the non-metropolitan areas. In addition, whilst decreasing marginally over the period, the gap in proportions between those living in the most disadvantaged to the least disadvantaged in 2011 was 4.11 in the major urban centres and 2.60 in the non-metropolitan areas (Figure 32).

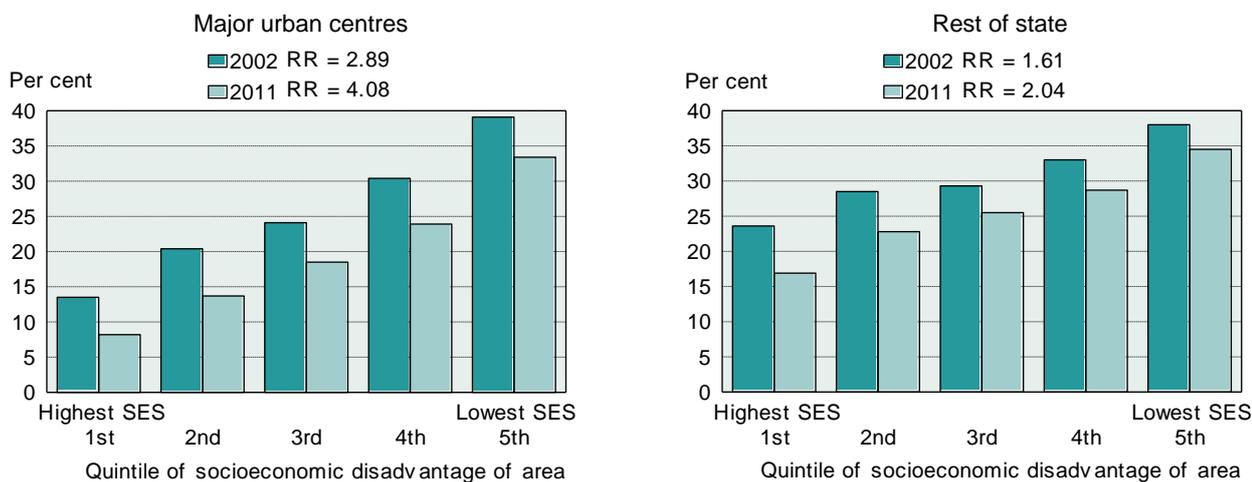
**Figure 32: Long-term unemployment, by socioeconomic status, 2006 and 2011**



## Children at greatest risk of long-term disadvantage

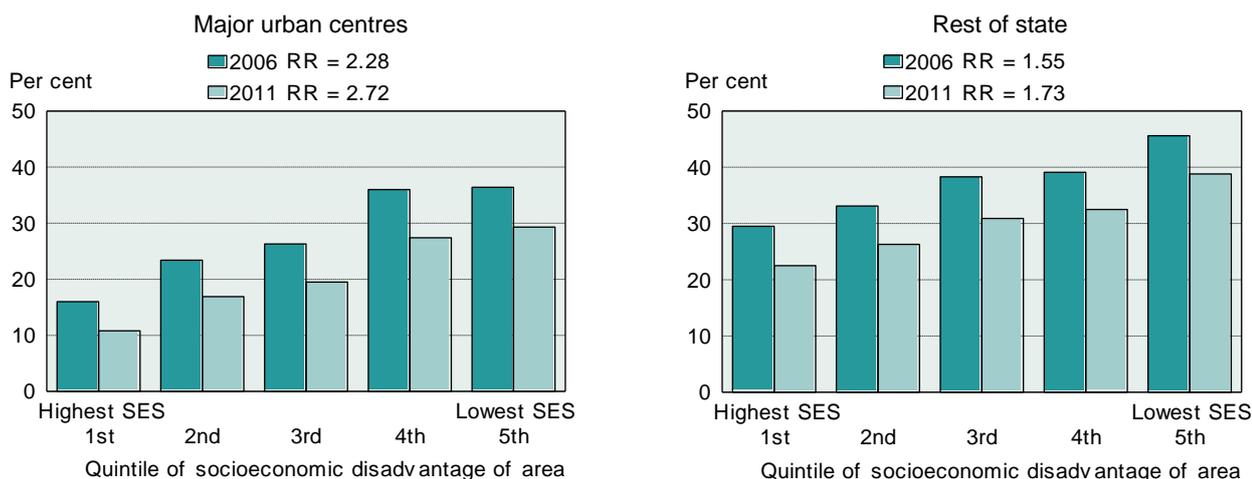
Children living in low income, welfare-dependent families are also more highly concentrated in the most disadvantaged areas, as well as being in increasing proportions in each quintile, as disadvantage increases (Figure 33). Furthermore, despite a reduction in the proportion of children living in these circumstances, both overall and in each quintile, the relative differential between those living in the most disadvantaged compared with the least disadvantaged areas has increased markedly in recent years. The patterns across the quintiles in the major urban centres and the non-metropolitan areas are similar, although the differentials in the major urban centres are twice those in the non-metropolitan areas.

**Figure 33: Children in low income, welfare-dependent families, by socioeconomic status, 2002 and 2011**



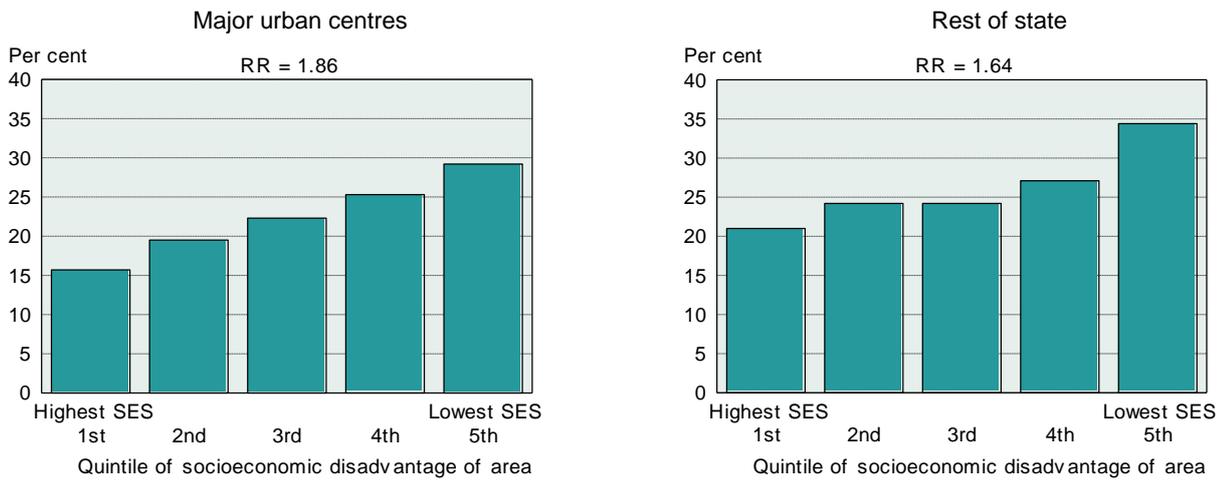
There is also an increase across the quintiles in the proportion of children in families where the mother has low educational attainment, with the highest proportions in the non-metropolitan areas and the largest differential across the quintiles in the major urban centres (Figure 34). However, as noted above (pages 68 and 70), there has been a marked decrease in the overall proportion of the population in this group, down from 30.6% in 2006 to 23.5% in 2011. This is an important development, given the association between a parent's education and the education, health and wellbeing outcomes of their children.<sup>130,131</sup>

**Figure 34: Children in families where the mother has low educational attainment, by socioeconomic status, 2006 and 2011**



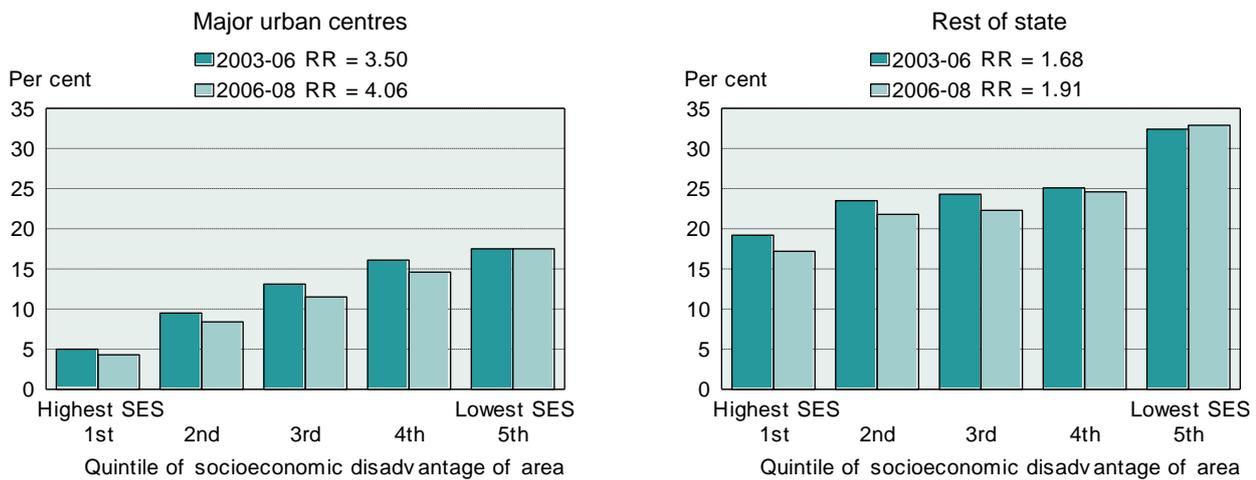
The data in Figure 35, however, show that there remains a substantial disparity across the population of children who are developmentally vulnerable on one or more of the five domains of the AEDI. As in the earlier charts, the proportions change in a step-wise fashion, increasing with each increase in disadvantage: although this pattern is less evident in non-metropolitan areas, proportions in each quintile are higher than in the major urban centres. These results have important implications for children's development, health, wellbeing and readiness to learn.

**Figure 35: The Australian Early Development Index (AEDI) – children ‘developmentally vulnerable on one or more domains’, by socioeconomic status, 2009**



As noted earlier (page 74), maternal smoking during pregnancy carries a higher risk of adverse outcomes for the baby, before and after delivery. Although there have been some improvements in the overall rate over the short period shown in the charts in Figure 36, no progress has been made among pregnant women in the most disadvantaged areas in either the major urban centres or in the non-metropolitan areas.

**Figure 36: Women smoking during pregnancy, by socioeconomic status, 2003 to 2006 and 2006 to 2008\***

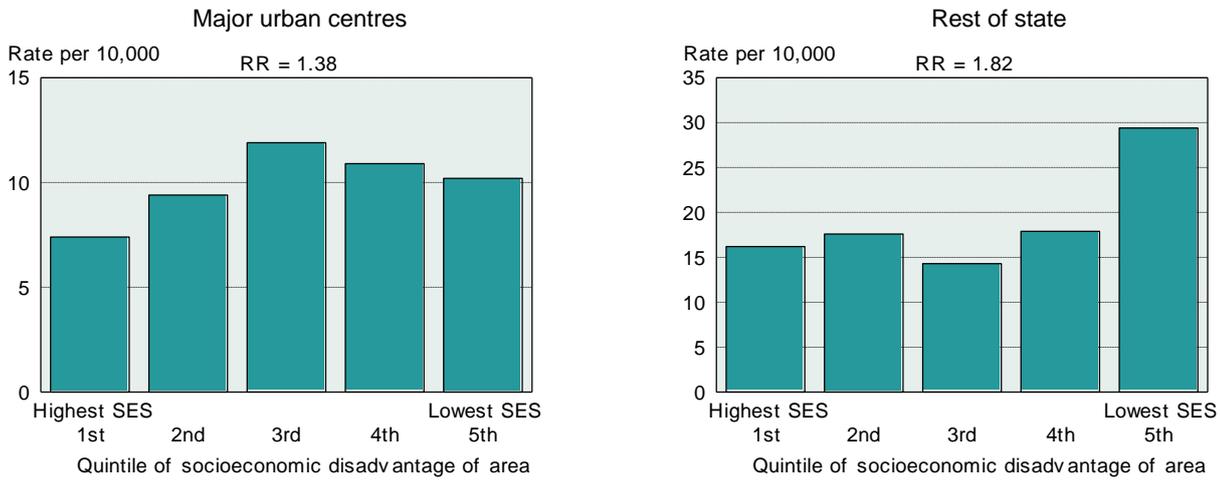


\* Excludes data for Victoria and Queensland

## People affected by homelessness

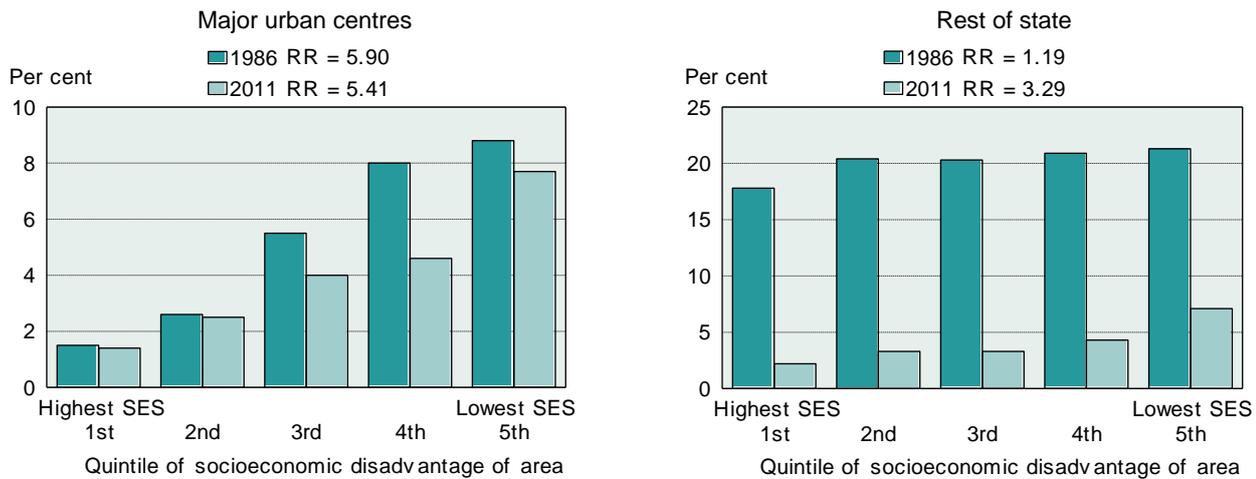
The distribution of homeless people across the major urban centres is somewhat different to that seen for many indicators (Figure 37). Although the rate increases with increasing socioeconomic disadvantage, the highest rate is in areas in Quintile 3, which typically include inner city areas, and a mix of middle and outer areas. In the non-metropolitan areas, where the overall rate is higher than in the major urban centres, rates are lower in the first four quintiles, increasing to around twice the rate in Quintile 5.

**Figure 37: Estimated homeless people, by socioeconomic status, 2006**



The distribution of public rental housing remains an important indicator of socioeconomic disadvantage. Public housing tenants are increasingly welfare-dependent (especially single parents; those unemployed, aged or with a disability; and Aboriginal and Torres Strait Islander peoples), and public housing stocks have declined substantially since 1986<sup>1</sup>, as the following chart shows (Figure 38). In the major urban centres, the decline in the number of these dwellings as a proportion of all dwellings has been most notable in Quintiles 3 and 4. The decline in non-metropolitan areas has been much more substantial, and is evident across all quintiles.

**Figure 38: Dwellings rented from the government housing authority, by socioeconomic status, 1986 and 2011**

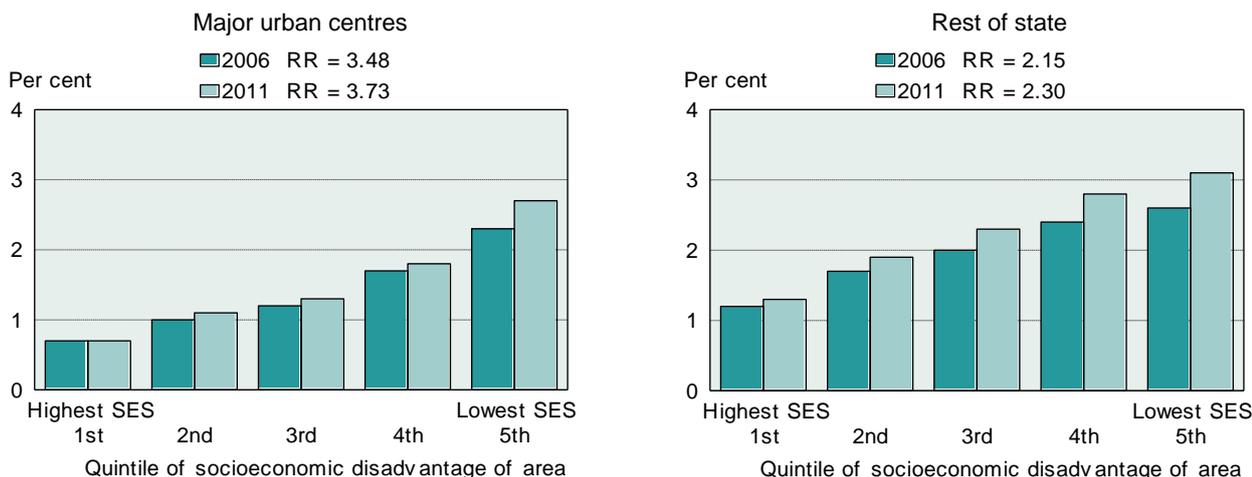


## People living with disability or mental illness, and their carers

People who have a profound or severe disability (and live in the community, and not in long-term residential accommodation), and who are not employed, are among the most severely disadvantaged in society: their proportion in the population increases consistently with increasing socioeconomic disadvantage of area, with an overall higher rate in the most disadvantaged areas, compared with the least disadvantaged areas. Rates for this population group increased between 2006 and 2011, and the differentials in rates increased; in 2011 the rate ratio in the major urban centres was 3.73 and in the non-metropolitan areas it was 2.30 (Figure 39).

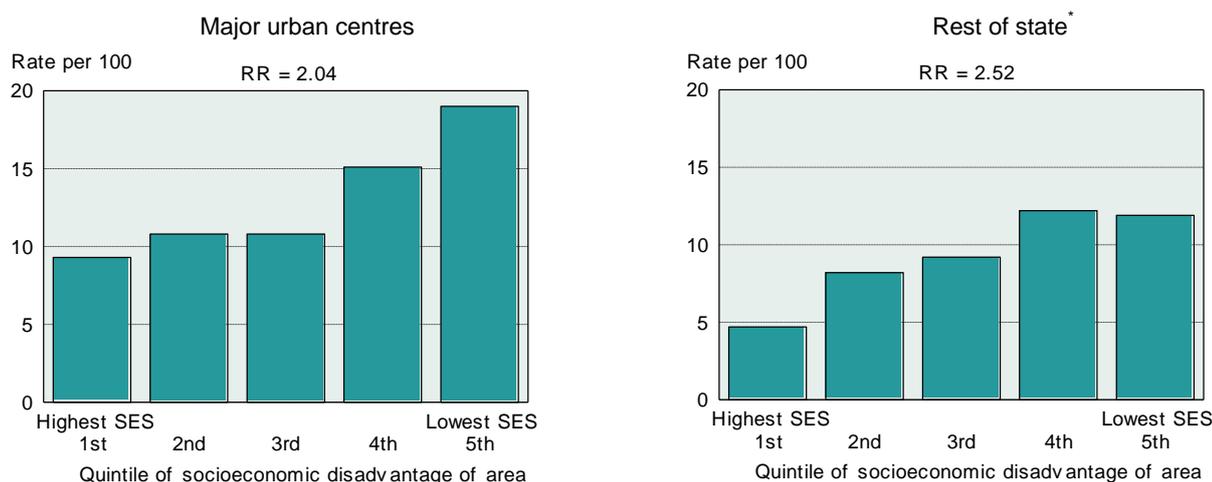
<sup>1</sup> However, as noted on page 88, there was a large increase between 2006 and 2011 in the number of dwellings rented from Territory Housing in the non-metropolitan areas of Northern Territory.

**Figure 39: People aged 15 to 59 years and living in the community who have a profound or severe disability and are not employed, by socioeconomic status, 2006 and 2011**



The estimated prevalence of high or very high psychological distress (as indicated by the K-10) is also substantially higher in the most disadvantaged areas, being just over twice as high in the major urban centres (a rate ratio of 2.04) and two and a half times higher in the non-metropolitan areas (Figure 40).

**Figure 40: People aged 18 years and over with high/ very high psychological distress, by socioeconomic status, 2007-08**

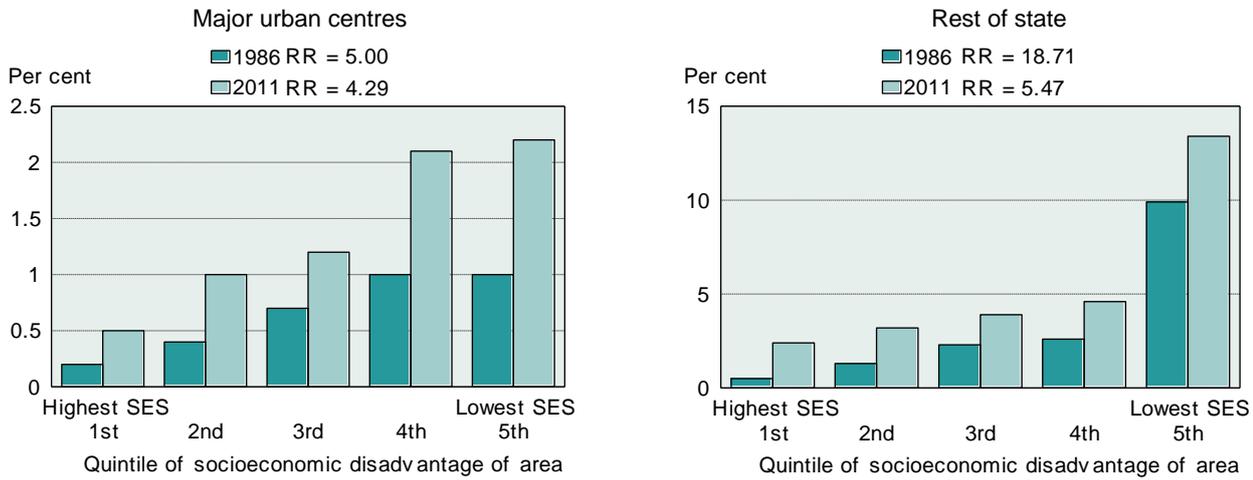


\* The most remote areas of Australia are excluded from these modelled estimates

## Aboriginal and Torres Strait Islander Australians

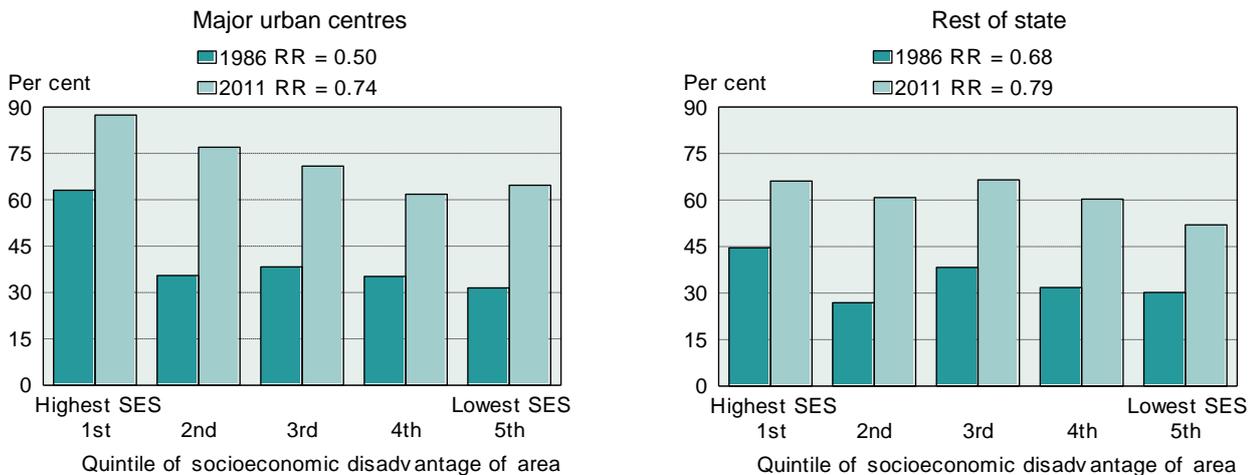
Estimates derived by the ABS from the 2011 Census population counts show the Indigenous population in the major urban centres to be most highly clustered in the two most disadvantaged quintiles (Quintiles 4 and 5) and that their proportion of the population has doubled, or near-doubled, in each quintile since 1986 (Figure 41). Aboriginal and Torres Strait Islander peoples make up a substantially higher proportion of the population in the non-metropolitan areas (than in the major urban centres) in both periods, with by far the highest proportions in the most disadvantaged areas (Quintile 5). Again, the proportions have increased in all quintiles, with the largest increases in the first four quintiles.

**Figure 41: Indigenous population, by socioeconomic status, 1986 and 2011**



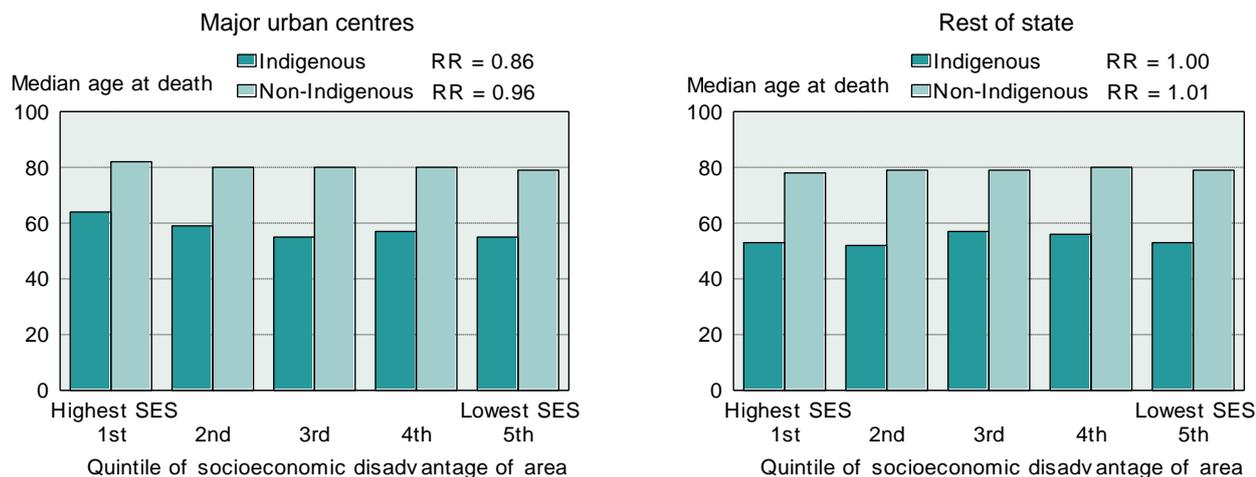
The participation in full-time secondary education of Aboriginal and Torres Strait Islander people aged 16 years in the major urban centres declined by 26% from the highest to the lowest socioeconomic status areas in 2011, a much smaller decline than that of 50% found for 1986 (Figure 42). Participation rates were substantially higher than in 1986 in all areas other than those in Quintile 1, where the increase was somewhat smaller. In the non-metropolitan areas, participation in 2011 was 21% lower in the lowest socioeconomic status areas. Rates were, again, substantially higher in each quintile in 2011 than in 1986, unlike the metropolitan areas, and the gap in participation in full-time secondary education at this age had also narrowed.

**Figure 42: Indigenous participation in full-time secondary education at age 16, by socioeconomic status, 1986 and 2011**



The gap in median age at death between the Indigenous and non-Indigenous populations in the major urban centres varies from 18 years in Quintile 1 (highest SES areas) to 25 years in Quintile 3, with a gap of 24 years in Quintile 5 (lowest SES areas) (Figure 43). Further, Aboriginal and Torres Strait Islander people living in the most disadvantaged areas had a median age at death some 14% lower than in the least disadvantaged areas of Australia's major cities. In the non-metropolitan areas, the gap between the Indigenous and non-Indigenous median age at death ranged from 22 years in Quintile 3 to 27 years in Quintile 2; however, the median age at death varies less across the quintiles, from 52 years in Quintile 2 to 57 years in Quintile 3.

**Figure 43: Median age at death, by Indigenous status and socioeconomic status, 2003 to 2007\***

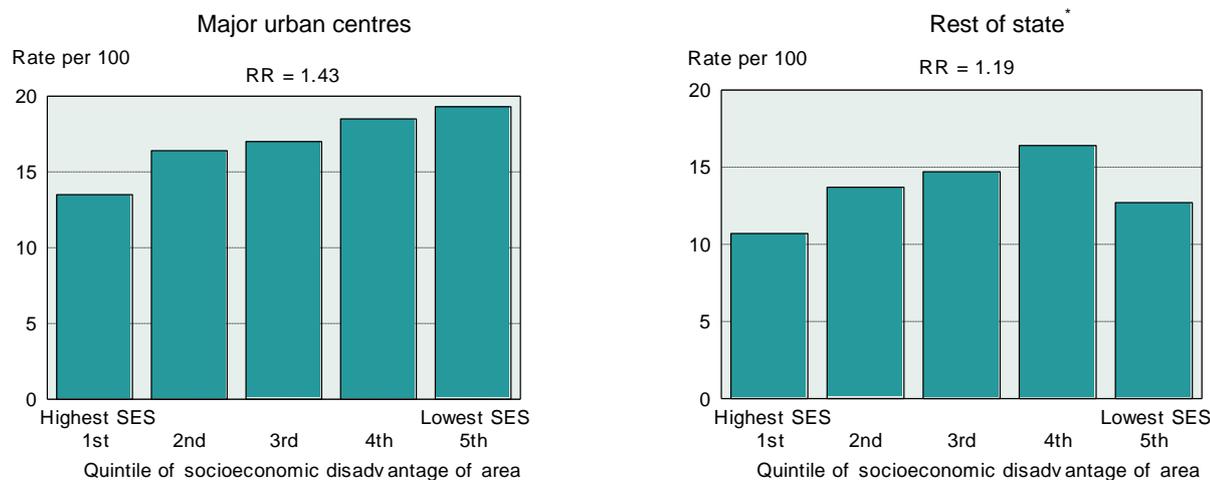


\* Excludes data for Victoria, Tasmania and the Australian Capital Territory as Indigenous deaths data are not considered to be reliable for these jurisdictions

## Indicators of health status, risk factors, outcomes and use of services

There is a marked socioeconomic gradient in the prevalence of circulatory system diseases in the major urban centres, with around 43% more people in the most disadvantaged areas reporting that they had been told by a doctor or nurse that they had these diseases when compared with the least disadvantaged areas (Figure 44). In the non-metropolitan areas, rates increase from 10.7% in Quintile 1 to 16.4% in Quintile 4 (53% higher than in Quintile 1), before dropping in Quintile 5 (the second highest rate, and 19% above that in Quintile 1).

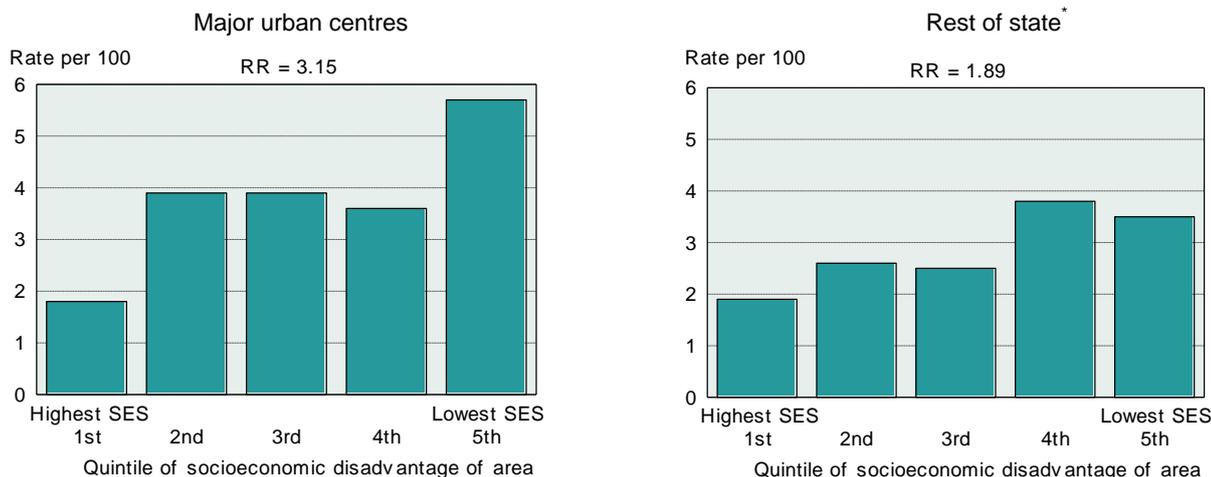
**Figure 44: Estimated population with circulatory system diseases, by socioeconomic status, 2007-08\***



\* The most remote areas of Australia are excluded from these modelled estimates

In the major urban centres, type 2 diabetes rates increase in a step-wise fashion, with the lowest rates in the least disadvantaged areas, higher rates (just under 4%) in the middle quintiles and a rate in the most disadvantaged areas over three times that in the least disadvantaged areas (Figure 45). The differential in rates between the most and the least disadvantaged areas in the rest of Australia is 89%.

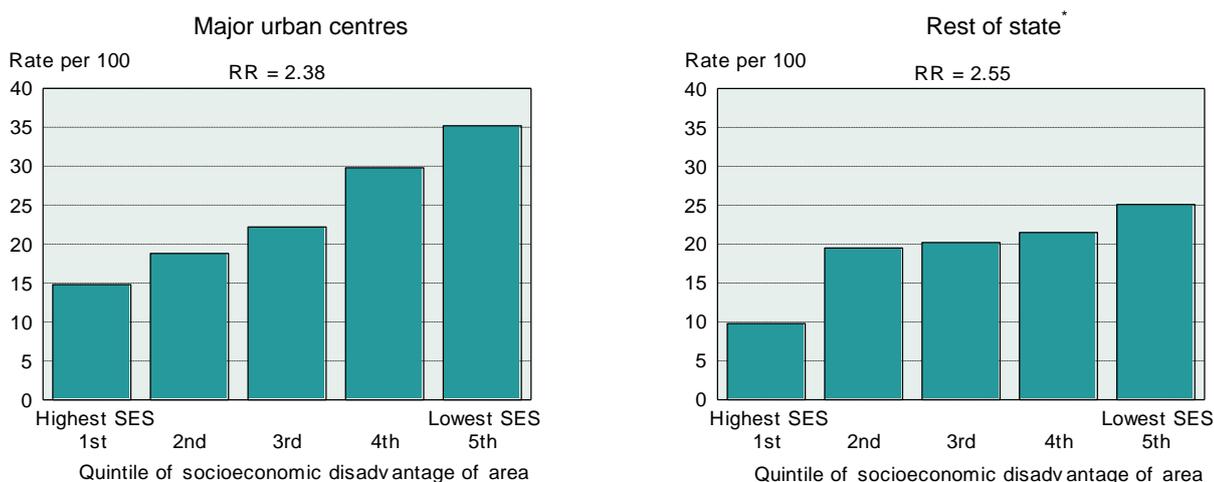
**Figure 45: Estimated population with type 2 diabetes, by socioeconomic status, 2007-08\***



\* The most remote areas of Australia are excluded from these modelled estimates

Smoking rates among males aged 18 years and over in the major urban centres increase steadily with increasing socioeconomic disadvantage, with the rate in the most disadvantaged areas over twice that in the least disadvantaged areas (a rate ratio of 2.38) (Figure 46). The pattern in the non-metropolitan areas is somewhat different, with the lowest rates in the least disadvantaged areas, higher rates in the middle quintiles, and a rate in the most disadvantaged areas just over two and a half times that in the least disadvantaged areas.

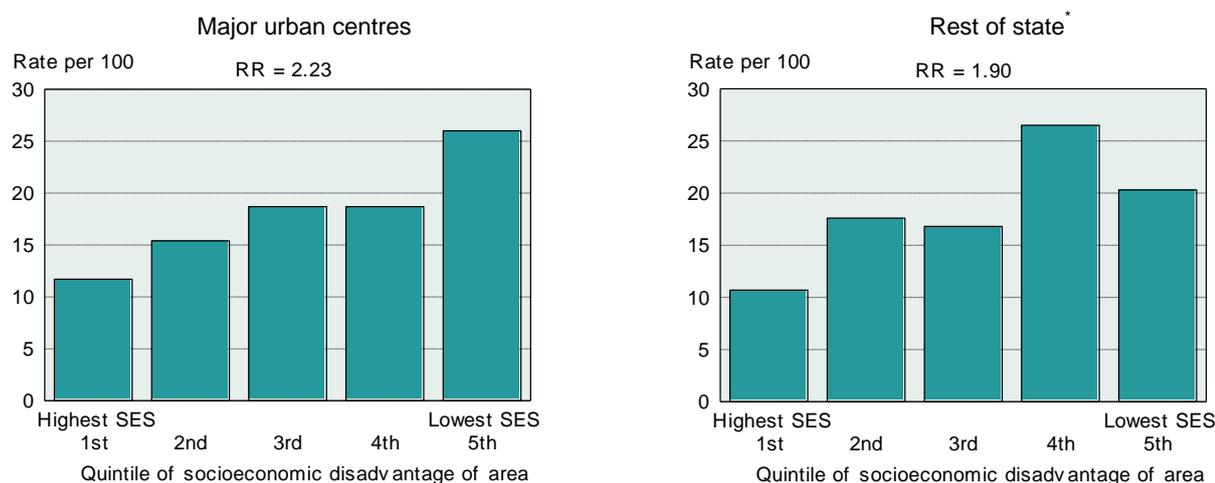
**Figure 46: Estimated male population who were current smokers, 18 years and over, by socioeconomic status, 2007-08\***



\* The most remote areas of Australia are excluded from these modelled estimates

In the major urban centres, female smoking rates follow a similar pattern to that seen for males, with a slightly smaller differential in the rate in the most disadvantaged areas and the least disadvantaged areas, a rate ratio of 2.23 (Figure 47). The highest female smoking rate in the non-metropolitan areas is in Quintile 4 (26.5%, two and a half times the rate in the most advantaged areas).

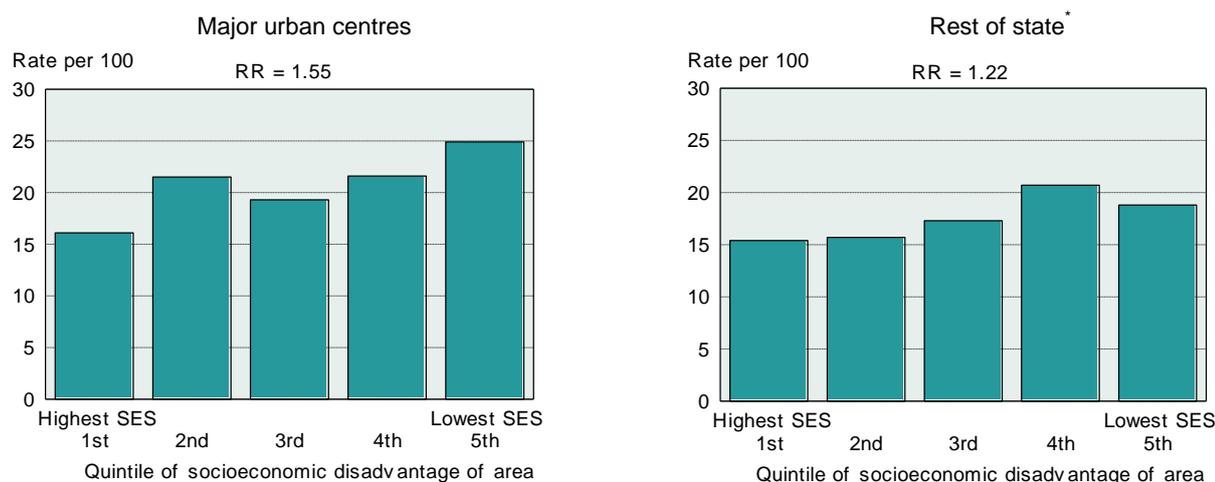
**Figure 47: Estimated female population who were current smokers, 18 years and over, by socioeconomic status, 2007-08\***



\* The most remote areas of Australia are excluded from these modelled estimates

Male obesity rates in the major urban centres are highest in the most disadvantaged areas (55% higher than the lowest rates, in the least disadvantaged areas), with rates between these extremes in the middle quintiles (Figure 48). In the non-metropolitan areas, rates increase to the highest rate in Quintile 4 (20.7%, over one third (34.4%) higher than in Quintile 1), with a slightly lower rate reported for Quintile 5 (18.8%).

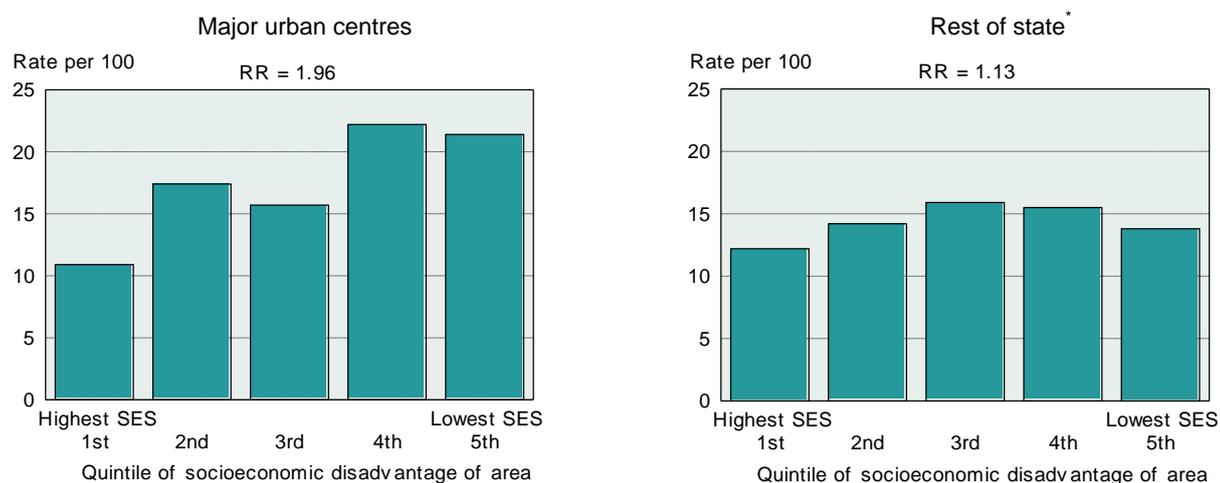
**Figure 48: Estimated male population who were obese, 18 years and over, by socioeconomic status, 2007-08\***



\* The most remote areas of Australia are excluded from these modelled estimates

Although overall rates in the major urban centres are lower for females than for males, the differential in obesity rates for females is larger, with rates in Quintile 4 and 5 around twice those in Quintile 1 (Figure 49). In the non-metropolitan areas, rates follow a similar pattern to those for males, with the highest rate in Quintile 3, a rate of 15.9% (30% above that in Quintile 1).

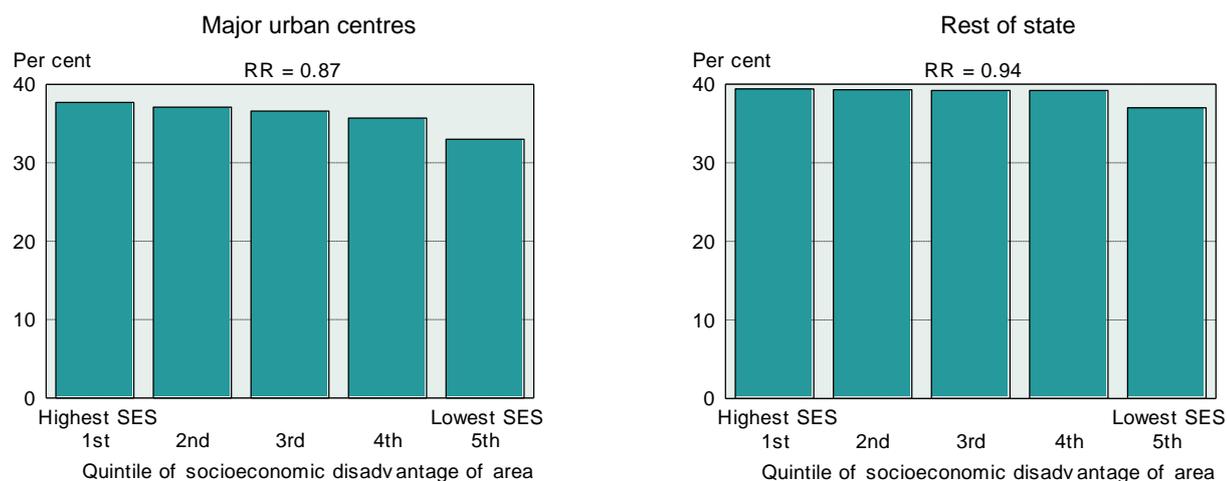
**Figure 49: Estimated female population who were obese, 18 years and over, by socioeconomic status, 2007-08\***



\* The most remote areas of Australia are excluded from these modelled estimates

Participation in the National Bowel Cancer Screening Program (following an invitation to participate) declined steadily with increasing socioeconomic disadvantage in the major urban centres, with the participation rate in the most disadvantaged areas 13% lower than in the most advantaged areas (Figure 50). Rates vary little across the quintiles of socioeconomic disadvantage in non-metropolitan areas, with participation in the least advantaged areas only 6% below that in the most advantaged areas.

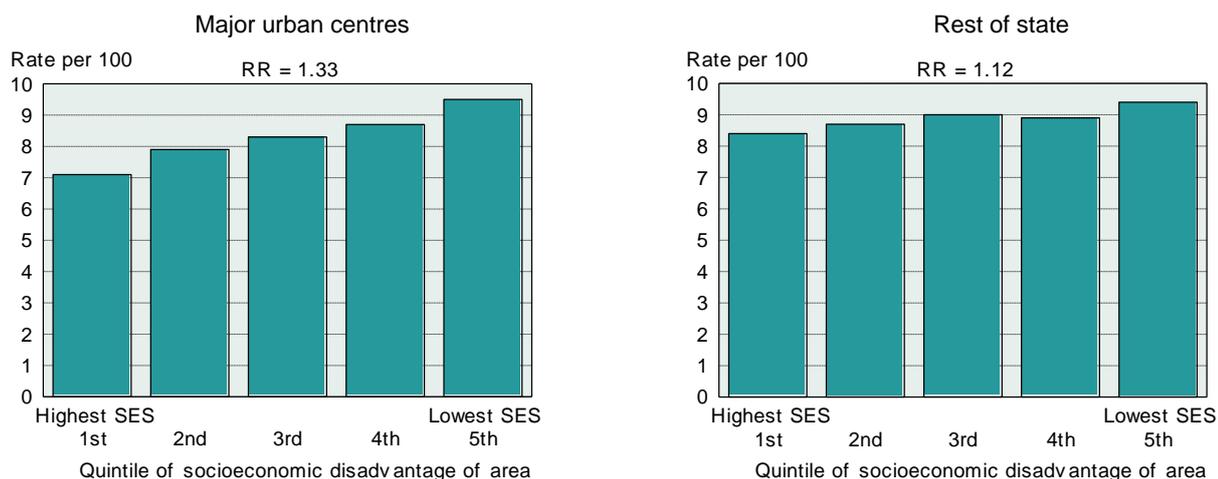
**Figure 50: National Bowel Cancer Screening Program, participants aged 50, 55 or 65 years, by socioeconomic status, 2010**



There is a clear social gradient in rates of positive test results in the major urban centres, and a substantial differential, of 33%, in rates between the most disadvantaged and the least disadvantaged areas (Figure 51). In the non-metropolitan areas, the social gradient is not as strong, and the differential in rates between the most disadvantaged and the least disadvantaged areas (12%) is smaller.

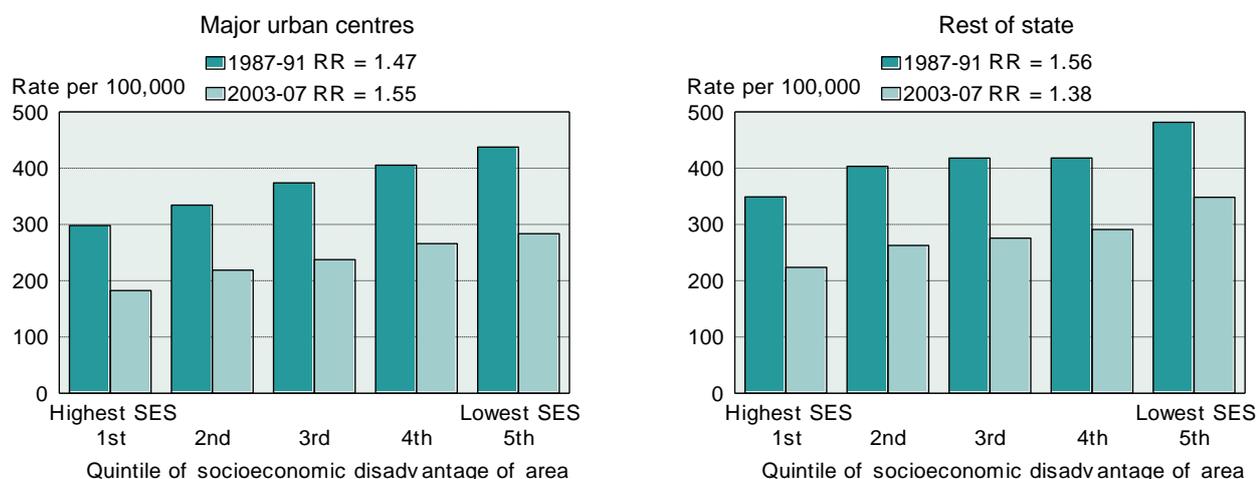
Note, again, that the data contained within this report only represent participation within the National Bowel Cancer Screening Program implemented by the Australian Government in partnership with State and Territory governments, and not in other bowel cancer screening programs. This is likely to have influenced the socioeconomic patterns evident for participation in testing, and for positive test results, published here. Additional information is provided on page 127 and in Appendix A, page 205.

**Figure 51: National Bowel Cancer Screening Program, positive test results, participants aged 50, 55 or 65 years, by socioeconomic status, 2010**



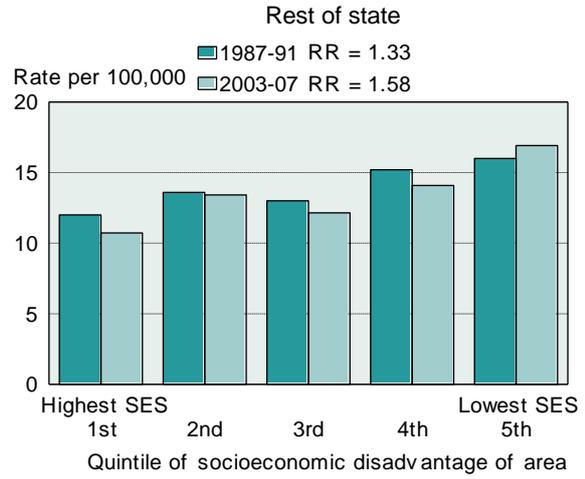
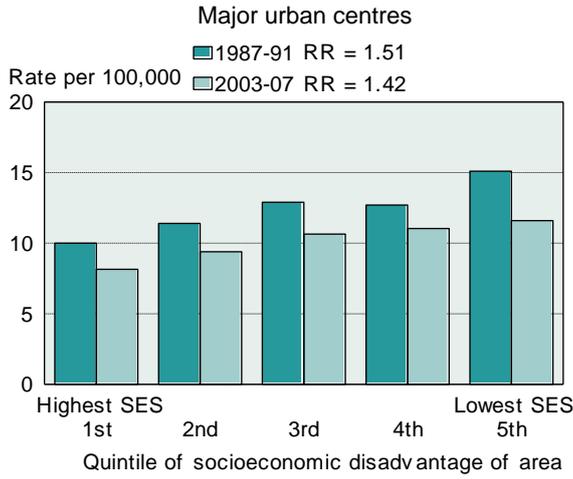
Deaths before 75 years of age accounted for just over 40% of deaths of males of all ages, and just over one quarter of deaths of females over this period.<sup>100</sup> The absolute level of premature mortality rates (for deaths from all causes) in the major urban centres is over one third lower in the later period, but with a higher differential (55%) between the most and least disadvantaged areas than in the earlier period (47%) (Figure 52). In the non-metropolitan areas, premature mortality rates are higher than in the major urban centres in each quintile; rates have declined over this period by over one third in all but the two most disadvantaged quintiles, where the declines were still marked, at 27.7% in Quintile 5 and 30.4% in Quintile 4, and the differential in rates between the most and least disadvantaged areas has declined.

**Figure 52: Premature mortality: deaths from all causes at ages 0 to 74 years, by socioeconomic status, 1987 to 1991 and 2003 to 2007**



Death rates before 75 years of age from suicide and self-inflicted injury varied by 51% between the most disadvantaged and least disadvantaged areas of the major urban centres over the five years 1987-91 (Figure 53). By 2003-07, the overall rate of deaths from these causes was lower, and the differential was smaller (42%). In the non-metropolitan areas, premature mortality rates were higher than in the major urban centres in each quintile, have shown smaller declines over this period, and have increased in the most disadvantaged areas, relative to the least disadvantaged areas, leading to an increase in the differential in rates from 33% to 58%.

**Figure 53: Premature mortality: deaths from suicide and self-inflicted injury at ages 0 to 74 years, by socioeconomic status, 1987 to 1991 and 2003 to 2007**



## Section 6

### Addressing entrenched disadvantage in particular locations

#### **In this section ...**

Introduction

Area of residence as a measure of disadvantage

Cluster analysis

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## Introduction

This section reflects the association between socioeconomic disadvantage and certain geographic areas of residence across Australia. As described in Section 2, disadvantage encompasses a range of economic, social, cultural and political exclusions that influence, and are influenced by, factors such as educational attainment.<sup>120</sup> As poverty indicators increase in specific areas, disadvantage often becomes more entrenched and persists over time.<sup>130</sup> Entrenched disadvantage is then reflected by the presence of a range of problems, which can be very difficult to remedy.<sup>25,120,130</sup> For example, vulnerable people in highly disadvantaged communities may not finish school, have difficulty finding and keeping a job, and may have to rely on income support for long periods. In some households, long-term unemployment becomes intergenerational.<sup>16,121</sup> Research evidence shows that targeting particular locations, and building on local expertise of what works, in partnership with members of those communities, is often the best way to improve the life outcomes of individuals and families.<sup>121</sup>

Within this context, Section 6 provides:

- provides a commentary as to the utility of using Statistical Local Areas (SLAs) to identify the most disadvantaged populations in the cities and regional and remote areas of Australia; and
- the results of a cluster analysis, undertaken to identify areas of disadvantage across the capital cities and other major urban centres, using indicators mapped in Section 4.

## Area of residence as a measure of disadvantage

In the absence of individual-level data on social background in the major administrative health record collections (deaths, hospital admissions, cancer registries), it is necessary to use a proxy measure. Such records almost always include an address of usual residence, which can be coded to an SLA. The SLA, which is largely based on local government areas, has, until recently, been the major level in the statistical geography hierarchy under the Australian Standard Geographic Classification.<sup>1</sup> The majority of work in Australia describing the association between the health and wellbeing of the population, their socioeconomic status and aspects of social inclusion employs the SLA of the address of usual residence of the person about whom the event is recorded as the proxy measure.

The adoption of an area-based measure of socioeconomic status requires at least two assumptions: that people who move residence do so between, or within, geographic areas of similar socioeconomic status; and that the (often relatively large and populous) areas used in these analyses provide a reliable indication of the characteristics of the individuals in the areas.

Glover and colleagues addressed both of these concerns in an analysis of admissions to hospitals in Western Australia over five years, of residents of the State's capital city, Perth.<sup>122</sup> In the analysis, patient addresses were coded to the smallest areal unit available, the ABS Collection District (CD – in Perth, a CD generally includes 200 dwellings and 550 people), and to higher level geographic areas of postcode and SLA. They found that postcode-level and SLA-level data provided a reliable indication of socioeconomic disadvantage of area. That is, the association between rates of total admissions and socioeconomic disadvantage of area evident at the smallest area level is also present, albeit less strongly, in the higher level area aggregates of postcode and SLA. The finding was similar for individuals admitted. They concluded that, given the widespread use in Australia of area-based analyses at the postcode and SLA level, it is important to know that such analyses can provide a reliable indication of the direction and underlying strength of association of socioeconomic disadvantage at the local area level.<sup>122</sup>

To show the extent to which the most disadvantaged SLAs incorporate the most disadvantaged populations, an analysis was undertaken at the Collection District (CD) level within each capital city and remainder of State/Territory area (e.g., for Sydney, and for the remainder of New South Wales).

## Results

In an analysis for Sydney, for example, SLAs were ranked by their IRSD score, from lowest to highest: the six SLAs with the lowest IRSD scores, and comprising approximately 10% of the population of Sydney Statistical Division, were further examined at the CD level. This was achieved by:

- listing all CDs in the Sydney Statistical Division, ranked by their IRSD score, from lowest to highest;

- identifying which of the CDs comprising the 10% of the population of the Sydney Statistical Division with the lowest IRSD scores were located in the SLAs previously identified as having the lowest SLA-level IRSD scores; and
- ascertaining the proportion of the total population of those six SLAs represented by the selected CDs.

The result is that the six most disadvantaged SLAs under the IRSD encompass half (50.6%) of the population in the most disadvantaged 10% of CDs in the whole of the Sydney Statistical Division (Table 56).

The analysis was repeated with a 5% cut-off, with a result that three SLAs had 30.4% of the population in the most disadvantaged 5% of CDs in Sydney.

The proportions are markedly higher in Melbourne and Brisbane, with almost two thirds of the population in the most disadvantaged 10% of CDs encompassed by the selected SLAs/SLA groups; and 47.5% and 57.0%, respectively, in the lowest 5%.

At the 10% level, the results for Adelaide, Perth and Darwin are similar to those in Sydney, although at the 5% level, the results vary markedly between these cities.

The most disadvantaged SLAs/SLA groups in Hobart and Canberra have the lowest proportions of the population in their most disadvantage CDs, although they still incorporate around one third of their city's most disadvantaged population.

**Table 56: Concentration of disadvantage in SLAs for capital cities, 2006**

| SLA   | Lowest 5% | Lowest 10% |
|---|-----------|------------|
| <b>Capital cities</b>   |           |            |
| <b>Sydney:</b> Fairfield - East, Parramatta - South, Bankstown - North East, Blacktown - South-West, Auburn, Canterbury   | n.a.      | 50.6       |
| Fairfield - East, Parramatta - South, Bankstown - North East  | 30.4      | n.a.       |
| <b>Melbourne:</b> Brimbank - Sunshine, Darebin - Preston, Greater Dandenong-Dandenong, Greater Dandenong Balance, Hume - Broadmeadows, Maribyrnong, Moreland - North, Whittlesea - South-West   | n.a.      | 65.7       |
| Brimbank - Sunshine, Greater Dandenong - Dandenong, Greater Dandenong Balance, Hume - Broadmeadows  | 47.5      | n.a.       |
| <b>Brisbane:</b> Acacia Ridge, Archerfield, Bribie Island, Caboolture - Central, Chermside, Clontarf, Darra-Sumner, Deception Bay, Durack, Inala, Kingston, Loganlea, Margate-Woody Point, Marsden, Morayfield, Pinkenba-Eagle Farm, Redland Balance, Richlands, Wacol, Waterford West, Woodridge, Zillmere | n.a.      | 65.4       |
| Acacia Ridge, Caboolture - Central, Durack, Inala, Kingston, Margate-Woody Point, Marsden, Redland Balance, Richlands, Wacol, Woodridge   | 57.0      | n.a.       |
| <b>Adelaide:</b>  |           |            |
| Playford - Elizabeth, Playford - West Central, Port Adelaide Enfield - Park, Port Adelaide Enfield - Inner, Port Adelaide Enfield - Port, Onkaparinga - North Coast   | n.a.      | 48.8       |
| Playford - Elizabeth, Playford - West Central, Port Adelaide Enfield - Park   | 49.8      | n.a.       |
| <b>Perth:</b>   |           |            |
| Belmont, Kwinana, Stirling - Central, Wanneroo - South  | n.a.      | 42.8       |
| Belmont, Kwinana  | 13.6      | n.a.       |
| <b>Hobart:</b>  |           |            |
| Brighton  | n.a.      | 29.8       |
| n.a.  | n.a.      | n.a.       |
| <b>Darwin:</b>  |           |            |
| Narrows, Moulden, Gray, Lee Point-Leanyer Swamp   |           | 51.1       |
| Narrows, Moulden  | 24.1      | n.a.       |
| <b>Canberra:</b>  |           |            |
| Symonston, Oaks Estate, Charnwood, Braddon, Reid, Richardson, Belconnen Town Centre, Weston Creek-Stromlo - SSD Balance, Page, Scullin  | n.a.      | 34.0       |
| Symonston, Oaks Estate, Charnwood, Braddon Reid   | 35.8      | n.a.       |

In the non-metropolitan areas, proportions at the 10% level were much lower, other than in South Australia and Western Australia (where they were similar to those in the capital cities), and the Northern Territory (where they were higher than in Darwin) (Table 57). At the 5% level, Western Australia and the Northern Territory both had higher proportions of their population in the non-metropolitan areas than in the capital cities.

Despite the lower proportions, the selected SLAs still incorporate more than 10% of the population in the most disadvantaged CDs, other than in Queensland, where the large number of SLAs with extremely small populations influence the outcome.

**Table 57: Concentration of disadvantage in SLAs for rest of State/ Territory areas, 2006**

| SLA  | Lowest 5% | Lowest 10% |
|--|-----------|------------|
| <b>Rest of State/ Territory areas (includes other major urban centres)</b>   |           |            |
| <b>New South Wales:</b>  |           |            |
| Bourke, Brewarrina, Broken Hill, Central Darling, Clarence Valley Balance, Coonamble, Inverell - Part B, Kempsey, Kyogle, Nambucca, Richmond Valley - Casino, Walgett, Wellington  | n.a.      | 14.1       |
| Brewarrina, Central Darling, Coonamble, Kempsey, Richmond Valley - Casino, Walgett, Wellington   | 12.0      | n.a.       |
| <b>Victoria:</b>   |           |            |
| Benalla - Benalla, Central Goldfields - Maryborough, Central Goldfields Balance, Corio - Inner, East Gippsland - Orbost, Greater Bendigo - Central, Greater Bendigo - Eaglehawk, Latrobe - Moe, Latrobe - Morwell, Loddon - South, Pyrenees - North, Swan Hill - Robinvale, Yarriambiack - South | n.a.      | 35.4       |
| Central Goldfields - Maryborough, Greater Bendigo - Eaglehawk, Latrobe - Moe, Latrobe - Morwell, Loddon - South, Swan Hill - Robinvale   | 20.5      | n.a.       |
| <b>Queensland:</b>   |           |            |
| Aurukun, Badu, Boigu, Cherbourg, Dauan, Erub, Hammond, Hope Vale, Iama, Injinoo, Kowanyama, Lockhart River, Mer, Mornington, Napranum, Palm Island, Pormpuraaw, Poruma, Saibai, Ugar, Umagico, Warraber, Woorabinda, Wujal Wujal, Yarrabah, Yorke  | n.a.      | 8.8        |
| Aurukun, Boigu, Cherbourg, Dauan, Injinoo, Kowanyama, Mer, Napranum, Palm Island, Umagico, Warraber, Wujal Wujal, Yarrabah   | 11.5      | n.a.       |
| <b>South Australia:</b>  |           |            |
| Anangu Pitjantjatjara, Coober Pedy, Peterborough, Port Pirie City Districts - City, Unincorporated Riverland, Unincorporated Whyalla, Whyalla  | n.a.      | 47.7       |
| Anangu Pitjantjatjara, Peterborough, Unincorporated Riverland, Unincorporated Whyalla  | 16.0      | n.a.       |
| <b>Western Australia:</b>  |           |            |
| Cue, Derby-West Kimberley, Halls Creek, Kalgoorlie/Boulder - Part B, Laverton, Meekatharra, Menzies, Murchison, Ngaanyatjaraku, Upper Gascoyne, Wiluna, Yalgoo   | n.a.      | 26.3       |
| Derby-West Kimberley, Halls Creek, Kalgoorlie/Boulder - Part B, Menzies, Ngaanyatjaraku, Wiluna  | 60.1      | n.a.       |
| <b>Tasmania:</b>   |           |            |
| Break O'Day, George Town - Part A, Tasman, West Coast  | n.a.      | 15.4       |
| Break O'Day, George Town - Part A  | 15.4      | n.a.       |
| <b>Northern Territory:</b>   |           |            |
| Belyuen, East Arnhem - Balance, Jilkminggan, Sandover, Walangeri Ngumpinku   | n.a.      | 59.8       |
| East Arnhem - Balance, Jilkminggan, Walangeri Ngumpinku  | 65.8      | n.a.       |

## Conclusion

Given the strong spatial patterning of socioeconomic disadvantage, place-based approaches are likely to have considerable potential to help improve outcomes for people experiencing multiple and inter-related forms of disadvantage.

For detailed local area planning, where the data are available and sufficiently robust, small areas, such as suburbs, can provide specific information to inform these activities.

At times, however, an area with a larger population is needed to provide sufficient numbers of cases for the data to be a reliable indicator of health and wellbeing, or to provide a

population of sufficient size for addressing health issues and their determinants: the SLA is such an area. In addition, most health and health-related data have only been available at the SLA level.

As shown in the analysis described above, SLAs with low IRSD scores comprise a substantial proportion of the CDs with the most disadvantaged populations within a majority of the capital cities, and can be used as a reliable guide to overall disadvantage.

## Cluster analysis for Statistical Local Areas

### Introduction

A cluster analysis was undertaken at the SLA level, using indicators from Section 4, to identify areas of disadvantage across the capital cities and the other major urban centres; a separate analysis was undertaken for selected urban centres (the largest towns) across regional Australia. This approach can identify locations of concentrated and multiple disadvantages, and, in doing so, assist those involved in policy development and regional planning, and community development and service delivery activities.

### Method

The method used (Ward's method) seeks to partition a set of cases (SLAs in this instance) 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 minimised.

The results of the cluster analysis, therefore, represent indicative groupings of areas with broadly similar characteristics among the variables analysed across all of the areas under analysis (the capital cities and other major urban centres and the largest towns). In other words, they represent a set of areas with the highest levels of socioeconomic disadvantage, when analysed using the following variables:

- children in jobless families;
- people receiving an unemployment benefit long-term;
- children in low income, welfare-dependent families;
- children in families where mother has low educational attainment;
- children who are developmentally vulnerable on one or more domains under the AEDI;
- dwellings rented from the government housing authority; and

- having a profound or severe disability and being unemployed.

The variables for the Indigenous population (e.g., median age at death, women smoking during pregnancy) were excluded as they were not available at the SLA level.

Changing the variables in a cluster analysis can change the results; however, given that the variables in this analysis are broadly representative of what we want to illustrate – i.e., patterns of socioeconomic disadvantage – it is unlikely that results would vary greatly, at least in the capital cities and other urban areas, if some variables were replaced.

The analysis was not undertaken for the non-metropolitan areas as a whole, because of the non-uniform nature of the SLAs. For example, many SLAs in the Northern Territory and Queensland, which are based on Aboriginal communities, have very small populations. Their inclusion with larger SLAs across Australia distorts the analysis towards these small communities, at the expense of other (often larger) Aboriginal communities, which are not represented by discrete SLAs and comprise a small proportion of the population of a large SLA. The resources were not available in this project to undertake alternative analyses, which could give appropriate weightings to all SLAs in the non-metropolitan areas.

However, a separate analysis was undertaken for urban centres across regional Australia (outside of the capital cities and other major urban centres), with populations of 7,500 or more, which were SLAs in their own right, or where the urban centre comprised 75% or more of the population of the surrounding SLA.

The results of the analysis can be a useful tool for certain purposes, in this case in identifying the most disadvantaged locations: on other occasions, however, the individual variables on which they are based may be more relevant.

## Results

### Capital cities and other major urban centres

The analysis of SLAs in the capital cities and other major urban centres produced a four-cluster solution (Table 58). The median IRSD score (in 2006) for each cluster was used to rank the clusters: the clusters are defined as very low (with an IRSD score of 905); low (981); medium (1041) and high (1073) socioeconomic status.

The rate ratio shows the relative difference in the proportions for each variable in the very low

socioeconomic status cluster to the high socioeconomic status cluster. The differential in rates in each case is substantial, being from 2.4 times higher for the proportion of children found to be developmentally vulnerable on one or more domains under the AEDI, to 4.6 times higher for the proportion of children in jobless families and 4.9 times for dwellings being rented from the State or Territory housing authority. These wide gaps highlight the extent to which the greatest

disadvantage is concentrated in a relatively small number of areas.

However, it is also clear that there is a gradient in proportions for each variable, with the proportion in Cluster 2 higher than that in Cluster 1; that in Cluster 3 higher than that in Cluster 2; and that in Cluster 4, higher than that in Cluster 3.

**Table 58: SLAs in the capital cities in the lowest socioeconomic status cluster**

| Variable  | Socioeconomic status cluster |      |      |              | Total | Rate ratio |
|---|------------------------------|------|------|--------------|-------|------------|
|   | 1 (high)                     | 2    | 3    | 4 (very low) |       |            |
| <i>IRSD (not used in producing the clusters)</i>      | 1073                         | 1041 | 981  | 905          | 1026  | 0.8        |
| Children in jobless families                          | 6.4                          | 9.8  | 16.7 | 29.7         | 12.0  | 4.6        |
| Children in low income families                       | 9.2                          | 15.6 | 26.3 | 38.9         | 18.1  | 4.2        |
| Mothers with low educational attainment               | 9.3                          | 18.4 | 24.7 | 33.6         | 18.3  | 3.6        |
| AEDI: developmentally vulnerable, one or more domains | 13.9                         | 24.4 | 26.2 | 33.5         | 22.3  | 2.4        |
| Housing authority rented dwellings                    | 2.3                          | 2.8  | 5.7  | 11.5         | 4.0   | 4.9        |
| Long term unemployment                                | 1.5                          | 2.2  | 3.8  | 6.0          | 2.7   | 3.9        |
| Disability & unemployment                             | 0.8                          | 1.2  | 2.1  | 3.5          | 1.5   | 4.2        |
| <i>Number of areas</i>                                | 125                          | 143  | 113  | 27           | 408   | ..         |

The results of the cluster analysis are mapped in Map 55; the SLAs which formed the lowest socioeconomic status cluster are listed in Table 59.

The map of the clusters presents a striking pattern for most of the capital cities, summarising what is shown, in Section 4, for many of the individual indicators. It also shows the relative status of SLAs across all of these capital cities, with none of the SLAs in Perth, or SLA groups in Darwin or Canberra, and only one SLA in Melbourne, allocated to the lowest socioeconomic status cluster.

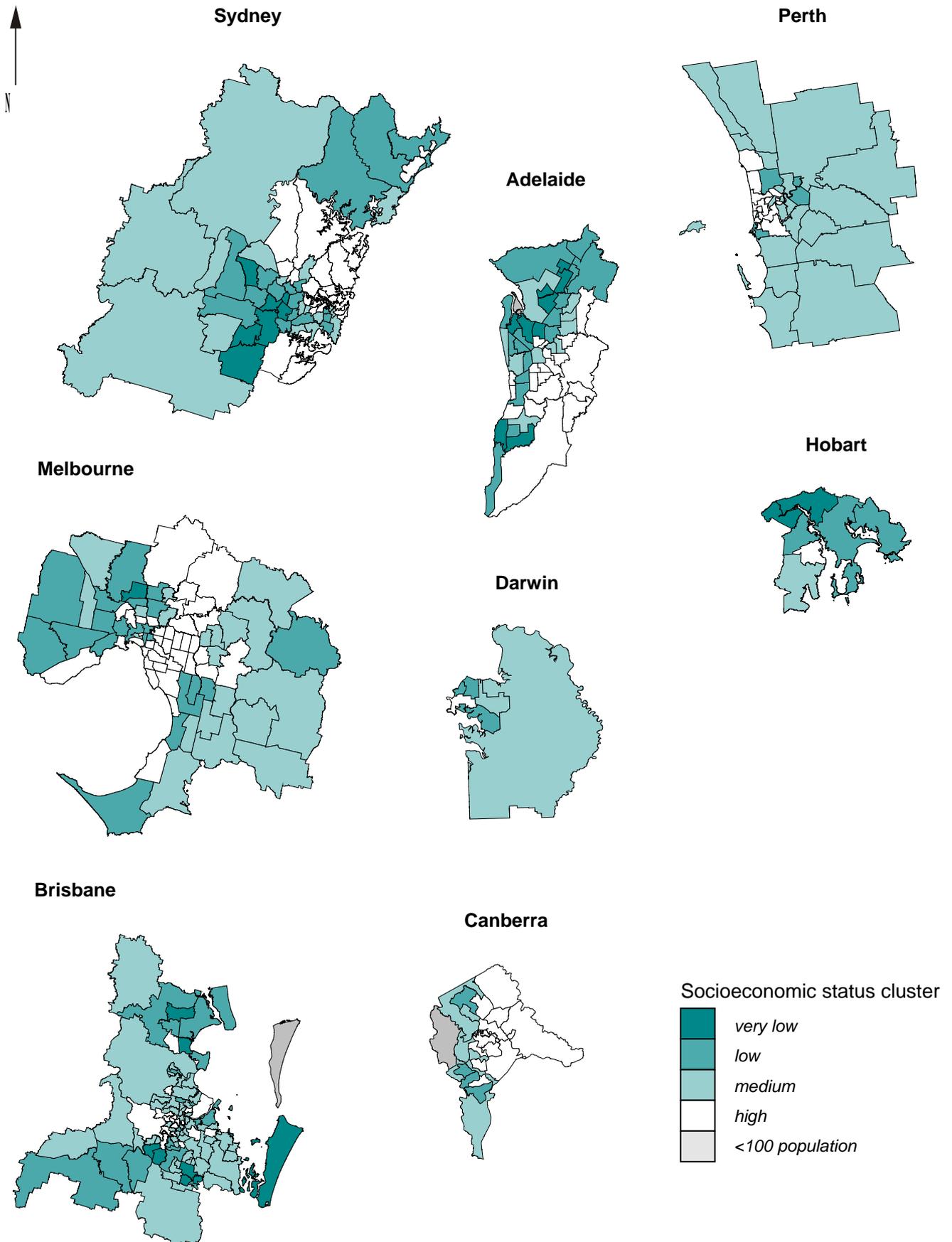
For example, the lowest socioeconomic status cluster in:

- Sydney includes the western SLA of Blacktown - South-West as well as SLAs covering a contiguous area from Parramatta - South, through Fairfield - East, Bankstown - North-West and Liverpool - East to Campbelltown - North and - South;
- Melbourne includes only Hume - Broadmeadows, although several SLAs in the northern, western and south-eastern part of the city fall in the second lowest cluster;

- Brisbane includes areas that are those often described in the maps in Section 4, in the outer south (Stretton-Karawatha/Kingston, Marsden and Loganlea), south-west (Inala/Richlands and Darra-Sumner/Wacol) and south-east (Redland Balance) and outer north (in Deception Bay and Caboolture - Central);
- Adelaide also reflects a well-known pattern of socioeconomic disadvantage, covering parts of Playford and Salisbury in the outer north, much of the Port Adelaide Enfield Council to the north and north-west of the city, and parts of the Onkaparinga Council in the outer south;
- Hobart includes Brighton and Derwent Valley - Part A, the SLAs with the lowest IRSD scores in the city.

None of the SLAs or SLA groups in the other major urban centres was allocated to the lowest socioeconomic status cluster.

Map 55: Socioeconomic status cluster analysis, capital cities  
 cluster by Statistical Local Area/ Statistical Local Area group



Source: Compiled in PHIDU using data supplied by ABS

**Table 59: SLAs in the capital cities which formed the lowest socioeconomic status cluster**

|   |   |
|---|---|
| <p><b>Sydney</b><br/> Bankstown (C) - North-West<br/> Blacktown (C) - South-West<br/> Campbelltown (C) - North<br/> Campbelltown (C) - South<br/> Fairfield (C) - East<br/> Liverpool (C) - East<br/> Parramatta (C) - South</p> <p><b>Melbourne</b><br/> Hume (C) - Broadmeadows</p> <p><b>Brisbane</b><br/> Caboolture - Central<br/> Darra-Sumner/Wacol<br/> Deception Bay<br/> Inala/Richlands<br/> Loganlea<br/> Marsden</p> | <p><b>Brisbane ...cont.</b><br/> Redland Balance<br/> Stretton-Karawatha/Kingston</p> <p><b>Adelaide</b><br/> Onkaparinga (C) - Hackham<br/> Onkaparinga (C) - North Coast<br/> Playford (C) - Elizabeth<br/> Playford (C) - West Central<br/> Port Adel. Enfield (C) - Inner<br/> Port Adel. Enfield (C) - Park<br/> Port Adel. Enfield (C) - Port<br/> Salisbury (C) - Central<br/> Salisbury (C) - Inner North</p> <p><b>Hobart</b><br/> Brighton (M)<br/> Derwent Valley (M) - Part A</p> |
|---|---|

### Urban centres in regional Australia

Table 60 lists the urban centres in regional Australia in the analysis, which formed the cluster with the lowest socioeconomic status.

Neither of the urban centres in the Northern Territory, which met the conditions for inclusion in the analysis (Alice Springs and Katherine), was allocated to this cluster.

**Table 60: Urban centres allocated to the lowest socioeconomic status cluster**

|  |  |  |
|--|--|--|
| <p><b>New South Wales</b><br/> Shoalhaven (C) - Part A<br/> Lismore (C) - Part A<br/> Richmond Valley (A) - Casino<br/> Clarence Valley (A) - Grafton<br/> Tamworth Regional (A) - Part A<br/> Inverell (A) - Part B<br/> Broken Hill (C)</p> <p><b>Victoria</b><br/> C. Goldfields (S) - Maryborough<br/> Gr. Shepparton (C) - Part A<br/> Benalla (RC) - Benalla</p> | <p><b>Victoria...cont.</b><br/> Latrobe (C) - Moe</p> <p><b>Queensland</b><br/> Maroochy (S) - Nambour<br/> Bundaberg (C)<br/> Hervey Bay (C) - Part A<br/> Maryborough (C)<br/> Warwick (S) - Central<br/> Charters Towers (C)</p> <p><b>South Australia</b><br/> Murray Bridge (RC)<br/> Port Pirie C Districts (M) - City</p> | <p><b>Western Australia</b><br/> Geraldton (C)</p> <p><b>Tasmania</b><br/> Launceston (C) - Part B<br/> Burnie (C) - Part A<br/> Devonport (C)</p> |
|--|--|--|

The Local Government Areas (LGAs) of Ballarat, Greater Bendigo, Toowoomba, Cairns and Alice Springs are each comprised of more than one SLA – three in Ballarat, five in Bendigo, Toowoomba and Alice Springs, and seven in Cairns. In the cluster analysis, these urban centres were each treated as one unit (the LGA).

The analysis was also undertaken with these urban centres represented by their individual SLAs (replacing the single LGA values), as this shows the extent of variation between the SLAs within the urban centres: the clusters to which the SLAs were allocated are shown in Table 61.

**Table 61: SLAs in selected urban centres, by socioeconomic status cluster**

| <b>Urban Centre and SLA</b>   | <b>Cluster</b> | <b>Urban Centre and SLA</b>      | <b>Cluster</b> |
|-------------------------------|----------------|----------------------------------|----------------|
| <b>Ballarat</b>               | <b>2</b>       | <b>Cairns</b>                    | <b>2</b>       |
| Ballarat (C) - Central        | 2              | Cairns (C) - Barron              | 1              |
| Ballarat (C) - Inner North    | 2              | 62:Cairns (C) - Central Suburbs  | 3              |
| Ballarat (C) - South          | 2              | 63:Cairns (C) - City             | 2              |
| <b>Bendigo</b>                | <b>2</b>       | 64:Cairns (C) - Mt Whitfield     | 2              |
| Gr. Bendigo (C) - Central     | 2              | 65:Cairns (C) - Northern Suburbs | 1              |
| Bendigo (C) - Eaglehawk       | 3              | 66:Cairns (C) - Trinity          | 2              |
| Gr. Bendigo (C) - Inner East  | 2              | Cairns (C) - Barron              | 2              |
| Gr. Bendigo (C) - Inner North | 1              | <b>Alice Springs</b>             | <b>2</b>       |
| Gr. Bendigo (C) - Inner West  | 1              | Alice Springs (T) - Charles      | 1              |
| <b>Toowoomba</b>              | <b>2</b>       | Alice Springs (T) - Heavitree    | 1              |
| Toowoomba (C) - Central       | 2              | Alice Springs (T) - Larapinta    | 1              |
| Toowoomba (C) - North-East    | 1              | Alice Springs (T) - Ross         | 1              |
| Toowoomba (C) - North-West    | 2              | Alice Springs (T) - Stuart       | 1              |
| Toowoomba (C) - South-East    | 1              |                                  |                |
| Toowoomba (C) - West          | 2              |                                  |                |

## Section 7

### Correlation analysis for Priority Area indicators

**In this section ...**

Introduction

Results

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## Introduction

A correlation analysis has been undertaken to illustrate the extent of association at the SLA level between the indicators in this atlas for which data were available by Statistical Local Area. Separate analyses were undertaken for the capital cities and non-metropolitan areas.

The results of the correlation analysis are shown in the following tables. As a general rule, correlation coefficients of plus or minus 0.71 or above are of substantial statistical significance, because this higher value represents at least fifty per cent shared variation ( $r^2$  greater than or equal to 0.5): these are referred to as being 'very strong' correlations, while those of 0.50 to 0.70 are of meaningful statistical significance, and are referred to as being 'strong' correlations. Correlations from plus or minus 0.30 to less than 0.50 are referred to in the text as being 'moderate'; and those just below plus or minus 0.30 are referred to as 'weak'. See Appendix A for further details.

Readers should note that correlations between socioeconomic disadvantage (as measured by the IRSD) and poor health outcomes (e.g., high rates of premature death) appear in the matrix as negative numbers. This occurs because low numbers (under 1000) indicate high levels of relative socioeconomic disadvantage under the IRSD and high numbers (above 1000) indicate low levels of relative socioeconomic disadvantage.

## Results

### Capital cities

There is a very strong association at the SLA/SLA group level across all capital cities between socioeconomic disadvantage (as measured by the IRSD) and high proportions/ prevalence for the following population groups:

- children living in jobless families;
- those who have been unemployed long-term;
- children in welfare-dependent, low income families;
- people with a profound or severe disability and not employed (people living in the community, excluding those in non-private dwellings);
- estimated prevalence of high/ very high psychological distress;
- estimated prevalence of diabetes type 2;
- estimated prevalence of male smokers;
- estimated prevalence of female smokers;
- estimated prevalence of female obesity; and
- premature mortality from all causes.

Strong associations are evident with:

- children in families where the mother has low educational attainment;
- AEDI – children developmentally vulnerable on one or more domains;
- women smoking during pregnancy;
- dwellings rented from government authorities;
- estimated number of people with long-term mental health problems who are unemployed;
- estimated prevalence of circulatory system diseases; and
- estimated prevalence of male obesity.

While acknowledging that some people will have been counted in more than one of these indicators, it is clear from the above results that the population groups described live in areas of relatively high socioeconomic disadvantage. Some of the indicators point to long-term effects (children in families where the mother has low educational attainment, together with the results of the AEDI, which show there are high proportions of children who are assessed as being developmentally vulnerable on one or more domains; people with mental health problems, or profound or severe disabilities; high rates of long-term unemployment); and others highlight the extent to which disadvantaged communities are concentrated in areas with relatively poor resources (areas with high proportions of dwellings rented from government authorities). Further, the very strong association with premature mortality is a clear indication of the profound impact of such disadvantage.

### Non-metropolitan areas

Typically, there are fewer very strong or strong correlations in non-metropolitan areas, in part due to the many SLAs with relatively small populations. Note that for this analysis, the five major urban centres of Newcastle, Wollongong, Geelong, Gold Coast and Townsville-Thuringowa have been included as non-metropolitan.

However, there are very strong associations at the SLA/SLA group level across all non-metropolitan areas between socioeconomic disadvantage (as measured by the IRSD) and high proportions/ prevalence for the following population groups:

- those who have been unemployed long-term;
- AEDI – children developmentally vulnerable on one or more domains;
- the Indigenous population;
- estimated prevalence of male smokers; and
- premature mortality from all causes.

In the non-metropolitan areas, strong associations are evident at the SLA level with:

- children in families where the mother has low educational attainment;
- women smoking during pregnancy;
- estimated prevalence of high/ very high psychological distress;
- estimated prevalence of diabetes type 2;
- estimated prevalence of female smokers;
- estimated prevalence of male obesity; and
- estimated prevalence of female obesity.

**Table 62: Correlations matrix of the indicator data at the Statistical Local Area level in the capital cities, Australia**

| Indicators   | Estimated prevalence |                                     |                        |  |   |   |                                |              |  |  |  |  |  |   |                             |                 |              |                |                | Breast screening |               | Premature mortality           |            |                                   |
|--|----------------------|-------------------------------------|------------------------|--|---|---|--------------------------------|--------------|--|--|--|--|--|---|-----------------------------|-----------------|--------------|----------------|----------------|------------------|---------------|-------------------------------|------------|-----------------------------------|
|  | IRSD                 | Children living in jobless families | Long-term unemployment | Children in low income, welfare-dependent families | Children in families where mother has low educational achievement | AEDI - children developmentally vulnerable on one or more domains | Women smoking during pregnancy | Homelessness | Dwellings rented from government housing authorities | People with a profound or severe disability and not employed | Estimated number of people with long-term mental health problems, & unemployed | Estimated prevalence of high/ very high psychological distress | Aboriginal and Torres Strait Islander population | Indigenous participation in full-time secondary education at age 16 | circulatory system diseases | diabetes type 2 | male smokers | female smokers | obesity: males | obesity: females | participation | screen-detected breast cancer | all causes | suicide and self-inflicted injury |
| IRSD   | 1.00                 | -0.91**                             | -0.87**                | -0.90**  | -0.64**   | -0.65**   | -0.68**                        | -0.05        | -0.65**  | -0.84**  | -0.57**  | -0.88**  | -0.45**  | -0.26*  | -0.55**                     | -0.82**         | -0.84**      | -0.71**        | -0.59**        | -0.83**          | -0.03         | 0.06                          | -0.71**    | -0.42**                           |
| Children living in jobless families  | -0.91**              | 1.00                                | 0.86**                 | 0.91**   | 0.55**  | 0.64**  | 0.66**                         | -0.02        | 0.64**   | 0.81**   | 0.53**   | 0.85**   | 0.39**   | 0.20  | 0.47**                      | 0.74**          | 0.76**       | 0.64**         | 0.56**         | 0.73**           | -0.07         | -0.04                         | 0.63**     | 0.42**                            |
| Long-term unemployment   | -0.87**              | 0.86**                              | 1.00                   | 0.91**   | 0.56**  | 0.51**  | 0.65**                         | 0.09         | 0.58**   | 0.81**   | 0.62**   | 0.82**   | 0.36**   | 0.35**  | 0.58**                      | 0.73**          | 0.74**       | 0.64**         | 0.48**         | 0.74**           | 0.03          | -0.06                         | 0.69**     | 0.47**                            |
| Children in low income, welfare-dependent families                             | -0.90**              | 0.91**                              | 0.91**                 | 1.00   | 0.70**  | 0.63**  | 0.68**                         | 0.06         | 0.55**   | 0.83**   | 0.56**   | 0.83**   | 0.40**   | 0.26*   | 0.51**                      | 0.78**          | 0.81**       | 0.69**         | 0.58**         | 0.79**           | 0.02          | -0.12                         | 0.63**     | 0.38**                            |
| Children in families where mother has low educational achievement              | -0.64**              | 0.55**                              | 0.56**                 | 0.70**   | 1.00  | 0.59**  | 0.73**                         | -0.11*       | 0.24**   | 0.64**   | 0.19**   | 0.49**   | 0.43**   | 0.46**  | 0.25**                      | 0.45**          | 0.78**       | 0.78**         | 0.66**         | 0.73**           | -0.01         | -0.21**                       | 0.48**     | 0.14*                             |
| AEDI - children developmentally vulnerable on one or more domains              | -0.65**              | 0.64**                              | 0.51**                 | 0.63**   | 0.59**  | 1.00  | 0.62**                         | 0.13*        | 0.37**   | 0.56**   | 0.22**   | 0.60**   | 0.42**   | 0.08  | 0.23**                      | 0.57**          | 0.65**       | 0.62**         | 0.53**         | 0.59**           | -0.11         | -0.23**                       | 0.49**     | 0.29**                            |
| Women smoking during pregnancy   | -0.68**              | 0.66**                              | 0.65**                 | 0.68**   | 0.73**  | 0.62**  | 1.00                           | -0.14        | 0.55**   | 0.82**   | 0.30**   | 0.42**   | 0.54**   | 0.48**  | 0.52**                      | 0.37**          | 0.71**       | 0.82**         | 0.38**         | 0.67**           | -0.21*        | 0.00                          | 0.62**     | 0.57**                            |
| Homelessness   | -0.05                | -0.02                               | 0.09                   | 0.06   | -0.11*  | 0.13*   | -0.14                          | 1.00         | 0.11*  | -0.11*   | 0.22**   | 0.09   | 0.28**   | 0.08  | -0.12*                      | 0.21**          | 0.11*        | 0.06           | 0.04           | 0.08             | 0.78**        | 0.19**                        | 0.16**     | 0.08                              |
| Dwellings rented from government housing authorities                           | -0.65**              | 0.64**                              | 0.58**                 | 0.55**   | 0.24**  | 0.37**  | 0.55**                         | 0.11*        | 1.00   | 0.51**   | 0.33**   | 0.54**   | 0.42**   | 0.25*   | 0.33**                      | 0.54**          | 0.39**       | 0.34**         | 0.30**         | 0.45**           | 0.03          | 0.07                          | 0.58**     | 0.44**                            |
| People with a profound or severe disability and not employed                   | -0.84**              | 0.81**                              | 0.81**                 | 0.83**   | 0.64**  | 0.56**  | 0.82**                         | -0.11*       | 0.51**   | 1.00   | 0.52**   | 0.70**   | 0.40**   | 0.38**  | 0.61**                      | 0.67**          | 0.73**       | 0.70**         | 0.57**         | 0.77**           | 0.10          | -0.05                         | 0.56**     | 0.47**                            |
| Estimated number of people with long-term mental health problems, & unemployed | -0.57**              | 0.53**                              | 0.62**                 | 0.56**   | 0.19**  | 0.22**  | 0.30**                         | 0.22**       | 0.33**   | 0.52**   | 1.00   | 0.60**   | 0.19**   | 0.06  | 0.40**                      | 0.59**          | 0.60**       | 0.40**         | 0.22**         | 0.48**           | 0.09          | 0.04                          | 0.46**     | 0.48**                            |
| Estimated prevalence of high/ very high psychological distress                 | -0.88**              | 0.85**                              | 0.82**                 | 0.83**   | 0.49**  | 0.60**  | 0.42**                         | 0.09         | 0.54**   | 0.70**   | 0.60**   | 1.00   | 0.26**   | 0.08  | 0.44**                      | 0.87**          | 0.79**       | 0.66**         | 0.59**         | 0.75**           | -0.02         | -0.13                         | 0.63**     | 0.32**                            |
| Aboriginal and Torres Strait Islander population                               | -0.45**              | 0.39**                              | 0.36**                 | 0.40**   | 0.43**  | 0.42**  | 0.54**                         | 0.28**       | 0.42**   | 0.40**   | 0.19**   | 0.26**   | 1.00   | 0.41**  | 0.01                        | 0.38**          | 0.50**       | 0.62**         | 0.52**         | 0.47**           | 0.19**        | 0.02                          | 0.58**     | 0.41**                            |
| Indigenous participation in full-time secondary education at age 16            | -0.26*               | 0.20                                | 0.35**                 | 0.26*  | 0.46**  | 0.08  | 0.48**                         | 0.08         | 0.25*  | 0.38**   | 0.06   | 0.08   | 0.41**   | 1.00  | 0.02                        | 0.17            | 0.36**       | 0.46**         | 0.34**         | 0.32**           | 0.22          | 0.28                          | 0.35**     | 0.25*                             |
| Estimated prevalence of circulatory system diseases                            | -0.55**              | 0.47**                              | 0.58**                 | 0.51**   | 0.25**  | 0.23**  | 0.52**                         | -0.12*       | 0.33**   | 0.61**   | 0.40**   | 0.44**   | 0.01   | 0.02  | 1.00                        | 0.41**          | 0.38**       | 0.33**         | 0.05           | 0.54**           | 0.05          | -0.05                         | 0.35**     | 0.34**                            |
| Estimated prevalence of diabetes type 2  | -0.82**              | 0.74**                              | 0.73**                 | 0.78**   | 0.45**  | 0.57**  | 0.37**                         | 0.21**       | 0.54**   | 0.67**   | 0.59**   | 0.87**   | 0.38**   | 0.17  | 0.41**                      | 1.00            | 0.74**       | 0.61**         | 0.54**         | 0.76**           | 0.17**        | -0.06                         | 0.67**     | 0.35**                            |
| Estimated prevalence of male smokers   | -0.84**              | 0.76**                              | 0.74**                 | 0.81**   | 0.78**  | 0.65**  | 0.71**                         | 0.11*        | 0.39**   | 0.73**   | 0.60**   | 0.79**   | 0.50**   | 0.36**  | 0.38**                      | 0.74**          | 1.00         | 0.90**         | 0.63**         | 0.83**           | 0.03          | -0.09                         | 0.68**     | 0.41**                            |
| Estimated prevalence of female smokers   | -0.71**              | 0.64**                              | 0.64**                 | 0.69**   | 0.78**  | 0.62**  | 0.82**                         | 0.06         | 0.34**   | 0.70**   | 0.40**   | 0.66**   | 0.62**   | 0.46**  | 0.33**                      | 0.61**          | 0.90**       | 1.00           | 0.70**         | 0.78**           | 0.00          | -0.15*                        | 0.67**     | 0.44**                            |
| Estimated prevalence of obesity: males   | -0.59**              | 0.56**                              | 0.48**                 | 0.58**   | 0.66**  | 0.53**  | 0.38**                         | 0.04         | 0.30**   | 0.57**   | 0.22**   | 0.59**   | 0.52**   | 0.34**  | 0.05                        | 0.54**          | 0.63**       | 0.70**         | 1.00           | 0.64**           | 0.00          | -0.15*                        | 0.48**     | 0.17**                            |
| Estimated prevalence of obesity: females                                       | -0.83**              | 0.73**                              | 0.74**                 | 0.79**   | 0.73**  | 0.59**  | 0.67**                         | 0.08         | 0.45**   | 0.77**   | 0.48**   | 0.75**   | 0.47**   | 0.32**  | 0.54**                      | 0.76**          | 0.83**       | 0.78**         | 0.64**         | 1.00             | 0.12*         | -0.09                         | 0.66**     | 0.35**                            |
| Breast screening participation   | -0.03                | -0.07                               | 0.03                   | 0.02   | -0.01   | -0.11   | -0.21*                         | 0.78**       | 0.03   | 0.10   | 0.09   | -0.02  | 0.19**   | 0.22  | 0.05                        | 0.17**          | 0.03         | 0.00           | 0.00           | 0.12*            | 1.00          | 0.13                          | 0.01       | -0.16*                            |
| Screen-detected breast cancer  | 0.06                 | -0.04                               | -0.06                  | -0.12  | -0.21**   | -0.23**   | 0.00                           | 0.19**       | 0.07   | -0.05  | 0.04   | -0.13  | 0.02   | 0.28  | -0.05                       | -0.06           | -0.09        | -0.15*         | -0.15*         | -0.09            | 0.13          | 1.00                          | 0.06       | 0.26**                            |
| Premature mortality, all causes  | -0.71**              | 0.63**                              | 0.69**                 | 0.63**   | 0.48**  | 0.49**  | 0.62**                         | 0.16**       | 0.58**   | 0.56**   | 0.46**   | 0.63**   | 0.58**   | 0.35**  | 0.35**                      | 0.67**          | 0.68**       | 0.67**         | 0.48**         | 0.66**           | 0.01          | 0.06                          | 1.00       | 0.56**                            |
| Premature mortality from suicide and self-inflicted injury                     | -0.42**              | 0.42**                              | 0.47**                 | 0.38**   | 0.14*   | 0.29**  | 0.57**                         | 0.08         | 0.44**   | 0.47**   | 0.48**   | 0.32**   | 0.41**   | 0.25*   | 0.34**                      | 0.35**          | 0.41**       | 0.44**         | 0.17**         | 0.35**           | -0.16*        | 0.26**                        | 0.56**     | 1.00                              |

**Legend**

- No, or weak, correlation: <math>\pm 0.30</math>
- Moderate: <math>\pm 0.30</math> to <math>\pm 0.49</math>
- Strong: <math>\pm 0.50</math> to <math>\pm 0.70</math>
- Very strong: <math>\geq \pm 0.71</math>
- Not applicable: 1.00

**Notes:**  
 Inverse correlations shown as negative (-)  
 \* Correlation is significant at the 0.05 level (2-tailed)  
 \*\* Correlation is significant at the 0.01 level (2-tailed)

Table 63: Correlations matrix of the indicator data at the Statistical Local Area level in the non-metropolitan areas, Australia

| Indicators   | Estimated prevalence |                                     |                        |  |   |   |                                |              |  |  |  |  |  |   |                             |                 |              |                |                | Breast screening |               | Premature mortality           |            |                                   |
|--|----------------------|-------------------------------------|------------------------|--|---|---|--------------------------------|--------------|--|--|--|--|--|---|-----------------------------|-----------------|--------------|----------------|----------------|------------------|---------------|-------------------------------|------------|-----------------------------------|
|  | IRSD                 | Children living in jobless families | Long-term unemployment | Children in low income, welfare-dependent families | Children in families where mother has low educational achievement | AEDI - children developmentally vulnerable on one or more domains | Women smoking during pregnancy | Homelessness | Dwellings rented from government housing authorities | People with a profound or severe disability and not employed | Estimated number of people with long-term mental health problems, & unemployed | Estimated prevalence of high/ very high psychological distress | Aboriginal and Torres Strait Islander population | Indigenous participation in full-time secondary education at age 16 | circulatory system diseases | diabetes type 2 | male smokers | female smokers | obesity: males | obesity: females | participation | screen-detected breast cancer | all causes | suicide and self-inflicted injury |
| IRSD   | 1.00                 | -0.61**                             | -0.75**                | -0.41**  | -0.64**   | -0.71**   | -0.50**                        | -0.27**      | -0.35**  | -0.02  | -0.36**  | -0.61**  | -0.94**  | 0.11  | -0.31**                     | -0.64**         | -0.74**      | -0.68**        | -0.62**        | -0.64**          | -0.04         | 0.28**                        | -0.81**    | -0.07                             |
| Children living in jobless families  | -0.61**              | 1.00                                | 0.69**                 | 0.36**   | 0.65**  | 0.53**  | 0.36**                         | 0.30**       | 0.09*  | 0.33**   | 0.30**   | 0.74**   | 0.51**   | 0.17*   | 0.23**                      | 0.55**          | 0.61**       | 0.48**         | 0.55**         | 0.49**           | 0.00          | 0.09                          | 0.55**     | 0.19**                            |
| Long-term unemployment   | -0.75**              | 0.69**                              | 1.00                   | 0.68**   | 0.60**  | 0.53**  | 0.43**                         | 0.38**       | 0.27**   | 0.17**   | 0.34**   | 0.69**   | 0.72**   | -0.03   | 0.20**                      | 0.55**          | 0.60**       | 0.56**         | 0.44**         | 0.38**           | -0.16**       | -0.25**                       | 0.64**     | 0.04                              |
| Children in low income, welfare-dependent families                             | -0.41**              | 0.36**                              | 0.68**                 | 1.00   | 0.32**  | 0.49**  | 0.32**                         | 0.30**       | 0.15**   | 0.04   | 0.30**   | 0.64**   | 0.38**   | 0.02  | 0.10*                       | 0.59**          | 0.55**       | 0.52**         | 0.5**          | 0.40**           | -0.21**       | -0.17**                       | 0.43**     | -0.03                             |
| Children in families where mother has low educational achievement              | -0.64**              | 0.65**                              | 0.6**                  | 0.32**   | 1.00  | 0.50**  | 0.39**                         | 0.25**       | 0.04   | 0.15**   | -0.21**  | 0.28**   | 0.59**   | 0.17*   | -0.08                       | 0.21**          | 0.44**       | 0.34**         | 0.45**         | 0.30**           | -0.08         | -0.11                         | 0.58**     | 0.15**                            |
| AEDI - children developmentally vulnerable on one or more domains              | -0.71**              | 0.53**                              | 0.53**                 | 0.49**   | 0.50**  | 1.00  | 0.42**                         | 0.39**       | 0.40**   | 0.00   | 0.07   | 0.24**   | 0.73**   | 0.01  | -0.11*                      | 0.41**          | 0.38**       | 0.41**         | 0.32**         | 0.25**           | 0.15**        | -0.16*                        | 0.61**     | 0.29**                            |
| Women smoking during pregnancy   | -0.50**              | 0.36**                              | 0.43**                 | 0.32**   | 0.39**  | 0.42**  | 1.00                           | 0.29**       | 0.21**   | 0.20**   | 0.05   | 0.37**   | 0.44**   | -0.04   | 0.17**                      | 0.30**          | 0.58**       | 0.53**         | 0.33**         | 0.35**           | -0.28**       | -0.05                         | 0.44**     | 0.08                              |
| Homelessness   | -0.27**              | 0.30**                              | 0.38**                 | 0.30**   | 0.25**  | 0.39**  | 0.29**                         | 1.00         | 0.03   | -0.09*   | 0.21**   | 0.20**   | 0.28**   | -0.16*  | -0.27**                     | 0.42**          | 0.41**       | 0.42**         | 0.16**         | 0.15**           | -0.18**       | -0.10                         | 0.19**     | 0.02                              |
| Dwellings rented from government housing authorities                           | -0.35**              | 0.09*                               | 0.27**                 | 0.15**   | 0.04  | 0.4**   | 0.21**                         | 0.03         | 1.00   | -0.20**  | 0.04   | 0.17**   | 0.39**   | 0.04  | -0.02                       | 0.38**          | 0.26**       | 0.39**         | 0.22**         | 0.25**           | 0.12**        | -0.16**                       | 0.24**     | -0.06                             |
| People with a profound or severe disability and not employed                   | -0.02                | 0.33**                              | 0.17**                 | 0.04   | 0.15**  | 0.00  | 0.20**                         | -0.09*       | -0.20**  | 1.00   | 0.36**   | 0.59**   | -0.25**  | 0.09  | 0.42**                      | 0.23**          | 0.45**       | 0.24**         | 0.36**         | 0.46**           | 0.01          | 0.20**                        | -0.07      | 0.11*                             |
| Estimated number of people with long-term mental health problems, & unemployed | -0.36**              | 0.30**                              | 0.34**                 | 0.30**   | -0.21**   | 0.07  | 0.05                           | 0.21**       | 0.04   | 0.36**   | 1.00   | 0.36**   | 0.05   | -0.05   | 0.24**                      | 0.30**          | 0.48**       | 0.21**         | 0.06           | 0.29**           | 0.02          | 0.10                          | 0.08       | 0.16**                            |
| Estimated prevalence of high/ very high psychological distress                 | -0.61**              | 0.74**                              | 0.69**                 | 0.64**   | 0.28**  | 0.24**  | 0.37**                         | 0.20**       | 0.17**   | 0.59**   | 0.36**   | 1.00   | 0.19**   | 0.38**  | 0.26**                      | 0.61**          | 0.61**       | 0.38**         | 0.52**         | 0.45**           | 0.09          | 0.28**                        | 0.31**     | 0.25**                            |
| Aboriginal and Torres Strait Islander population                               | -0.94**              | 0.51**                              | 0.72**                 | 0.38**   | 0.59**  | 0.73**  | 0.44**                         | 0.28**       | 0.39**   | -0.25**  | 0.05   | 0.19**   | 1.00   | -0.13   | -0.31**                     | 0.70**          | 0.48**       | 0.65**         | 0.35**         | 0.17**           | 0.02          | -0.33**                       | 0.84**     | 0.05                              |
| Indigenous participation in full-time secondary education at age 16            | 0.11                 | 0.17*                               | -0.03                  | 0.02   | 0.17*   | 0.01  | -0.04                          | -0.16*       | 0.04   | 0.09   | -0.05  | 0.38**   | -0.13  | 1.00  | -0.14                       | 0.31**          | 0.18*        | 0.24**         | 0.3**          | 0.08             | -0.06         | 0.45**                        | -0.14      | 0.05                              |
| Estimated prevalence of circulatory system diseases                            | -0.31**              | 0.23**                              | 0.20**                 | 0.10*  | -0.08   | -0.11*  | 0.17**                         | -0.27**      | -0.02  | 0.42**   | 0.24**   | 0.26**   | -0.31**  | -0.14   | 1.00                        | -0.14**         | 0.21**       | 0.00           | -0.07          | 0.35**           | 0.12*         | 0.15*                         | -0.05      | 0.24**                            |
| Estimated prevalence of diabetes type 2  | -0.64**              | 0.55**                              | 0.55**                 | 0.59**   | 0.21**  | 0.41**  | 0.30**                         | 0.42**       | 0.38**   | 0.23**   | 0.30**   | 0.61**   | 0.70**   | 0.31**  | -0.14**                     | 1.00            | 0.51**       | 0.55**         | 0.56**         | 0.36**           | 0.11*         | 0.21**                        | 0.57**     | 0.10                              |
| Estimated prevalence of male smokers   | -0.74**              | 0.61**                              | 0.60**                 | 0.55**   | 0.44**  | 0.38**  | 0.58**                         | 0.41**       | 0.26**   | 0.45**   | 0.48**   | 0.61**   | 0.48**   | 0.18*   | 0.21**                      | 0.51**          | 1.00         | 0.63**         | 0.41**         | 0.50**           | -0.04         | 0.20**                        | 0.44**     | 0.28**                            |
| Estimated prevalence of female smokers   | -0.68**              | 0.48**                              | 0.56**                 | 0.52**   | 0.34**  | 0.41**  | 0.53**                         | 0.42**       | 0.39**   | 0.24**   | 0.21**   | 0.38**   | 0.65**   | 0.24**  | 0.00                        | 0.55**          | 0.63**       | 1.00           | 0.51**         | 0.44**           | 0.06          | -0.09                         | 0.58**     | 0.14**                            |
| Estimated prevalence of obesity: males   | -0.62**              | 0.55**                              | 0.44**                 | 0.50**   | 0.45**  | 0.32**  | 0.33**                         | 0.16**       | 0.22**   | 0.36**   | 0.06   | 0.52**   | 0.35**   | 0.30**  | -0.07                       | 0.56**          | 0.41**       | 0.51**         | 1.00           | 0.39**           | 0.09          | -0.04                         | 0.44**     | 0.04                              |
| Estimated prevalence of obesity: females                                       | -0.64**              | 0.49**                              | 0.38**                 | 0.40**   | 0.30**  | 0.25**  | 0.35**                         | 0.15**       | 0.25**   | 0.46**   | 0.29**   | 0.45**   | 0.17**   | 0.08  | 0.35**                      | 0.36**          | 0.50**       | 0.44**         | 0.39**         | 1.00             | 0.14**        | 0.06                          | 0.35**     | 0.12*                             |
| Breast screening participation   | -0.04                | 0.00                                | -0.16**                | -0.21**  | -0.08   | 0.15**  | -0.28**                        | -0.18**      | 0.12**   | 0.01   | 0.02   | 0.09   | 0.02   | -0.06   | 0.12*                       | 0.11*           | -0.04        | 0.06           | 0.09           | 0.14**           | 1.00          | 0.12*                         | 0.01       | 0.00                              |
| Screen-detected breast cancer  | 0.28**               | 0.09                                | -0.25**                | -0.17**  | -0.11   | -0.16*  | -0.05                          | -0.10        | -0.16**  | 0.20**   | 0.10   | 0.28**   | -0.33**  | 0.45**  | 0.15*                       | 0.21**          | 0.20**       | -0.09          | -0.04          | 0.06             | 0.12*         | 1.00                          | -0.26**    | 0.20**                            |
| Premature mortality, all causes  | -0.81**              | 0.55**                              | 0.64**                 | 0.43**   | 0.58**  | 0.61**  | 0.44**                         | 0.19**       | 0.24**   | -0.07  | 0.08   | 0.31**   | 0.84**   | -0.14   | -0.05                       | 0.57**          | 0.44**       | 0.58**         | 0.44**         | 0.35**           | 0.01          | -0.26**                       | 1.00       | 0.34**                            |
| Premature mortality from suicide and self-inflicted injury                     | -0.07                | 0.19**                              | 0.04                   | -0.03  | 0.15**  | 0.29**  | 0.08                           | 0.02         | -0.06  | 0.11*  | 0.16**   | 0.25**   | 0.05   | 0.05  | 0.24**                      | 0.10            | 0.28**       | 0.14**         | 0.04           | 0.12*            | 0.00          | 0.20**                        | 0.34**     | 1.00                              |

**Legend**

- No, or weak, correlation: <math>\pm 0.30</math>
- Moderate: <math>\pm 0.30</math> to <math>\pm 0.49</math>
- Strong: <math>\pm 0.50</math> to <math>\pm 0.70</math>
- Very strong: <math>\geq \pm 0.71</math>
- Not applicable: 1.00

**Notes:**  
 Inverse correlations shown as negative (-)  
 \* Correlation is significant at the 0.05 level (2-tailed)  
 \*\* Correlation is significant at the 0.01 level (2-tailed)

## Section 8

### Summary

#### **In this section ...**

Introduction

Discussion

Conclusion

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## Introduction

The early sections in the atlas provide information to assist the health sector in addressing social exclusion through an understanding of the relationships between health and wellbeing, poverty and social exclusion, across the life course. In addition, the particular population groups who are significantly disadvantaged and at risk of social exclusion, are reflected in the indicators described in the later sections.

## Discussion

The extent of variation across Australia in health and wellbeing is shown in the maps in Section 4; and the graphs in Section 5 highlight both the variation across the population, from the least disadvantaged (through the intermediate groups) to the most disadvantaged, as well as the size of the gap between these two groups. The consistent pattern painted by the maps and graphs indicates the extent to which the populations in many areas face multiple disadvantages.

For example,

- the percentage of children in jobless families increases consistently with increasing socioeconomic disadvantage in both the major urban centres and rest of state areas, with almost five times as many children in this group in the most disadvantaged areas in the major urban centres, and three times as many in the rest of state areas;
- the results of the AEDI show that around 30% of new primary school students are assessed as being developmentally vulnerable on one or more domains in the most disadvantaged areas, regarded as important for their readiness to learn, health and development;
- those who are unemployed long-term, and children in families where the mother has low educational attainment, are similarly distributed, indicating that these are not short-term occurrences;
- premature death rates (deaths before 75 years of age) in the major urban centres are 55% higher for people from the most disadvantaged areas, and 38% higher in the rest of state areas; and
- the median age at death for Aboriginal people and Torres Strait Islanders varies from 18 years lower than for other Australians in the most advantaged areas, to

24 years lower in the most disadvantaged areas, providing just one example of the much poorer health outcomes of this population group.

Some of the indicators show the impact of disadvantage over time. For example, although the proportion of the population under 16 years of age living in low income, welfare-dependent families declined from 2002 to 2011, this group has been increasingly marginalised, to the extent that they now comprise four times the proportion in the most disadvantaged areas, within the major urban centres, when compared with the least disadvantaged areas. This compares with a differential just under three times (2.89) in 2002. The comparable figures for the non-metropolitan areas are 61% in 2002 and over twice the level in 2011.

In addition, although premature mortality has fallen by 40% over the period 1987 to 2007, the impact on the socioeconomic inequality between groups has been minimal. In the major urban centres, the gap in death rates between those from the most disadvantaged and the least disadvantaged areas in the major urban centres has increased, from 47% at the beginning of this period to 55% in the most recent years. In the non-metropolitan areas, the gap has narrowed, down from 56% to 38%, but still represents a major difference in the population's life expectancy.

The results of the cluster analysis in Section 6 and the correlation analysis in Section 7 support these findings.

## Conclusion

There is substantial evidence that supportive social, biological and ecological environments provide a foundation for the development of competence and skills that underpin the population's wellbeing, health, learning, and behaviour throughout life. Conversely, a lack of enabling social conditions can result in poorer life outcomes for people, and may adversely influence subsequent generations.

The findings in this atlas highlight areas where further action is needed, and there is much that can be done. There is a growing body of knowledge that provides direction for developing policies to reduce inequalities across the population. The atlas can be used to support a social inclusion policy approach and provide information to assist in monitoring its success. It can help to build our capacity to reduce inequalities, by providing planners, community

advocates and service providers with information on which to base their decisions and proposals.

Addressing the determinants of health and social inclusion requires action from a wide variety of government and non-government organisations, and communities themselves, and the socioeconomic environment is a powerful and potentially modifiable factor. Public policy is a key instrument to improve this environment, particularly in areas such as housing, taxation and social security, work environments, urban design, pollution control, educational attainment, and early childhood development; and the publishing of this atlas supports those committed to creating a fairer and more socially inclusive community.<sup>121</sup>

### **In this section ...**

Appendix A: Notes on the indicators and data sources

Appendix B: Modelled estimates

Appendix C: Grouped SLAs

Appendix D: Sources of information for Sections 4 to 8

Key maps

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## Appendix A: Notes on the indicators and data sources

### General notes

#### Correlation analysis (page 197)

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 (i.e. high values for one are matched by low values for the other), the two variables are negatively correlated.

The Pearson product-moment correlation ( $r$ ) has been used in this 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, correlation coefficients of plus or minus 0.71 or above are of substantial statistical significance, because this higher value represents at least fifty per cent shared variation ( $r^2$  greater than or equal to 0.5): these are referred to as being 'very strong' correlations, while those of 0.50 to 0.70 are of meaningful statistical significance, and are referred to as being 'strong' correlations. Correlations from plus or minus 0.30 to less than 0.50 are referred to in the text as being 'moderate'; and those just below plus or minus 0.30 are referred to as 'weak'.

Correlation coefficients were calculated by comparing the value (expressed as a percentage or as a standardised ratio) for each variable in each SLA with the value of each of the other variables. Correlation coefficients are generally referred to as being, for example, 'a correlation of low income families with the paired variable of premature death rates'. However, to promote ease of reading, the word 'paired' has been omitted. For similar reasons, the symbol used to indicate a correlation coefficient ( $r$ ) has been omitted.

#### Index of Relative Socio-economic Disadvantage, 2011 (page 48)

The Index of Relative Socio-economic Disadvantage (IRSD) is one of four socioeconomic indexes produced by the ABS from the 2011 Census. The Index has a base of 1000 for Australia: scores above 1000 indicate relative lack of disadvantage and those below indicate relatively greater disadvantage.

It is derived, using principal component analysis, from attributes such as low income, low educational attainment, high unemployment, jobs in relatively unskilled occupations and variables that reflect disadvantage, rather than measure specific aspects of disadvantage. Note that the 2011 IRSD differs from earlier IRSD releases in a number of ways, including that the proportion of people who identified as being of Aboriginal and/or Torres Strait Islander origin was removed as one of the component variables of the Index – refer to the technical paper (see below) for further information.

Full details of the composition and construction of this and the other three indexes are available from the *ABS Technical Paper: Socio-Economic Indexes for Areas (SEIFA), 2011* (ABS Cat. no. 2033.0.55.001) at: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/2033.0.55.001>.

*Source: Compiled in PHIDU based on data from ABS SEIFA, 2011 Census.*

### Jobless families with children

#### Children living in jobless families, 2011 (page 54)

The data presented are the number of children aged less than 15 years living in families in which no parent is employed, as a proportion of all children aged less than 15 years.

*Source: Compiled in PHIDU based on unpublished data from ABS 2011 Census.*

## Long-term unemployment, June 2011 (page 58)

The data presented are the number of recipients of a *Newstart Allowance* or *Youth Allowance (other)* from Centrelink for six months (182 or more days), as a proportion of the population aged 16 to 64 years – as a proxy for long-term unemployment.

Note: *Youth Allowance (other)* is largely comprised of unemployed people aged 16 to 21 looking for full-time work or undertaking approved activities, such as part-time study or training. It excludes Youth Allowance customers who are full-time students or undertaking an apprenticeship/ traineeship.

Source: Compiled in PHIDU based on data supplied by Centrelink as an agent for the Department of Education, Employment and Workplace Relations, June 2011; and ABS Estimated Resident Population, 30 June 2011.

## Children at greatest risk of long-term disadvantage

### Children in low income, welfare-dependent families, June 2011 (page 64)

The data presented are the number of children aged less than 16 years living in families with incomes under \$31,786 p.a. in receipt of the Family Tax Benefit (A) (at the maximum level), as a proportion of all children aged less than 16 years.

The data do not include children in families receiving unemployment payments under the Community Development Employment Program, a job creation scheme for Aboriginal communities. To this extent, the percentages of children in some areas will be understated: this is particularly likely to be the case in remote areas of Australia, where Aboriginal people comprise a larger proportion of the population.

The level of income used for this data was based on the *Poverty Lines: Australia, June Quarter 2011*, which contains a weekly income for a single parent with two children, including housing costs. *Poverty Lines: Australia* is a quarterly newsletter that updates the Henderson Poverty Line as defined in the 1973 Commonwealth Commission of Inquiry into Poverty. Poverty lines are presented for a range of family sizes, in order to avoid the situation of poverty. The updated Poverty Lines take into account changes in the average income level of all Australians, reflecting the idea that poverty is relative. For further information, see: *Poverty Lines: Australia*, Melbourne Institute of Applied Economic and Social Research, available from: <http://melbourneinstitute.com/miaesr/publications/indicators/poverty-lines-australia.html>.

Source: Compiled in PHIDU based on data supplied by Centrelink as agent for the Department of Families, Housing, Community Services and Indigenous Affairs, June 2011; and ABS Estimated Resident Population, 30 June 2011.

### Children in families where the mother has low educational attainment, 2011 (page 68)

The data presented are the number of children aged less than 15 years living in families where the female parent's highest level of schooling was year 10 or below, or where the female parent did not attend school, as a proportion of all children aged less than 15 years.

Source: Compiled in PHIDU based on unpublished data from ABS 2011 Census.

## The Australian Early Development Index, 2009 (page 72)

The Australian Early Development Index (AEDI) results are presented as the number of children who are considered to be 'developmentally vulnerable' (score in the lowest 10%) on one or more domains, as a proportion of all children assessed.

AEDI data are available for proportions of children who are considered to be 'on track', 'developmentally at risk' and 'developmentally vulnerable'. To determine which children fall into these groupings, AEDI cut-offs have been set for each domain. The cut-offs have been created on the basis of all children who have participated in the AEDI nationally in 2009 (the whole national AEDI population). Children who score in the lowest 10% of the AEDI population are classified as developmentally vulnerable. These children demonstrate a much lower than average developmental competency as measured in that domain. Children who score between the 10th and 25th percentile of the AEDI population are classified as 'developmentally at risk'. Children who score above the 25th percentile (in the top 75%) of the AEDI population are classified as 'on track'.

Source: Compiled in PHIDU based on data supplied by Department of Education, Employment and Workplace Relations/ Royal Children's Hospital, 2009.

## Women who smoked during pregnancy, 2006 to 2008 (page 76)

The data presented include the women who reported that they smoked during a pregnancy, as a proportion of the number of pregnancies, over the time period (three years).

Note that the data may include women who were pregnant more than once during the time period.

The data for the Australian Capital Territory are for the years 2005 to 2007.

Source: Compiled in PHIDU based on data supplied by State and Territory health authorities, 2006 to 2008 (ACT: 2005 to 2007).

## People affected by homelessness

### Homelessness, 2006 (page 82)

The data presented in this atlas include ABS homelessness data, based on data collected in the ABS 2006 Census of Population and Housing, and mapped as a rate per 10,000 population. They comprise:

- people who are living in improvised dwellings, tents or sleeping out; and
- persons staying temporarily with other households (including persons staying in visitor-only households)

The ABS released a Discussion Paper which presented the initial findings of a review of the methodology used by Professors Chamberlain and MacKenzie to compile their estimates of the homeless population, as published in the *Counting the Homeless 2006* publications (Chamberlain & MacKenzie 2009). The work by Chamberlain and MacKenzie was innovative, but the ABS has since decided that it should consider publishing official estimates of the homeless population. The original data by Chamberlain and MacKenzie included people:

- living in improvised homes, tents and sleepers out;
- living with friends and relatives;
- living in boarding houses; or
- receiving services from the Supported Accommodation Assistance Program (SAAP).

The ABS data also include revised data for homeless people comprising the above four categories but, for the purposes of this analysis, homeless data is presented for the smaller subset of homeless people, as outlined above, which represent 27.8% of the total.

In 2011-12, the ABS consulted with stakeholders, and published a new statistical definition of homelessness and the methodology it proposes to use to produce official estimates of homeless people based on Census data (ABS 2012a & b). In brief, the new ABS statistical definition is:

*“When a person does not have suitable accommodation alternatives they are considered homeless if their current living arrangement:*

- *is in a dwelling that is inadequate; or*
- *has no tenure, or if their initial tenure is short and not extendable; or*
- *does not allow them to have control of, and access to space for social relations.*

*The definition has been constructed from a conceptual framework centred on the following elements:*

- *adequacy of the dwelling; and*
- *security of tenure in the dwelling; and*
- *control of, and access to space for social relations.”*

The three elements of homelessness apply where a person does not have either financial, physical, psychological or personal means to seek out suitable accommodation (ABS 2012a).

Homelessness data at the 2011 Census on a basis comparable with the 2006 data are only available at the Statistical Area Level 3 (based on the new 2011 Australian Statistical Geography Standard) (refer to ABS 2012c), and have not been mapped in this Atlas.

### Homelessness data issues

The Census aims to count all persons in Australia on Census night (with the exception of foreign diplomats and their families). Persons who may be regarded as homeless are counted in the Census. However, ‘homelessness’ is not a characteristic that is directly measured in the Census. Instead, estimates of the homeless population may be derived from the Census, based on characteristics observed in the Census, using analytical techniques.

In addition, issues of under- and over-counting are highly relevant for this data collection. Under-counting is most likely in the census category 'improvised homes, tents and sleepers out', and over-counting is more likely in boarding houses, because of misclassification.

Apart from the complexities in relation to homelessness data, the definition of 'homelessness' can be interpreted in different ways, and, as such, is highly subjective. The ABS definition of homelessness is informed by an understanding of homelessness as 'home'lessness, not rooflessness (ABS 2012a). It emphasises the core elements of 'home' which include: a sense of security, stability, privacy, safety, and the ability to control living space. Homelessness is therefore a lack of one or more of the elements that represent 'home' (ABS 2012a).

Chamberlain C, MacKenzie D. Counting the homeless 2006: New South Wales. (AIHW Cat. no. HOU). Canberra: AIHW, 2009. [Note: *Counting the homeless 2006* publications are available for all States and Territories, at: [www.abs.gov.au](http://www.abs.gov.au).]

Australian Bureau of Statistics (ABS). Discussion Paper: methodological review of counting the homeless, 2006 (ABS Cat. no. 2050.0.55.001). Canberra: ABS, March 2011.

Australian Bureau of Statistics. Position Paper: ABS Review of Counting the Homeless Methodology, Aug 2011 (ABS Cat. no. 2050.0.55.002). Canberra: ABS, August 2011.

Australian Bureau of Statistics (a). Information Paper: Methodology for Estimating Homelessness from the Census of Population and Housing. (ABS Cat. no. 2049.0.55.001). Canberra: ABS, September 2012.

Australian Bureau of Statistics (b). Information Paper: A statistical definition of homelessness. (ABS Cat. no. 4922.0). Canberra: ABS, September 2012.

Australian Bureau of Statistics (c). 2011 Census of Population and Housing: Estimating homelessness, Australia. (ABS Cat. no. 2049.0). Canberra: ABS, November 2012.

*Source: Compiled in PHIDU based on ABS data, based on the ABS 2006 Census.*

### Dwellings rented from government housing authorities, 2011 (page 86)

The data presented are the number of occupied private dwellings rented from a state or territory government housing authority, as a proportion of all occupied private dwellings.

*Source: Compiled in PHIDU based on data from ABS 2011 Census.*

### People living with disability or mental illness, and their carers

#### People living in the community who have a profound or severe disability and are not employed, 2011 (page 92)

The data presented are the number of people aged 15 to 59 years living in the community whose responses to the 2011 ABS Census resulted in them being categorised as having a profound or severe disability, and who were not employed, as a proportion of the population aged 15 to 59 years.

The data are derived from the 'Core Activity Need for Assistance' variable, which was developed by the ABS, to measure the number of people with a profound or severe disability in the self-completed Population Census. A person with profound or severe limitations needs help or supervision always (profound disability) or sometimes (severe disability) to perform activities that most people undertake without assistance at least daily (that is, the core activities of self-care, mobility and/or communication, as the result of a disability, long-term health condition (lasting six months or more), and/or older age).

The reference to 'living in the community' refers to the exclusion from these data of people with the same level of disability who are living in long-term residential accommodation in nursing homes, accommodation for the retired or aged (not self-contained), hostels for the disabled and psychiatric hospitals: it is believed that their exclusion produces a more appropriate measure for planning and policy development purposes.

*Source: Compiled in PHIDU based on unpublished data from ABS 2011 Census.*

## People with long-term mental health problems who are unemployed (modelled estimates), 2007-08 (page 96)

The data presented are the estimated population aged 20 to 59 years who reported having current long-term mental and behavioural disorders, and who reported that they were unemployed, expressed as a rate per 1,000 population.

For further information on the modelled estimates, refer to Appendix B.

*Source: Compiled in PHIDU based on unpublished data estimated from the 2007-08 National Health Survey, ABS (provided as a consultancy); and ABS Estimated Resident Population, average of 30 June 2007 and 2008.*

## Prevalence of psychological distress (modelled estimates), 2007-08 (page 100)

The data presented are the estimated population aged 18 years and over assessed as having a high or very high level of psychological stress, as indicated by the Kessler Psychological Distress Scale-10 items (K-10), expressed as a percentage (an age-standardised rate per 100 population).

The data have been derived from the K-10, which is a scale of non-specific psychological distress based on ten questions asked of respondents about negative emotional states in the four weeks prior to interview. 'High distress' and 'Very high distress' are the two categories indicating the highest levels of distress (of a total of four categories).

For further information on the modelled estimates, refer to Appendix B.

*Source: Compiled in PHIDU based on unpublished data estimated from the 2007-08 National Health Survey, ABS (provided as a consultancy); and ABS Estimated Resident Population, average of 30 June 2007 and 2008.*

## Aboriginal and Torres Strait Islander Australians

### Aboriginal and Torres Strait Islander population, 2011 (page 106)

The data presented are the number of Aboriginal and Torres Strait Islander population, as a proportion of the total population. These are based on people identifying as Aboriginal and/or Torres Strait Islanders in the 2011 Census.

*Source: Compiled in PHIDU based on data from ABS 2011 Census.*

### Indigenous participation in secondary education, 2011 (page 110)

The data presented are the number of Aboriginal and Torres Strait Islander young people aged 16 years who are in full-time secondary school education, as a proportion of all Aboriginal and Torres Strait Islander young people aged 16 years.

*Source: Compiled in PHIDU based on data from ABS 2011 Census.*

### Indigenous women who smoked during pregnancy, 2006 to 2008 (page 114)

The data presented are the number of Aboriginal and Torres Strait Islander women who reported that they smoking during a pregnancy, as a proportion of the number of pregnancies (Aboriginal women), over the time period (three years).

Note that the data may include women who were pregnant more than once during the time period.

The data for the Australian Capital Territory are for the years 2005 to 2007.

*Source: Compiled in PHIDU based on data supplied by State and Territory health authorities, 2006 to 2008 (ACT: 2005 to 2007).*

### Indigenous median age at death, 2003 to 2007 (page 118)

The data presented are the age at which exactly half the Aboriginal and Torres Strait Islander deaths registered in the period 2003 to 2007 were deaths of people above that age and half were deaths below that age.

In addition to general issues to do with the quality of statistics for the Indigenous population, the ABS advises that the median age at death 'may also be affected by differences in identification by age'. Such

differences are likely to vary between the major urban centres and non-metropolitan areas, and within these areas.

*Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths, 2003 to 2007.*

### Non-Indigenous median age at death, 2003 to 2007 (page 122)

The data presented are the age at which exactly half the non-Indigenous deaths registered in the period 2003 to 2007 were deaths of people above that age and half were deaths below that age.

*Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths, 2003 to 2007.*

## Indicators of health status, health risk factors and use of services

### Prevalence of circulatory system diseases (modelled estimates), 2007-08 (page 128)

The data presented are the estimated population with circulatory system diseases as a long-term condition, expressed as a percentage (an age-standardised rate per 100 population).

The data are self-reported data, reported to interviewers in the 2007-08 National Health Survey (NHS). Respondents to the NHS were asked whether they had been diagnosed with any long-term health condition (a condition which has lasted or is expected to last for 6 months or more), and were also asked whether they had been told by a doctor or nurse that they had asthma, cancer, heart and circulatory conditions, and/or diabetes.

For further information on the modelled estimates, refer to Appendix B.

*Source: Compiled in PHIDU based on unpublished data estimated from the 2007-08 National Health Survey, ABS (provided as a consultancy); and ABS Estimated Resident Population, average of 30 June 2007 and 2008.*

### Prevalence of type 2 diabetes (modelled estimates), 2007-08 (page 132)

The data presented are the estimated population with type 2 diabetes as a long-term condition, expressed as a percentage (an age-standardised rate per 100 population).

The data are self-reported data, reported to interviewers in the 2007-08 NHS. Respondents to the NHS were asked whether they had been diagnosed with any long-term health condition (a condition which has lasted or is expected to last for 6 months or more), and were also asked whether they had been told by a doctor or nurse that they had asthma, cancer, heart and circulatory conditions, and/or diabetes.

For further information on the modelled estimates, refer to Appendix B.

*Source: Compiled in PHIDU based on unpublished data estimated from the 2007-08 National Health Survey, ABS (provided as a consultancy); and ABS Estimated Resident Population, average of 30 June 2007 and 2008.*

### Prevalence of smoking among males (modelled estimates), 2007-08 (page 136)/ Prevalence of smoking among females (modelled estimates), 2007-08 (page 140)

The data presented are the estimated male and female population, respectively, aged 18 years and over who were current smokers, expressed as a percentage (an age-standardised rate per 100 males and per 100 females, respectively).

The data are self-reported data, reported to interviewers in the 2007-08 NHS. A current smoker is defined as an adult who reported, at the time of interview, that they smoked cigarettes, cigars or pipes at least once a week.

For further information on the modelled estimates, refer to Appendix B.

*Source: Compiled in PHIDU based on unpublished data estimated from the 2007-08 National Health Survey, ABS (provided as a consultancy); and ABS Estimated Resident Population, average of 30 June 2007 and 2008.*

## Prevalence of obesity among males (modelled estimates), 2007-08 (page 144)/ Prevalence of obesity among females (modelled estimates), 2007-08 (page 148)

The data presented are the estimated male and female population, respectively, aged 18 years and over who were obese, based on BMI from self-reported height and weight, expressed as a percentage (an age-standardised rate per 100 males and per 100 females, respectively).

The data are self-reported data, reported to interviewers in the 2007-08 NHS. The BMI was calculated from self-reported height and weight data, and grouped as follows, to allow reporting against both WHO and NHMRC guidelines:- healthy range: 18.5 to less than 20.0 and 20.0 to less than 25.0; overweight: 25.0 to less than 30.0; obese: 30.0 and greater.

For further information on the modelled estimates, refer to Appendix B.

*Source: Compiled in PHIDU based on unpublished data estimated from the 2007-08 National Health Survey, ABS (provided as a consultancy); and ABS Estimated Resident Population, average of 30 June 2007 and 2008.*

## National Bowel Cancer Screening Program, participation, 2010 (page 152)

The data presented are the number of people aged 50, 55 or 65 years who participated in the National Bowel Cancer Screening Program (NBCSP) in 2010, as a proportion of the number of people at those ages who were invited to participate in the Program.

**Note:** Users of the NBCSP data must acknowledge the Department of Health and Ageing as the original source of the data and include the following disclaimer:

1. *Formal publication and reporting of the NBCSP data is undertaken by the Australian Institute of Health and Welfare on behalf of the Department of Health and Ageing. NBCSP data included in this report provided by the Department of Health and Ageing is not part of the formal publication and reporting process for NBCSP data.*
2. *Cautionary note about small numbers - Due to a larger degree of statistical fluctuation in small numbers, great care should be taken when assessing apparent differences involving small numbers and measures based on small numbers.*

Where there were fewer than six participants, the data have been suppressed to protect confidentiality. Zero cases have also been suppressed.

*Source: Compiled by PHIDU based on data provided by the Department of Health and Ageing from the National Bowel Cancer Screening Program, 2010.*

## National Bowel Cancer Screening Program, positive test results, 2010 (page 156)

The outcome indicator presented is referred to as a 'positive test result'; a positive Faecal Occult Blood Test (FOBT) result indicates that blood has been found in the sample provided. The data presented are the number of people aged 50, 55 or 65 years who received a positive test result from the FOBT in the National Bowel Cancer Screening Program (NBCSP) in 2010, expressed as an age-standardised rate per 100 participants in the NBCSP at these ages.

**Note:** Users of the NBCSP data must acknowledge the Department of Health and Ageing as the original source of the data and include the disclaimer outlined in the NBCSP participation data above.

Where there were fewer than six people with positive test results, the data have been suppressed to protect confidentiality. Zero cases have also been suppressed. It is estimated that around 10 per cent of positive test results have been confidentialised.

*Source: Compiled by PHIDU based on data provided by the Department of Health and Ageing from the National Bowel Cancer Screening Program, 2010.*

## Premature mortality, all causes, 2003 to 2007 (page 160)

The data presented are the number of deaths at ages 0 to 74 years, expressed as an age-standardised rate per 100,000 population.

*Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths, 2003 to 2007; and ABS Estimated Resident Population, 30 June 2003 to 2007.*

## Premature mortality from suicide and self-inflicted injury, 2003 to 2007 (page 164)

The data presented are the number of deaths from suicide and self-inflicted injury at ages 0 to 74 years, expressed as an age-standardised rate per 100,000 population.

The International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) codes included in this analysis are: X60-X84, Y87.0, Y10-Y34.

*Source: Compiled in PHIDU based on data supplied by ABS on behalf of State and Territory Registrars of Deaths, 2003 to 2007; and ABS Estimated Resident Population, 30 June 2003 to 2007.*

# Appendix B: Modelled estimates of chronic diseases and associated risk factors

## Overview

The modelled estimates included as part of the data presented in this report include:

- People with long-term mental health problems who are unemployed;
- Prevalence of psychological distress;
- Prevalence of circulatory system diseases;
- Prevalence of type 2 diabetes;
- Prevalence of smoking among males;
- Prevalence of smoking among females;
- Prevalence of obesity among males; and
- Prevalence of obesity among females.

Further information on the indicators is contained in Appendix A.

## Modelled estimates

The modelled estimates of the prevalence of psychological distress, chronic disease and associated risk factors have been produced for a majority of SLAs in Australia, using modelled survey data collected in the 2007-08 ABS National Health Survey (NHS) and known characteristics of the area.

A modelled estimate can be interpreted as the likely value for a 'typical' area with those characteristics: the SLA is the area level of interest for this project (where SLAs had small populations they were grouped to larger areas). This work was undertaken by the Australian Bureau of Statistics (ABS), as they hold the NHS unit record files on which the model is based: the predictor data at the SLA level were compiled by PHIDU.

The approach used is to undertake an analysis of the survey data for Australia to identify associations in the NHS data between the variables that we wish to predict at the small area level (e.g., prevalence of chronic conditions and risk factors) and the data we have at the small area level (e.g., socioeconomic status, use of health services). The relationship between these variables for which we have area level data (the predictors) and the reporting of chronic conditions in the NHS is also a part of the model that is developed by the ABS. For example, such associations might be between the number of people reporting specified chronic conditions in the NHS and:

- the number of visits to a general medical practitioner;
- the proportion of the population receiving a pension or benefit; and
- socioeconomic status (as indicated by a range of variables from Census data, including the IRSD).

The results of the modelling exercise are then applied to the SLA counts of the predictors. The prediction is, effectively, the likely value for a typical area with those characteristics. This modelling technique can be considered as a sophisticated pro-rating of Australian estimates to the small area level. The raw numbers were then age-standardised, to control for the effects of differences in the age profiles of areas.

*The numbers are estimates for an area, not measured events: they should be viewed as being indicative of likely levels of a condition or risk factor in an area.*

Further, the National Health Survey sample includes the majority of people living in private households, but excludes the most remote areas of Australia. Thus it has not been possible to produce estimates for Statistical Local Areas (SLAs) with relatively high proportions of their population in these remote areas. Data for areas with a population of less than 1,000 are also not shown, as well as areas with greater than 75% Aboriginal population, as the authors believe results in these instances are likely to be less reliable.

## Remoteness and quintile estimates

For the remoteness graphs for these eight variables, the data for the Outer Regional, Remote and Very Remote classes were combined, due to the limited number of remote areas included in the National Health Survey. The data for the remoteness classes and the quintiles of socioeconomic disadvantage of area were produced by the ABS, directly from the main unit record file; that is, they are not based on the modelled estimates.

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## Appendix C: Grouped SLAs

Statistical Local Areas (SLAs) are defined by the Australian Bureau of Statistics in the Australian Standard Geographical Classification (ASGC). In Brisbane, Gold Coast, Townsville-Thuringowa, Darwin and Canberra, SLAs are based on suburbs rather than Local Government Areas. As such, many of the SLAs are very small and frequently have too few cases to be mapped with reliability. For these capital cities and major urban centres, SLAs have been grouped to provide more strength to the data.

**Table 64: List of Grouped SLAs for Brisbane, Gold Coast, Townsville-Thuringowa, Darwin and Canberra, ASGC 2006**

| SLA names, based on the ASGC 2006   | Grouped SLA name                      |
|---|---------------------------------------|
| <b>Brisbane</b>   |                                       |
| Holland Park, Holland Park West, Tarragindi   | Holland Park/Tarragindi               |
| Bowen Hills, Fortitude Valley, Herston, Newstead  | Herston/Newstead                      |
| Ferny Grove, Keperra, Upper Kedron  | Keperra/Upper Kedron                  |
| Brookfield (incl. Brisbane Forest Park), Chapel Hill, Fig Tree Pocket, Kenmore, Kenmore Hills, Pinjarra Hills, Pullenvale | Upper Brookfield/Fig Tree Pocket      |
| Kelvin Grove, Red Hill  | Red Hill/Kelvin Groves                |
| Kedron  | Kedron                                |
| Kangaroo Point, East Brisbane   | East Brisbane/Kangaroo Point          |
| Jamboree Heights, Jindalee, Middle Park, Mount Ommaney, Riverhills, Westlake  | Jindalee/River Hills                  |
| Chelmer, Indooroopilly, Taringa   | Chelmer/Taringa                       |
| Lota, Manly, Manly West   | Lota/Manly/Manly West                 |
| Lutwyche, Windsor, Woolloowin   | Windsor/Woolloowin                    |
| Highgate Hill, South Brisbane, West End   | West End/Highgate Hill                |
| Clayfield, Hendra   | Clayfield/Hendra                      |
| Hemmant-Lytton, Wynnum, Wynnum West   | Hemmant-Lytton/Wynnum                 |
| Balmoral, Bulimba, Hawthorne  | Balmoral/Hawthorne                    |
| Ascot, Hamilton   | Ascot/Hamilton                        |
| Gumdale-Ransome, Wakerley   | Gumdale/Wakerley                      |
| Greenslopes   | Greenslopes                           |
| Corinda, Graceville, Sherwood, Oxley  | Graceville/Oxley                      |
| Aspley, Boondall, Bridgeman Downs, Carseldine, Geebung, Taigum-Fitzgibbon, Zillmere                                       | Bridgeman Downs/Boondall              |
| Milton, Paddington  | Milton/Paddington                     |
| Doolandella-Forest Lake, Durack, Ellen Grove, Inala, Richlands  | Inala/Richlands                       |
| Mansfield, Mount Gravatt, Mount Gravatt East, Rochedale, Upper Mount Gravatt, Wishart                                     | Mt Gravatt/Rochedale                  |
| Acacia Ridge, MacGregor, Pallara-Heathwood-Larapinta, Robertson, Sunnybank, Sunnybank Hills, Willawong                    | MacGregor/Pallara-Heathwood-Larapinta |
| Nundah, Wavell Heights  | Nundah/Wavell Heights                 |
| Banyo, Nudgee, Virginia   | Nudgee Beach/Virginia                 |
| Northgate   | Northgate                             |
| Cannon Hill, Morningside, Norman Park   | Cannon Hill/Norman Park               |
| New Farm  | New Farm                              |
| Nathan  | Nathan                                |
| Murarrie  | Murarrie                              |
| Kuraby  | Kuraby                                |
| Moreton Island  | Moreton Island                        |
| Moorooka, Yeerongpilly  | Moorooka/Yeerongpilly                 |
| Anstead, Bellbowrie, Moggill  | Anstead/Moggill                       |
| Stafford, Stafford Heights, Everton Park, McDowall, Mitchelton  | Stafford Heights/Mitchelton           |
| Bardon  | Bardon                                |
| Camp Hill, Carindale, Carina, Carina Heights  | Camp Hill/Carindale                   |
| Deception Bay   | Deception Bay                         |
| Browns Plains   | Browns Plains                         |
| Waterford West  | Waterford West                        |

**Table 64: List of Grouped SLAs for Brisbane, Gold Coast, Townsville-Thuringowa, Darwin and Canberra, ASGC 2006 ... continued**

| <b>SLA codes, based on the ASGC 2006</b>   | <b>Grouped SLA name</b>       |
|--|-------------------------------|
| <b>Brisbane ... continued</b>  |                               |
| Logan (C) Balance  | Logan Balance                 |
| Darra-Sumner, Wacol  | Darra-Sumner/Wacol            |
| Ipswich (C) - Central  | Ipswich Central               |
| Ipswich (C) - East   | Ipswich-East                  |
| Karana Downs-Lake Manchester, Ipswich (C) - North  | Ipswich-North                 |
| City - Inner, City - Remainder, Spring Hill  | City/Spring Hill              |
| Pinkenba-Eagle Farm  | Pinkenba-Eagle Farm           |
| Albion   | Albion                        |
| Bracken Ridge, Brighton, Deagon, Sandgate  | Bracken Ridge/Sandgate        |
| Clontarf, Margate-Woody Point, Redcliffe-Scarborough, Rothwell-Kippa-Ring  | Redcliffe                     |
| Chermside, Chermside West  | Chermside West/Chermside      |
| Albany Creek   | Albany Creek                  |
| Alderley, Enoggera, Grange, Newmarket, Wilston   | Wilston/Enoggera              |
| Ashgrove, The Gap  | Ashgrove/The Gap              |
| St Lucia   | St Lucia                      |
| Seventeen Mile Rocks   | Seventeen Mile Rock           |
| Dutton Park, Woolloongabba   | Dutton Park/Woolloongabba     |
| Yeronga  | Yeronga                       |
| Rocklea  | Rocklea                       |
| Salisbury  | Salisbury                     |
| Archerfield, Coopers Plains  | Archerfield/Coopers Plains    |
| Belmont-Mackenzie, Burbank   | Burbank/Belmont-Mackenzie     |
| Chandler-Capalaba West   | Chandler-Capalaba West        |
| Bald Hills   | Bald Hills                    |
| Coorparoo  | Coorparoo                     |
| Algester, Parkinson-Drewvale   | Algester/Parkinson-Drewvale   |
| Annerley, Fairfield  | Annerley/Fairfield            |
| Eight Mile Plains, Runcorn   | Runcorn/Eight Mile Plains     |
| Beenleigh, Bethania-Waterford, Eagleby, Edens Landing-Holmview, Jacobs Well-Alberton, Mt Warren Park, Ormeau-Yatala, Wolffdene-Bahrs Scrub | Bethania-Waterford/Eagleby    |
| Carbrook-Cornubia, Loganholme, Shailer Park, Tanah Merah   | Tanah Merah/Carbrook Cornubia |
| Daisy Hill-Priestdale, Rochedale South, Slacks Creek, Springwood   | Rochedale South/Slacks Creek  |
| Marsden  | Marsden                       |
| Loganlea   | Loganlea                      |
| Stretton-Karawatha, Kingston, Woodridge  | Stretton-Karawatha/Kingston   |
| Caboolture (S) - Midwest   | Caboolture Balance            |
| Morayfield   | Morayfield                    |
| Alexandra Hills, Birkdale, Ormiston, Wellington Point  | Birkdale/Ormiston             |
| Bribie Island  | Bribie Island                 |
| Caboolture (S) - East  | Caboolture - East             |
| Caboolture (S) - Central   | Caboolture - Central          |
| Burpengary-Narangba  | Burpengary-Narangba           |
| Capalaba, Redland Bay, Sheldon-Mt Cotton, Victoria Point   | Capalaba/Redland Bay          |
| Thornlands   | Thornlands                    |
| Thorneside   | Thorneside                    |
| Cleveland  | Cleveland                     |
| Underwood  | Underwood                     |
| Petrie   | Petrie                        |
| Lawnton  | Lawnton                       |
| Hills District   | Hills District                |

**Table 64: List of Grouped SLAs for Brisbane, Gold Coast, Townsville-Thuringowa, Darwin and Canberra, ASGC 2006 ... continued**

| <b>SLA codes, based on the ASGC 2006</b>   | <b>Grouped SLA name</b>            |
|--|------------------------------------|
| <b>Brisbane ... continued</b>  |                                    |
| Toowong  | Toowong                            |
| Bray Park  | Bray Park                          |
| Tingalpa   | Tingalpa                           |
| Redland (S) Balance  | Redland Balance                    |
| Central Pine West, Dakabin-Kallangur-M. Downs, Griffin-Mango Hill, Strathpine-Brendale, Pine Rivers (S) Balance                                | Pine Rivers Balance                |
| Beaudesert (S) - Part A, Greenbank-Boronia Heights   | Greenbank/Beaudesert               |
| Calamvale  | Calamvale                          |
| <b>Gold Coast</b>  |                                    |
| Ashmore-Benowa, Molendinar, Parkwood-Arundel   | Arundel/Ashmore                    |
| Currumbin Valley-Tallebudgera, Guanaba-Springbrook   | Guanaba-Currumbin Valley           |
| Helensvale   | Helensvale                         |
| Mudgeeraba-Reedy Creek, Worongary-Tallai   | Worongary-Tallai/Mudgeeraba        |
| Southport  | Labrador/Southport                 |
| Biggera Waters-Labrador, Paradise Point-Runaway Bay, Coombabah   | Paradise Point/Biggera Waters      |
| Bundall, Main Beach-South Stradbroke, Surfers Paradise   | Surfers Paradise/Benowa            |
| Broadbeach Waters, Mermaid Waters-Clear Island Waters  | Broadbeach Waters/Mermaid Waters   |
| Broadbeach-Mermaid Beach, Burleigh Heads, Miami  | Broadbeach/Burleigh Heads          |
| Currumbin, Palm Beach  | Palm Beach/Currumbin               |
| Currumbin Waters, Elanora  | Currumbin Waters/Elanora           |
| Bilinga-Tugun, Coolangatta   | Coolangatta/Tugun                  |
| Burleigh Waters, Robina, Varsity Lakes   | Robina/Burleigh Waters             |
| Carrara-Merrimac   | Carrara-Merrimac                   |
| Hope Island  | Hope Island                        |
| Nerang   | Nerang                             |
| Oxenford-Maudsland, Pacific Pines-Gaven  | Oxenford                           |
| Kingsholme-Upper Coomera, Pimpama-Coomera  | Coomera-Cedar Creek                |
| <b>Townsville-Thuringowa</b>   |                                    |
| City, Magnetic Island, North Ward-Castle Hill, Pallarenda-Shelley Beach, Railway Estate, Rowes Bay-Belgian Gardens, South Townsville, West End | Townsville Coastal/Magnetic Island |
| Oonoonba-Idalia-Cluden, Stuart-Roseneath, Wulguru  | Townsville South East              |
| Currajong, Gulliver, Hermit Park, Hyde Park-Mysterton, Mundingburra, Pimlico, Rosslea  | Gulliver/Hermit Park               |
| Aitkenvale, Cranbrook, Douglas, Garbutt, Heatley, Mt Louisa-Mt St John-Bohle, Murray, Vincent  | Murray/Mt Louisa                   |
| Kelso, Kirwan, Thuringowa (C) - Part A Balance   | Thuringowa - Part A                |
| <b>Darwin</b>  |                                    |
| Alawa, Brinkin, Coconut Grove, Jingili, Millner, Moil, Nakara, Nightcliff, Rapid Creek, Tiwi, Wagaman, Wanguri                                 | Darwin North West                  |
| Anula, Karama, Leanyer, Lee Point-Leanyer Swamp, Malak, Marrara, Wulagi  | Darwin North East                  |
| Bayview-Woolner, City - Inner, Fannie Bay, Larrakeyah, Ludmilla, Narrows, Parap, Stuart Park, The Gardens, Winnellie, City - Remainder         | Darwin South West                  |
| East Arm, Bakewell, Driver, Durack, Gray, Gunn-Palmerston City, Moulden, Woodroffe, Palmerston (C) Balance                                     | Palmerston                         |
| <b>Canberra</b>  |                                    |
| Acton, Braddon, Campbell, City, Duntroon, Reid, Russell, Turner, Barton, Deakin, Parkes, Yarralumla  | Canberra Central                   |
| Ainslie, Dickson, Downer, Hackett, Lyneham, O'Connor, Watson   | Canberra North                     |
| Forrest, Griffith, Kingston, Narrabundah, Red Hill   | Canberra South                     |
| Curtin, Garran, Hughes   | Woden North                        |
| Chifley, Lyons, O'Malley, Phillip  | Woden Central                      |

**Table 64: List of Grouped SLAs for Brisbane, Gold Coast, Townsville-Thuringowa, Darwin and Canberra, ASGC 2006 ... continued**

| <b>SLA codes, based on the ASGC 2006</b>   | <b>Grouped SLA name</b> |
|--|-------------------------|
| <b>Canberra ... continued</b>  |                         |
| Farrer, Isaacs, Mawson, Pearce, Torrens  | Woden South             |
| Bruce, Evatt, Giralang, Kaleen, McKellar   | Belconnen North         |
| Kambah   | Kambah                  |
| Greenway, Oxley, Wanniasa  | Tuggeranong North West  |
| Fadden, Gowrie, Macarthur, Monash  | Tuggeranong North East  |
| Bonython, Calwell, Chisholm, Gilmore, Isabella Plains, Richardson, Theodore                                | Tuggeranong South East  |
| Banks, Conder, Gordon, Tuggeranong - SSD Balance   | Tuggeranong South       |
| Chapman, Duffy, Fisher, Holder, Rivett, Stirling, Waramanga, Weston, Weston Creek-Stromlo - SSD Balance    | Weston Creek            |
| Aranda, Cook, Hawker, Macquarie, Page, Scullin, Weetangera   | Belconnen South         |
| Belconnen Town Centre, Charnwood, Florey, Flynn, Fraser, Higgins, Holt, Latham, MacGregor, Melba, Spence   | Belconnen West          |
| Amaroo, Gungahlin, Gungahlin-Hall - SSD Balance, Hall, Harrison, Mitchell, Ngunnawal, Nicholls, Palmerston | Gungahlin               |
| Kowen, Majura  | Kowen and Majura        |
| Belconnen - SSD Balance, Dunlop  | Belconnen-SSD Balance   |
| Stromlo  | Stromlo                 |
| Fyshwick, Harman, Hume, Jerrabomberra, Oaks Estate, Pialligo, Symonston                                    | Eastern Fringe          |

## Appendix D: Sources of information for Sections 4 to 8

The following resources were used to underpin the information presented in Sections 4 to 8.

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## Key maps

This following section presents the Key Maps for the Statistical Local Areas (SLAs), based on the ABS Australian Standard Geographical Classification (ASGC) 2006. SLA keys are provided by both the numerical order of the SLA map reference and the alphabetical order of the SLA name, for both the capital cities and non-metropolitan areas shown in this Atlas.

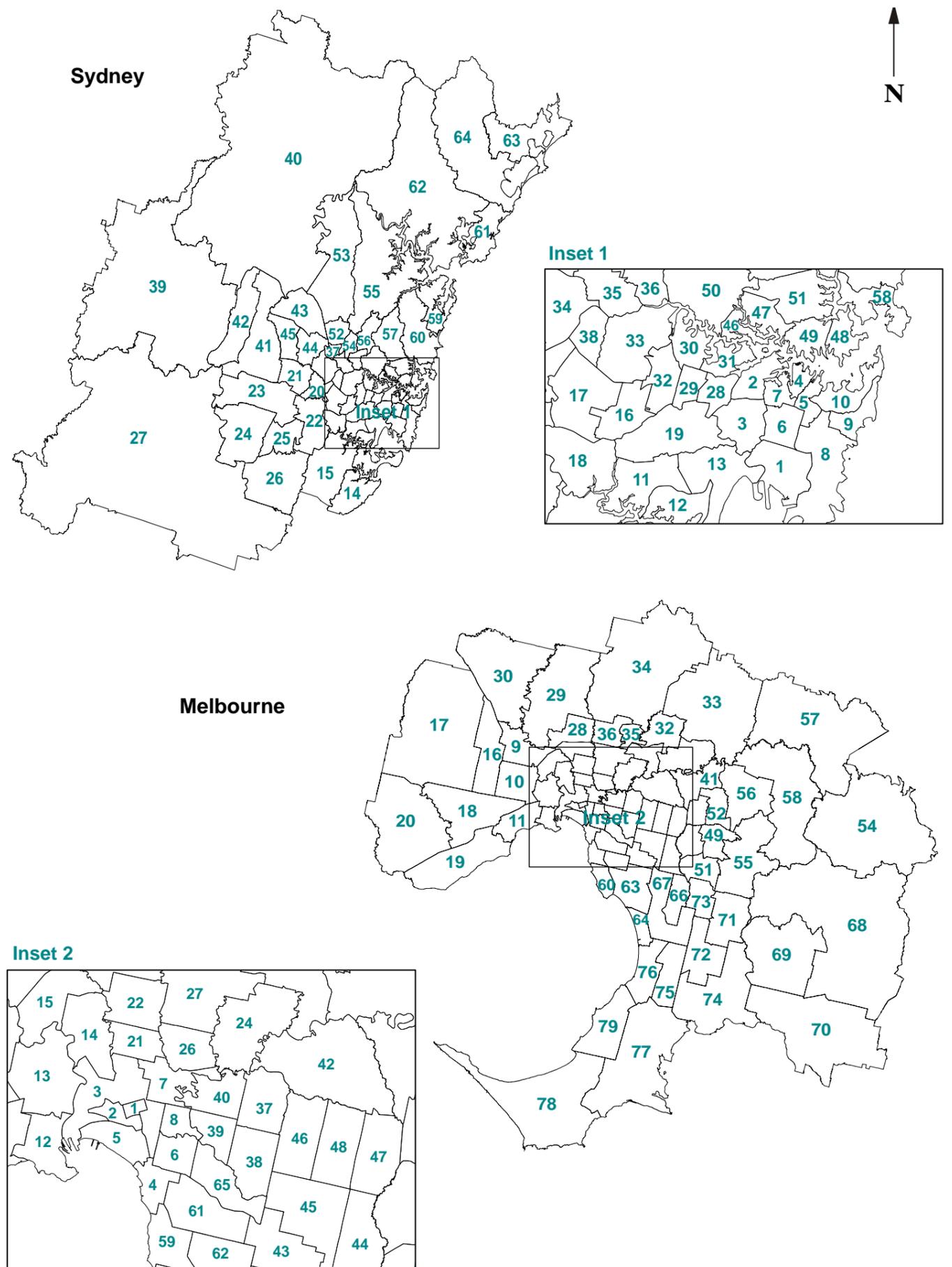
If you require information regarding the Indigenous boundaries which are used for the Indigenous-specific indicators, please contact us via [phidu@adelaide.edu.au](mailto:phidu@adelaide.edu.au).

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Key maps: Statistical Local Areas mapped for the capital cities

| Numerical Key to Statistical Local Areas (ASGC 2006) in Sydney and Melbourne |          |                                |          |                                |          |
|--|----------|--------------------------------|----------|--------------------------------|----------|
| Statistical Local Area   | Map ref. | Statistical Local Area         | Map ref. | Statistical Local Area         | Map ref. |
| <b>Sydney</b>  |          | <b>Sydney ... continued</b>    |          | <b>Melbourne ... continued</b> |          |
| Botany Bay (C)   | 1        | Ryde (C)                       | 50       | Nillumbik (S) - South-West     | 32       |
| Leichhardt (A)   | 2        | Willoughby (C)                 | 51       | Nillumbik (S) Balance          | 33       |
| Marrickville (A)   | 3        | Baulkham Hills (A) - Central   | 52       | Whittlesea (C) - North         | 34       |
| Sydney (C) - Inner   | 4        | Baulkham Hills (A) - North     | 53       | Whittlesea (C) - South-East    | 35       |
| Sydney (C) - East  | 5        | Baulkham Hills (A) - South     | 54       | Whittlesea (C) - South-West    | 36       |
| Sydney (C) - South   | 6        | Hornsby (A) - North            | 55       | Boroondara (C) - Camberwell N. | 37       |
| Sydney (C) - West  | 7        | Hornsby (A) - South            | 56       | Boroondara (C) - Camberwell S. | 38       |
| Randwick (C)   | 8        | Ku-ring-gai (A)                | 57       | Boroondara (C) - Hawthorn      | 39       |
| Waverley (A)   | 9        | Manly (A)                      | 58       | Boroondara (C) - Kew           | 40       |
| Woollahra (A)  | 10       | Pittwater (A)                  | 59       | Manningham (C) - East          | 41       |
| Hurstville (C)   | 11       | Warringah (A)                  | 60       | Manningham (C) - West          | 42       |
| Kogarah (A)  | 12       | Gosford (C) - East             | 61       | Monash (C) - South-West        | 43       |
| Rockdale (C)   | 13       | Gosford (C) - West             | 62       | Monash (C) - Waverley East     | 44       |
| Sutherland Shire (A) - East  | 14       | Wyong (A) - North-East         | 63       | Monash (C) - Waverley West     | 45       |
| Sutherland Shire (A) - West  | 15       | Wyong (A) - South and West     | 64       | Whitehorse (C) - Box Hill      | 46       |
| Bankstown (C) - North-East   | 16       |                                |          | Whitehorse (C) - Nunawading E. | 47       |
| Bankstown (C) - North-West   | 17       | <b>Melbourne</b>               |          | Whitehorse (C) - Nunawading W. | 48       |
| Bankstown (C) - South  | 18       | Melbourne (C) - Inner          | 1        | Knox (C) - North-East          | 49       |
| Canterbury (C)   | 19       | Melbourne (C) - S'bank-D'lands | 2        | Knox (C) - North-West          | 50       |
| Fairfield (C) - East   | 20       | Melbourne (C) - Remainder      | 3        | Knox (C) - South               | 51       |
| Fairfield (C) - West   | 21       | Port Phillip (C) - St Kilda    | 4        | Maroondah (C) - Croydon        | 52       |
| Liverpool (C) - East   | 22       | Port Phillip (C) - West        | 5        | Maroondah (C) - Ringwood       | 53       |
| Liverpool (C) - West   | 23       | Stonnington (C) - Prahran      | 6        | Yarra Ranges (S) - Central     | 54       |
| Camden (A)   | 24       | Yarra (C) - North              | 7        | Yarra Ranges (S) - Dandenongs  | 55       |
| Campbelltown (C) - North   | 25       | Yarra (C) - Richmond           | 8        | Yarra Ranges (S) - Lilydale    | 56       |
| Campbelltown (C) - South   | 26       | Brimbank (C) - Keilor          | 9        | Yarra Ranges (S) - North       | 57       |
| Wollondilly (A)  | 27       | Brimbank (C) - Sunshine        | 10       | Yarra Ranges (S) - Seville     | 58       |
| Ashfield (A)   | 28       | Hobsons Bay (C) - Altona       | 11       | Bayside (C) - Brighton         | 59       |
| Burwood (A)  | 29       | Hobsons Bay (C) - Williamstown | 12       | Bayside (C) - South            | 60       |
| Canada Bay (A) - Concord   | 30       | Maribyrnong (C)                | 13       | Glen Eira (C) - Caulfield      | 61       |
| Canada Bay (A) - Drummoyne   | 31       | Moonee Valley (C) - Essendon   | 14       | Glen Eira (C) - South          | 62       |
| Strathfield (A)  | 32       | Moonee Valley (C) - West       | 15       | Kingston (C) - North           | 63       |
| Auburn (A)   | 33       | Melton (S) - East              | 16       | Kingston (C) - South           | 64       |
| Holroyd (C)  | 34       | Melton (S) Balance             | 17       | Stonnington (C) - Malvern      | 65       |
| Parramatta (C) - Inner   | 35       | Wyndham (C) - North            | 18       | Gr. Dandenong (C) - Dandenong  | 66       |
| Parramatta (C) - North-East  | 36       | Wyndham (C) - South            | 19       | Gr. Dandenong (C) Balance      | 67       |
| Parramatta (C) - North-West  | 37       | Wyndham (C) - West             | 20       | Cardinia (S) - North           | 68       |
| Parramatta (C) - South   | 38       | Moreland (C) - Brunswick       | 21       | Cardinia (S) - Pakenham        | 69       |
| Blue Mountains (C)   | 39       | Moreland (C) - Coburg          | 22       | Cardinia (S) - South           | 70       |
| Hawkesbury (C)   | 40       | Moreland (C) - North           | 23       | Casey (C) - Berwick            | 71       |
| Penrith (C) - East   | 41       | Banyule (C) - Heidelberg       | 24       | Casey (C) - Cranbourne         | 72       |
| Penrith (C) - West   | 42       | Banyule (C) - North            | 25       | Casey (C) - Hallam             | 73       |
| Blacktown (C) - North  | 43       | Darebin (C) - Northcote        | 26       | Casey (C) - South              | 74       |
| Blacktown (C) - South-East   | 44       | Darebin (C) - Preston          | 27       | Frankston (C) - East           | 75       |
| Blacktown (C) - South-West   | 45       | Hume (C) - Broadmeadows        | 28       | Frankston (C) - West           | 76       |
| Hunter's Hill (A)  | 46       | Hume (C) - Craigieburn         | 29       | Mornington P'sula (S) - East   | 77       |
| Lane Cove (A)  | 47       | Hume (C) - Sunbury             | 30       | Mornington P'sula (S) - South  | 78       |
| Mosman (A)   | 48       | Nillumbik (S) - South          | 31       | Mornington P'sula (S) - West   | 79       |
| North Sydney (A)   | 49       |                                |          |                                |          |

Map 56: Key to Statistical Local Areas mapped for Sydney and Melbourne



Map 56: Key to Statistical Local Areas mapped for Sydney and Melbourne ... *continued*

| Alphabetical Key to Statistical Local Areas (ASGC 2006) in Sydney and Melbourne |          |                                |          |                                |          |
|---|----------|--------------------------------|----------|--------------------------------|----------|
| Statistical Local Area  | Map ref. | Statistical Local Area         | Map ref. | Statistical Local Area         | Map ref. |
| <b>Sydney</b>   |          | <b>Sydney ... continued</b>    |          | <b>Melbourne ... continued</b> |          |
| Ashfield (A)  | 28       | Ryde (C)                       | 50       | Kingston (C) - South           |          |
| Auburn (A)  | 33       | Strathfield (A)                | 32       | Knox (C) - North-East          | 49       |
| Bankstown (C) - North-East  | 16       | Sutherland Shire (A) - East    | 14       | Knox (C) - North-West          | 50       |
| Bankstown (C) - North-West  | 17       | Sutherland Shire (A) - West    | 15       | Knox (C) - South               | 51       |
| Bankstown (C) - South   | 18       | Sydney (C) - East              | 5        | Manningham (C) - East          | 41       |
| Baulkham Hills (A) - Central  | 52       | Sydney (C) - Inner             | 4        | Manningham (C) - West          | 42       |
| Baulkham Hills (A) - North  | 53       | Sydney (C) - South             | 6        | Maribyrnong (C)                | 13       |
| Baulkham Hills (A) - South  | 54       | Sydney (C) - West              | 7        | Maroondah (C) - Croydon        | 52       |
| Blacktown (C) - North   | 43       | Warringah (A)                  | 60       | Maroondah (C) - Ringwood       | 53       |
| Blacktown (C) - South-East  | 44       | Waverley (A)                   | 9        | Melbourne (C) - Inner          | 1        |
| Blacktown (C) - South-West  | 45       | Willoughby (C)                 | 51       | Melbourne (C) - Remainder      | 3        |
| Blue Mountains (C)  | 39       | Wollondilly (A)                | 27       | Melbourne (C) - S'bank-D'lands | 2        |
| Botany Bay (C)  | 1        | Woollahra (A)                  | 10       | Melton (S) - East              | 16       |
| Burwood (A)   | 29       | Wyong (A) - North-East         | 63       | Melton (S) Balance             | 17       |
| Camden (A)  | 24       | Wyong (A) - South and West     | 64       | Monash (C) - South-West        | 43       |
| Campbelltown (C) - North  | 25       |                                |          | Monash (C) - Waverley East     | 44       |
| Campbelltown (C) - South  | 26       | <b>Melbourne</b>               |          | Monash (C) - Waverley West     | 45       |
| Canada Bay (A) - Concord  | 30       | Banyule (C) - Heidelberg       | 24       | Moonee Valley (C) - Essendon   | 14       |
| Canada Bay (A) - Drummoyne  | 31       | Banyule (C) - North            | 25       | Moonee Valley (C) - West       | 15       |
| Canterbury (C)  | 19       | Bayside (C) - Brighton         | 59       | Moreland (C) - Brunswick       | 21       |
| Fairfield (C) - East  | 20       | Bayside (C) - South            | 60       | Moreland (C) - Coburg          | 22       |
| Fairfield (C) - West  | 21       | Boroondara (C) - Camberwell N. | 37       | Moreland (C) - North           | 23       |
| Gosford (C) - East  | 61       | Boroondara (C) - Camberwell S. | 38       | Mornington P'sula (S) - East   | 77       |
| Gosford (C) - West  | 62       | Boroondara (C) - Hawthorn      | 39       | Mornington P'sula (S) - South  | 78       |
| Hawkesbury (C)  | 40       | Boroondara (C) - Kew           | 40       | Mornington P'sula (S) - West   | 79       |
| Holroyd (C)   | 34       | Brimbank (C) - Keilor          | 9        | Nillumbik (S) - South          | 31       |
| Hornsby (A) - North   | 55       | Brimbank (C) - Sunshine        | 10       | Nillumbik (S) - South-West     | 32       |
| Hornsby (A) - South   | 56       | Cardinia (S) - North           | 68       | Nillumbik (S) Balance          | 33       |
| Hunter's Hill (A)   | 46       | Cardinia (S) - Pakenham        | 69       | Port Phillip (C) - St Kilda    | 4        |
| Hurstville (C)  | 11       | Cardinia (S) - South           | 70       | Port Phillip (C) - West        | 5        |
| Kogarah (A)   | 12       | Casey (C) - Berwick            | 71       | Stonnington (C) - Malvern      | 65       |
| Ku-ring-gai (A)   | 57       | Casey (C) - Cranbourne         | 72       | Stonnington (C) - Prahran      | 6        |
| Lane Cove (A)   | 47       | Casey (C) - Hallam             | 73       | Whitehorse (C) - Box Hill      | 46       |
| Leichhardt (A)  | 2        | Casey (C) - South              | 74       | Whitehorse (C) - Nunawading E. | 47       |
| Liverpool (C) - East  | 22       | Darebin (C) - Northcote        | 26       | Whitehorse (C) - Nunawading W. | 48       |
| Liverpool (C) - West  | 23       | Darebin (C) - Preston          | 27       | Whittlesea (C) - North         | 34       |
| Manly (A)   | 58       | Frankston (C) - East           | 75       | Whittlesea (C) - South-East    | 35       |
| Marrickville (A)  | 3        | Frankston (C) - West           | 76       | Whittlesea (C) - South-West    | 36       |
| Mosman (A)  | 48       | Glen Eira (C) - Caulfield      | 61       | Wyndham (C) - North            | 18       |
| North Sydney (A)  | 49       | Glen Eira (C) - South          | 62       | Wyndham (C) - South            | 19       |
| Parramatta (C) - Inner  | 35       | Gr. Dandenong (C) - Dandenong  | 66       | Wyndham (C) - West             | 20       |
| Parramatta (C) - North-East   | 36       | Gr. Dandenong (C) Balance      | 67       | Yarra (C) - North              | 7        |
| Parramatta (C) - North-West   | 37       | Hobsons Bay (C) - Altona       | 11       | Yarra (C) - Richmond           | 8        |
| Parramatta (C) - South  | 38       | Hobsons Bay (C) - Williamstown | 12       | Yarra Ranges (S) - Central     | 54       |
| Penrith (C) - East  | 41       | Hume (C) - Broadmeadows        | 28       | Yarra Ranges (S) - Dandenongs  | 55       |
| Penrith (C) - West  | 42       | Hume (C) - Craigieburn         | 29       | Yarra Ranges (S) - Lilydale    | 56       |
| Pittwater (A)   | 59       | Hume (C) - Sunbury             | 30       | Yarra Ranges (S) - North       | 57       |
| Randwick (C)  | 8        | Kingston (C) - North           | 63       | Yarra Ranges (S) - Seville     | 58       |
| Rockdale (C)  | 13       |                                |          |                                |          |

Map 57: Key to Grouped Statistical Local Areas mapped for Brisbane

| Numerical Key to Grouped Statistical Local Areas# (ASGC 2006) in Brisbane |          |                                |          |
|---|----------|--------------------------------|----------|
| Grouped Statistical Local Area  | Map ref. | Grouped Statistical Local Area | Map ref. |
| Holland Park/Tarragindi   | 1        | Redcliffe                      | 51       |
| Herston/Newstead  | 2        | Chermside West/Chermside       | 52       |
| Keperra/Upper Kedron  | 3        | Albany Creek                   | 53       |
| Upper Brookfield/Fig Tree Pocket  | 4        | Wilston/Enoggera               | 54       |
| Red Hill/Kelvin Groves  | 5        | Ashgrove/The Gap               | 55       |
| Kedron  | 6        | St Lucia                       | 56       |
| East Brisbane/Kangaroo Point  | 7        | Seventeen Mile Rock            | 57       |
| Jindalee/River Hills  | 8        | Dutton Park/Woolloongabba      | 58       |
| Chelmer/Taringa   | 9        | Yeronga                        | 59       |
| Lota/Manly/Manly West   | 10       | Rocklea                        | 60       |
| Windsor/Woolloowin  | 11       | Salisbury                      | 61       |
| West End/Highgate Hill  | 12       | Archerfield/Coopers Plains     | 62       |
| Clayfield/Hendra  | 13       | Burbank/Belmont-Mackenzie      | 63       |
| Hemmant-Lytton/Wynnum   | 14       | Chandler-Capalaba West         | 64       |
| Balmoral/Hawthorne  | 15       | Bald Hills                     | 65       |
| Ascot/Hamilton  | 16       | Coorparoo                      | 66       |
| Gumdale/Wakerley  | 17       | Algeria/Parkinson-Drewvale     | 67       |
| Greenslopes   | 18       | Annerley/Fairfield             | 68       |
| Graceville/Oxley  | 19       | Runcorn/Eight Mile Plains      | 69       |
| Bridgeman Downs/Boondall  | 20       | Tanah Merah/Carbrook Cornubia  | 70       |
| Milton/Paddington   | 21       | Rochedale South/Slacks Creek   | 71       |
| Inala/Richlands   | 22       | Marsden                        | 72       |
| Mt Gravatt/Rochedale  | 23       | Loganlea                       | 73       |
| MacGregor/Pallara-Heathwood-Larapinta                                     | 24       | Stretton-Karawatha/Kingston    | 74       |
| Nundah/Wavell Heights   | 25       | Caboolture Balance             | 75       |
| Nudgee Beach/Virginia   | 26       | Morayfield                     | 76       |
| Northgate   | 27       | Birkdale/Ormiston              | 77       |
| Cannon Hill/Norman Park   | 28       | Bribie Island                  | 78       |
| New Farm  | 29       | Caboolture - East              | 79       |
| Nathan  | 30       | Caboolture - Central           | 80       |
| Murarrie  | 31       | Burpengary-Narangba            | 81       |
| Kuraby  | 32       | Capalaba/Redland Bay           | 82       |
| Moreton Island  | 33       | Thornlands                     | 83       |
| Moorooka/Yeerongpilly   | 34       | Thorneside                     | 84       |
| Anstead/Moggill   | 35       | Cleveland                      | 85       |
| Stafford Heights/Mitchelton   | 36       | Underwood                      | 86       |
| Bardon  | 37       | Petrie                         | 87       |
| Camp Hill/Carindale   | 38       | Lawnton                        | 88       |
| Deception Bay   | 39       | Hills District                 | 89       |
| Browns Plains   | 40       | Toowong                        | 90       |
| Waterford West  | 41       | Bray Park                      | 91       |
| Logan Balance   | 42       | Tingalpa                       | 92       |
| Darra-Sumner/Wacol  | 43       | Redland Balance                | 93       |
| Ipswich Central   | 44       | Pine Rivers Balance            | 94       |
| Ipswich-East  | 45       | Greenbank/Beaudesert           | 95       |
| Ipswich-North   | 46       | Calamvale                      | 96       |
| City/Spring Hill  | 47       | Caboolture (S) - Hinterland    | 97       |
| Pinkenba-eagle Farm   | 48       | Ipswich (C) - South-West       | 98       |
| Albion  | 49       | Ipswich (C) - West             | 99       |
| Bracken Ridge/Sandgate  | 50       |                                |          |

#See Appendix D for a list of the allocation of Statistical Local Areas to Grouped Statistical Local Areas



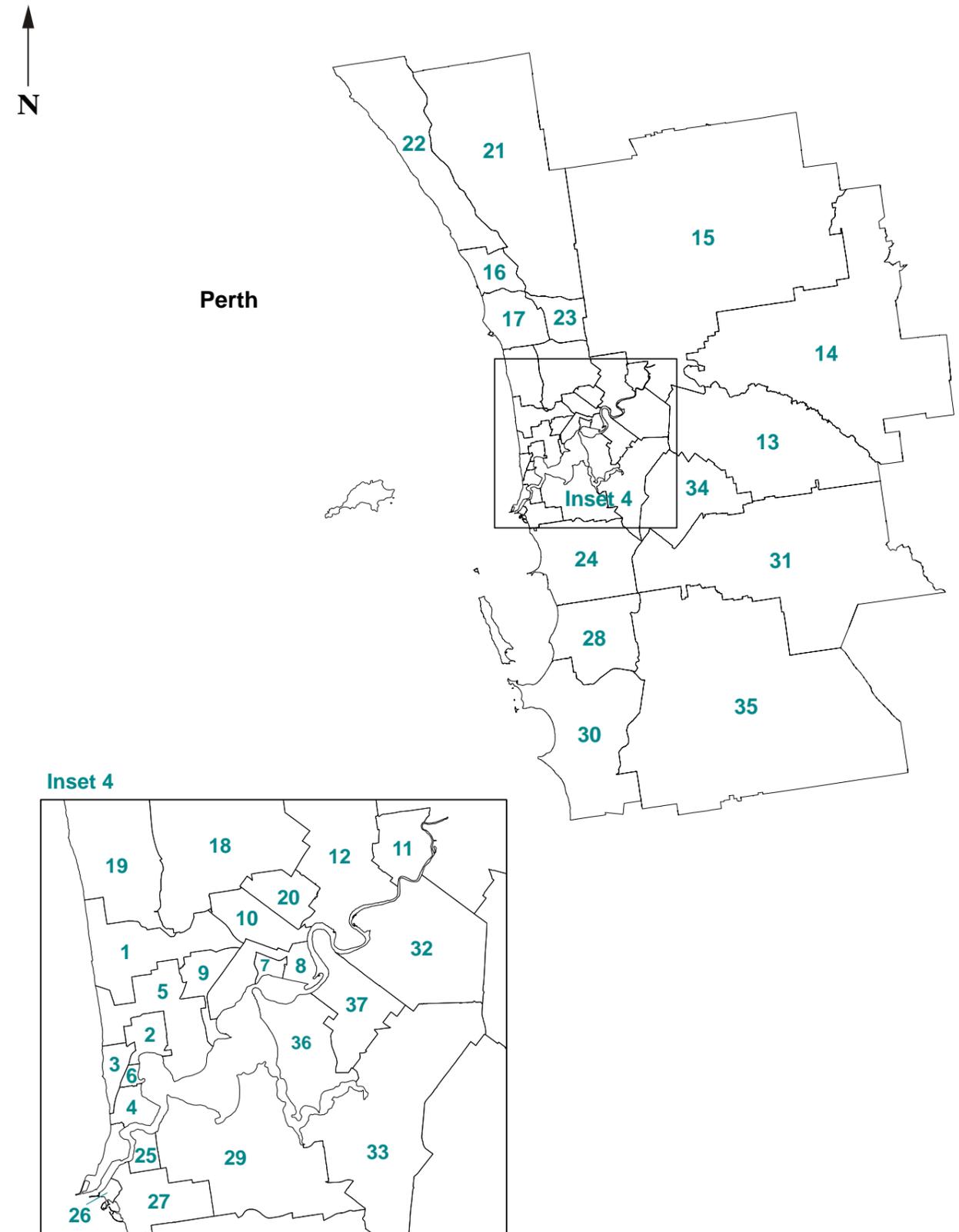
Map 57: Key to Grouped Statistical Local Areas mapped for Brisbane ... continued

| Alphabetical Key to Grouped Statistical Local Areas <sup>#</sup> (ASGC 2006) in Brisbane |          |                                       |          |
|--|----------|---------------------------------------|----------|
| Grouped Statistical Local Area   | Map ref. | Grouped Statistical Local Area        | Map ref. |
| Albany Creek   | 53       | Ipswich-East                          | 45       |
| Albion   | 49       | Ipswich-North                         | 46       |
| Algester/Parkinson-Drewvale  | 67       | Jindalee/River Hills                  | 8        |
| Annerley/Fairfield   | 68       | Kedron                                | 6        |
| Anstead/Moggill  | 35       | Keperra/Upper Kedron                  | 3        |
| Archerfield/Coopers Plains   | 62       | Kuraby                                | 32       |
| Ascot/Hamilton   | 16       | Lawnton                               | 88       |
| Ashgrove/The Gap   | 55       | Logan Balance                         | 42       |
| Bald Hills   | 65       | Loganlea                              | 73       |
| Balmoral/Hawthorne   | 15       | Lota/Manly/Manly West                 | 10       |
| Bardon   | 37       | MacGregor/Pallara-Heathwood-Larapinta | 24       |
| Birkdale/Ormiston  | 77       | Marsden                               | 72       |
| Bracken Ridge/Sandgate   | 50       | Milton/Paddington                     | 21       |
| Bray Park  | 91       | Moorooka/Yeerongpilly                 | 34       |
| Bribie Island  | 78       | Morayfield                            | 76       |
| Bridgeman Downs/Boondall   | 20       | Moreton Island                        | 33       |
| Browns Plains  | 40       | Mt Gravatt/Rochedale                  | 23       |
| Burbank/Belmont-Mackenzie  | 63       | Murarrie                              | 31       |
| Burpengary-Narangba  | 81       | Nathan                                | 30       |
| Caboolture - Central   | 80       | New Farm                              | 29       |
| Caboolture - East  | 79       | Northgate                             | 27       |
| Caboolture (S) - Hinterland  | 97       | Nudgee Beach/Virginia                 | 26       |
| Caboolture Balance   | 75       | Nundah/Wavell Heights                 | 25       |
| Calamvale  | 96       | Petrie                                | 87       |
| Camp Hill/Carindale  | 38       | Pine Rivers Balance                   | 94       |
| Cannon Hill/Norman Park  | 28       | Pinkenba-eagle Farm                   | 48       |
| Capalaba/Redland Bay   | 82       | Red Hill/Kelvin Groves                | 5        |
| Chandler-Capalaba West   | 64       | Redcliffe                             | 51       |
| Chelmer/Taringa  | 9        | Redland Balance                       | 93       |
| Chermside West/Chermside   | 52       | Rochedale South/Slacks Creek          | 71       |
| City/Spring Hill   | 47       | Rocklea                               | 60       |
| Clayfield/Hendra   | 13       | Runcorn/Eight Mile Plains             | 69       |
| Cleveland  | 85       | Salisbury                             | 61       |
| Coorparoo  | 66       | Seventeen Mile Rock                   | 57       |
| Darra-Sumner/Wacol   | 43       | St Lucia                              | 56       |
| Deception Bay  | 39       | Stafford Heights/Mitchelton           | 36       |
| Dutton Park/Woolloongabba  | 58       | Stretton-Karawatha/Kingston           | 74       |
| East Brisbane/Kangaroo Point   | 7        | Tanah Merah/Carbrook Cornubia         | 70       |
| Graceville/Oxley   | 19       | Thornside                             | 84       |
| Greenbank/Beaudesert   | 95       | Thornlands                            | 83       |
| Greenslopes  | 18       | Tingalpa                              | 92       |
| Gumdale/Wakerley   | 17       | Toowong                               | 90       |
| Hemmant-Lytton/Wynnum  | 14       | Underwood                             | 86       |
| Herston/Newstead   | 2        | Upper Brookfield/Fig Tree Pocket      | 4        |
| Hills District   | 89       | Waterford West                        | 41       |
| Holland Park/Tarragindi  | 1        | West End/Highgate Hill                | 12       |
| Inala/Richlands  | 22       | Wilston/Enoggera                      | 54       |
| Ipswich (C) - South-West   | 98       | Windsor/Wooloowin                     | 11       |
| Ipswich (C) - West   | 99       | Yeronga                               | 59       |
| Ipswich Central  | 44       |                                       |          |

<sup>#</sup>See Appendix D for a list of the allocation of Statistical Local Areas to Grouped Statistical Local Areas

Map 58: Key to Statistical Local Areas mapped for Perth

| Numerical Key to Statistical Local Areas (ASGC 2006) in Perth |          |                              |          |
|---|----------|------------------------------|----------|
| Statistical Local Area  | Map ref. | Statistical Local Area       | Map ref. |
| Cambridge (T)   | 1        | Stirling (C) - South-Eastern | 20       |
| Claremont (T)   | 2        | Wanneroo (C) - North-East    | 21       |
| Cottesloe (T)   | 3        | Wanneroo (C) - North-West    | 22       |
| Mosman Park (T)   | 4        | Wanneroo (C) - South         | 23       |
| Nedlands (C)  | 5        | Cockburn (C)                 | 24       |
| Peppermint Grove (S)  | 6        | East Fremantle (T)           | 25       |
| Perth (C) - Inner   | 7        | Fremantle (C) - Inner        | 26       |
| Perth (C) - Remainder   | 8        | Fremantle (C) - Remainder    | 27       |
| Subiaco (C)   | 9        | Kwinana (T)                  | 28       |
| Vincent (T)   | 10       | Melville (C)                 | 29       |
| Bassendean (T)  | 11       | Rockingham (C)               | 30       |
| Bayswater (C)   | 12       | Armadale (C)                 | 31       |
| Kalamunda (S)   | 13       | Belmont (C)                  | 32       |
| Mundaring (S)   | 14       | Canning (C)                  | 33       |
| Swan (C)  | 15       | Gosnells (C)                 | 34       |
| Joondalup (C) - North   | 16       | Serpentine-Jarrahdale (S)    | 35       |
| Joondalup (C) - South   | 17       | South Perth (C)              | 36       |
| Stirling (C) - Central  | 18       | Victoria Park (T)            | 37       |
| Stirling (C) - Coastal  | 19       |                              |          |



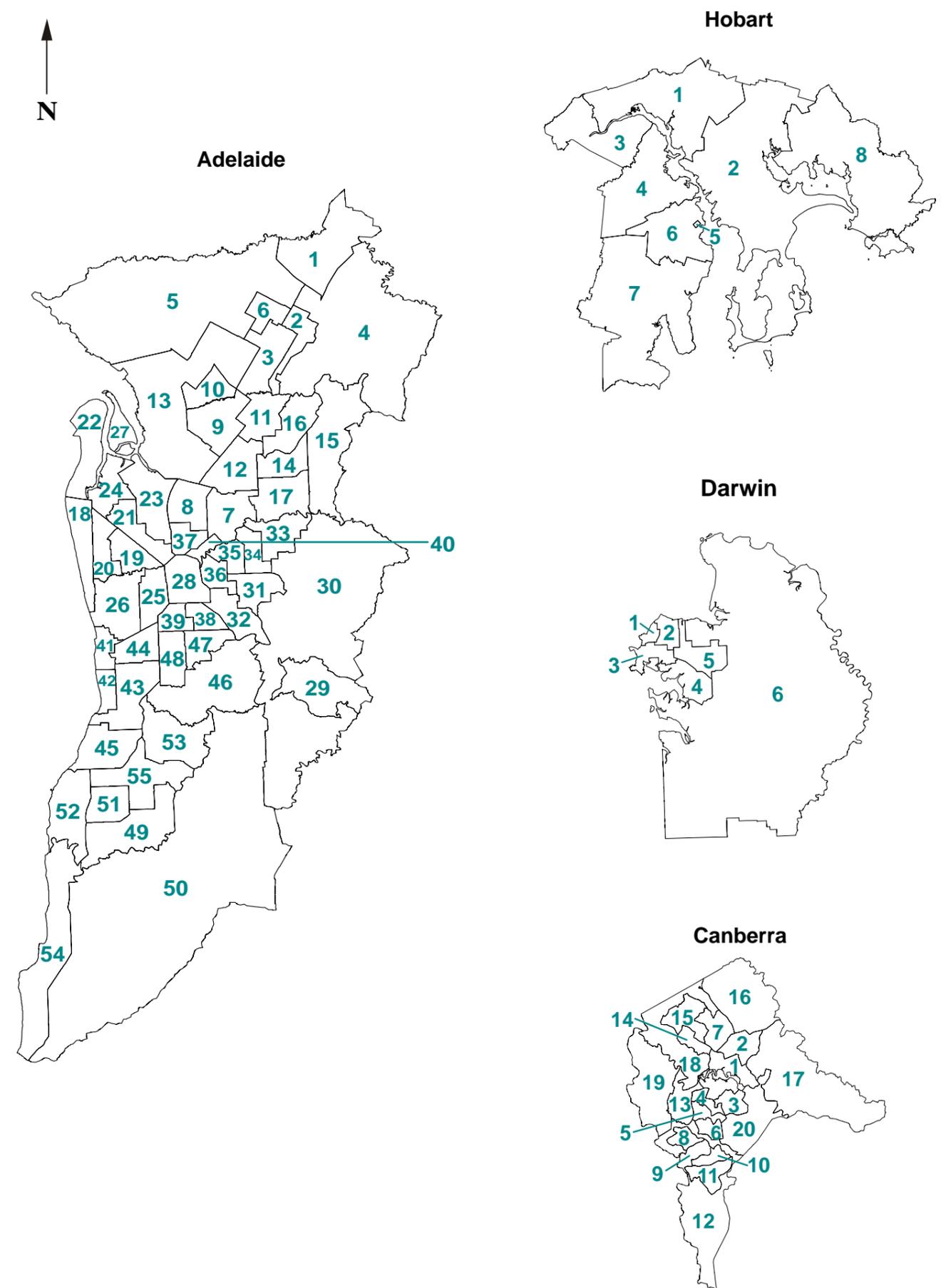
Map 58: Key to Statistical Local Areas mapped for Perth ... *continued*

| Alphabetical Key to Statistical Local Areas (ASGC 2006) in Perth |          |                              |          |
|--|----------|------------------------------|----------|
| Statistical Local Area   | Map ref. | Statistical Local Area       | Map ref. |
| Armadale (C)   | 31       | Mundaring (S)                | 14       |
| Bassendean (T)   | 11       | Nedlands (C)                 | 5        |
| Bayswater (C)  | 12       | Peppermint Grove (S)         | 6        |
| Belmont (C)  | 32       | Perth (C) - Inner            | 7        |
| Cambridge (T)  | 1        | Perth (C) - Remainder        | 8        |
| Canning (C)  | 33       | Rockingham (C)               | 30       |
| Claremont (T)  | 2        | Serpentine-Jarrahdale (S)    | 35       |
| Cockburn (C)   | 24       | South Perth (C)              | 36       |
| Cottesloe (T)  | 3        | Stirling (C) - Central       | 18       |
| East Fremantle (T)   | 25       | Stirling (C) - Coastal       | 19       |
| Fremantle (C) - Inner  | 26       | Stirling (C) - South-Eastern | 20       |
| Fremantle (C) - Remainder  | 27       | Subiaco (C)                  | 9        |
| Gosnells (C)   | 34       | Swan (C)                     | 15       |
| Joondalup (C) - North  | 16       | Victoria Park (T)            | 37       |
| Joondalup (C) - South  | 17       | Vincent (T)                  | 10       |
| Kalamunda (S)  | 13       | Wanneroo (C) - North-East    | 21       |
| Kwinana (T)  | 28       | Wanneroo (C) - North-West    | 22       |
| Melville (C)   | 29       | Wanneroo (C) - South         | 23       |
| Mosman Park (T)  | 4        |                              |          |

Map 59: Key to Statistical Local Areas mapped for Adelaide and Hobart, and Grouped Statistical Local Areas mapped for Darwin and Canberra

| Numerical Key to Statistical Local Areas (SLAs) (ASGC 2006) in Adelaide and Hobart, and Grouped SLAs# in Darwin and Canberra |          |                                     |          |
|--|----------|-------------------------------------|----------|
| Statistical Local Area/ Grouped SLA  | Map ref. | Statistical Local Area/ Grouped SLA | Map ref. |
| <b>Adelaide</b>  |          | <b>Adelaide ... continued</b>       |          |
| Gawler (T)   | 1        | Onkaparinga (C) - Hackham           | 49       |
| Playford (C) - East Central  | 2        | Onkaparinga (C) - Hills             | 50       |
| Playford (C) - Elizabeth   | 3        | Onkaparinga (C) - Morphett          | 51       |
| Playford (C) - Hills   | 4        | Onkaparinga (C) - North Coast       | 52       |
| Playford (C) - West  | 5        | Onkaparinga (C) - Reservoir         | 53       |
| Playford (C) - West Central  | 6        | Onkaparinga (C) - South Coast       | 54       |
| Port Adel. Enfield (C) - East  | 7        | Onkaparinga (C) - Woodcroft         | 55       |
| Port Adel. Enfield (C) - Inner   | 8        |                                     |          |
| Salisbury (C) - Central  | 9        | <b>Hobart</b>                       |          |
| Salisbury (C) - Inner North  | 10       | Brighton (M)                        | 1        |
| Salisbury (C) - North-East   | 11       | Clarence (C)                        | 2        |
| Salisbury (C) - South-East   | 12       | Derwent Valley (M) - Part A         | 3        |
| Salisbury (C) Balance  | 13       | Glenorchy (C)                       | 4        |
| Tea Tree Gully (C) - Central   | 14       | Hobart (C) - Inner                  | 5        |
| Tea Tree Gully (C) - Hills   | 15       | Hobart (C) - Remainder              | 6        |
| Tea Tree Gully (C) - North   | 16       | Kingborough (M) - Part A            | 7        |
| Tea Tree Gully (C) - South   | 17       | Sorell (M) - Part A                 | 8        |
| Charles Sturt (C) - Coastal  | 18       |                                     |          |
| Charles Sturt (C) - Inner East   | 19       | <b>Darwin</b>                       |          |
| Charles Sturt (C) - Inner West   | 20       | Darwin North West                   | 1        |
| Charles Sturt (C) - North-East   | 21       | Darwin North East                   | 2        |
| Port Adel. Enfield (C) - Coast   | 22       | Darwin South West                   | 3        |
| Port Adel. Enfield (C) - Park  | 23       | Palmerston                          | 4        |
| Port Adel. Enfield (C) - Port  | 24       | Litchfield (S) - Part A             | 5        |
| West Torrens (C) - East  | 25       | Litchfield (S) - Part B             | 6        |
| West Torrens (C) - West  | 26       |                                     |          |
| Unincorporated Western   | 27       | <b>Canberra</b>                     |          |
| Adelaide (C)   | 28       | Canberra Central                    | 1        |
| Adelaide Hills (DC) - Central  | 29       | Canberra North                      | 2        |
| Adelaide Hills (DC) - Ranges   | 30       | Canberra South                      | 3        |
| Burnside (C) - North-East  | 31       | Woden North                         | 4        |
| Burnside (C) - South-West  | 32       | Woden Central                       | 5        |
| Campbelltown (C) - East  | 33       | Woden South                         | 6        |
| Campbelltown (C) - West  | 34       | Belconnen North                     | 7        |
| Norw. Payneham St Peters (C) - East  | 35       | Kambah                              | 8        |
| Norw. Payneham St Peters (C) - West  | 36       | Tuggeranong North West              | 9        |
| Prospect (C)   | 37       | Tuggeranong North East              | 10       |
| Unley (C) - East   | 38       | Tuggeranong South East              | 11       |
| Unley (C) - West   | 39       | Tuggeranong South                   | 12       |
| Walkerville (M)  | 40       | Weston Creek                        | 13       |
| Holdfast Bay (C) - North   | 41       | Belconnen South                     | 14       |
| Holdfast Bay (C) - South   | 42       | Belconnen West                      | 15       |
| Marion (C) - Central   | 43       | Gungahlin                           | 16       |
| Marion (C) - North   | 44       | Kowen and Majura                    | 17       |
| Marion (C) - South   | 45       | Belconnen-SSD Balance               | 18       |
| Mitcham (C) - Hills  | 46       | Stromlo                             | 19       |
| Mitcham (C) - North-East   | 47       | Eastern Fringe                      | 20       |
| Mitcham (C) - West   | 48       |                                     |          |

#See Appendix D for a list of the allocation of Statistical Local Areas to Grouped Statistical Local Areas



Map 59: Key to Statistical Local Areas mapped for Adelaide and Hobart, and Grouped Statistical Local Areas mapped for Darwin and Canberra ... *continued*

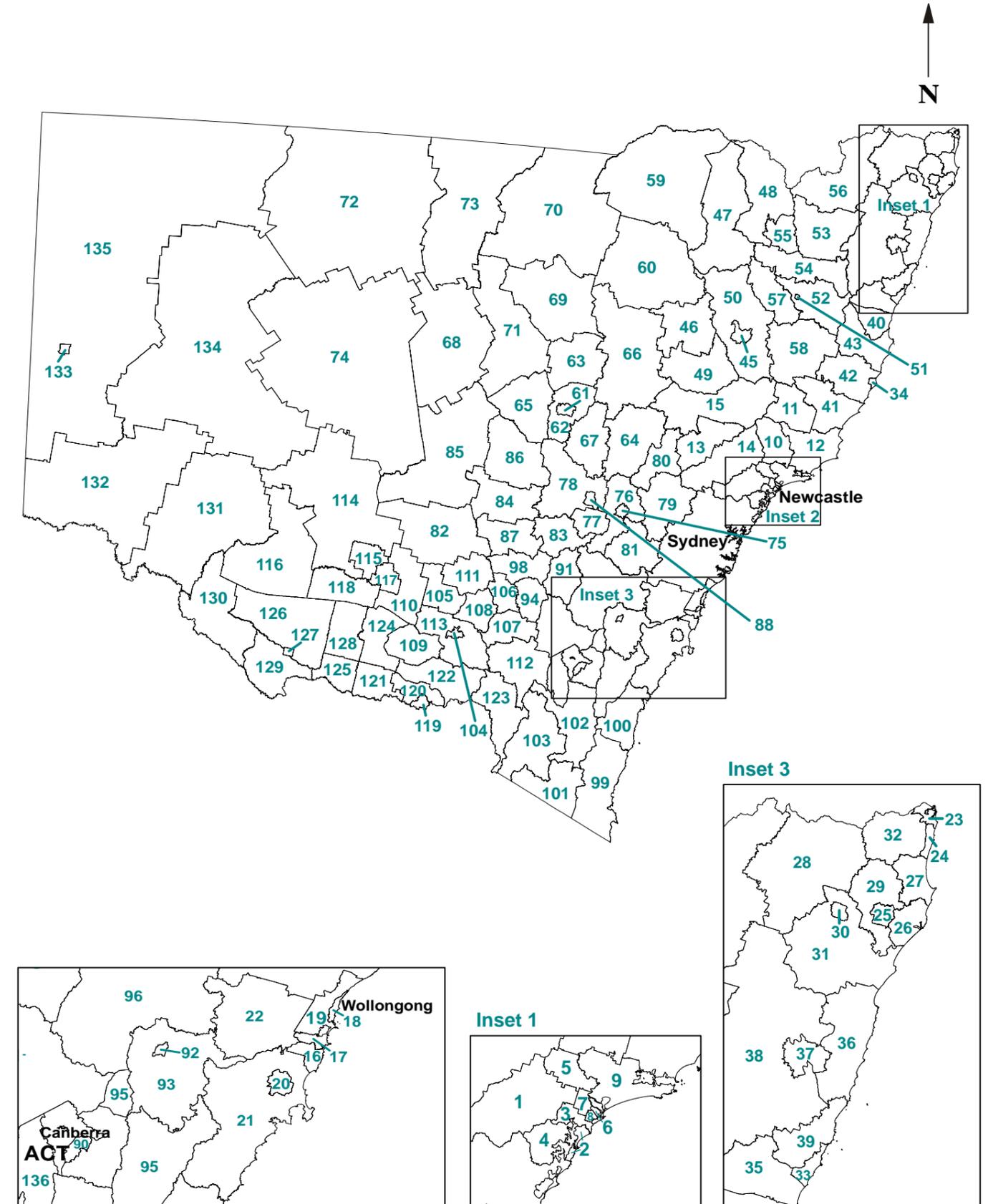
| Alphabetical Key to Statistical Local Areas (SLAs) (ASGC 2006) in Adelaide and Hobart, and Grouped SLAs <sup>#</sup> in Darwin and Canberra |          |                                     |          |
|---|----------|-------------------------------------|----------|
| Statistical Local Area/ Grouped SLA   | Map ref. | Statistical Local Area/ Grouped SLA | Map ref. |
| <b>Adelaide</b>   |          | <b>Adelaide ... continued</b>       |          |
| Adelaide (C)  | 28       | Tea Tree Gully (C) - South          | 17       |
| Adelaide Hills (DC) - Central   | 29       | Unincorporated Western              | 27       |
| Adelaide Hills (DC) - Ranges  | 30       | Unley (C) - East                    | 38       |
| Burnside (C) - North-East   | 31       | Unley (C) - West                    | 39       |
| Burnside (C) - South-West   | 32       | Walkerville (M)                     | 40       |
| Campbelltown (C) - East   | 33       | West Torrens (C) - East             | 25       |
| Campbelltown (C) - West   | 34       | West Torrens (C) - West             | 26       |
| Charles Sturt (C) - Coastal   | 18       |                                     |          |
| Charles Sturt (C) - Inner East  | 19       | <b>Hobart</b>                       |          |
| Charles Sturt (C) - Inner West  | 20       | Brighton (M)                        | 1        |
| Charles Sturt (C) - North-East  | 21       | Clarence (C)                        | 2        |
| Gawler (T)  | 1        | Derwent Valley (M) - Part A         | 3        |
| Holdfast Bay (C) - North  | 41       | Glenorchy (C)                       | 4        |
| Holdfast Bay (C) - South  | 42       | Hobart (C) - Inner                  | 5        |
| Marion (C) - Central  | 43       | Hobart (C) - Remainder              | 6        |
| Marion (C) - North  | 44       | Kingborough (M) - Part A            | 7        |
| Marion (C) - South  | 45       | Sorell (M) - Part A                 | 8        |
| Mitcham (C) - Hills   | 46       |                                     |          |
| Mitcham (C) - North-East  | 47       | <b>Darwin</b>                       |          |
| Mitcham (C) - West  | 48       | Darwin North West                   | 1        |
| Norw. Payneham St Peters (C) - East   | 35       | Darwin North East                   | 2        |
| Norw. Payneham St Peters (C) - West   | 36       | Darwin South West                   | 3        |
| Onkaparinga (C) - Hackham   | 49       | Litchfield (S) - Part A             | 5        |
| Onkaparinga (C) - Hills   | 50       | Litchfield (S) - Part B             | 6        |
| Onkaparinga (C) - Morphett  | 51       | Palmerston                          | 4        |
| Onkaparinga (C) - North Coast   | 52       |                                     |          |
| Onkaparinga (C) - Reservoir   | 53       | <b>Canberra</b>                     |          |
| Onkaparinga (C) - South Coast   | 54       | Belconnen North                     | 7        |
| Onkaparinga (C) - Woodcroft   | 55       | Belconnen South                     | 14       |
| Playford (C) - East Central   | 2        | Belconnen West                      | 15       |
| Playford (C) - Elizabeth  | 3        | Belconnen-SSD Balance               | 18       |
| Playford (C) - Hills  | 4        | Canberra Central                    | 1        |
| Playford (C) - West   | 5        | Canberra North                      | 2        |
| Playford (C) - West Central   | 6        | Canberra South                      | 3        |
| Port Adel. Enfield (C) - Coast  | 22       | Eastern Fringe                      | 20       |
| Port Adel. Enfield (C) - East   | 7        | Gungahlin                           | 16       |
| Port Adel. Enfield (C) - Inner  | 8        | Kambah                              | 8        |
| Port Adel. Enfield (C) - Park   | 23       | Kowen and Majura                    | 17       |
| Port Adel. Enfield (C) - Port   | 24       | Stromlo                             | 19       |
| Prospect (C)  | 37       | Tuggeranong North East              | 10       |
| Salisbury (C) - Central   | 9        | Tuggeranong North West              | 9        |
| Salisbury (C) - Inner North   | 10       | Tuggeranong South                   | 12       |
| Salisbury (C) - North-East  | 11       | Tuggeranong South East              | 11       |
| Salisbury (C) - South-East  | 12       | Weston Creek                        | 13       |
| Salisbury (C) Balance   | 13       | Woden Central                       | 5        |
| Tea Tree Gully (C) - Central  | 14       | Woden North                         | 4        |
| Tea Tree Gully (C) - Hills  | 15       | Woden South                         | 6        |
| Tea Tree Gully (C) - North  | 16       |                                     |          |

<sup>#</sup>See Appendix D for a list of the allocation of Statistical Local Areas to Grouped Statistical Local Areas

Key maps: Statistical Local Areas mapped for the non-metropolitan areas

| Numerical Key to Statistical Local Areas (ASGC 2006) in non-metropolitan New South Wales and the Australian Capital Territory |          |                                   |          |                                     |          |
|---|----------|-----------------------------------|----------|-------------------------------------|----------|
| Statistical Local Area  | Map ref. | Statistical Local Area            | Map ref. | Statistical Local Area              | Map ref. |
| <b>New South Wales</b>  |          |                                   |          |                                     |          |
| Cessnock (C)  | 1        | Gwydir (A)                        | 47       | Goulburn Mulwaree (A) Balance       | 93       |
| Lake Macquarie (C) - East   | 2        | Inverell (A) - Part A             | 48       | Harden (A)                          | 94       |
| Lake Macquarie (C) - North  | 3        | Liverpool Plains (A)              | 49       | Palerang (A) - Part B               | 95       |
| Lake Macquarie (C) - West   | 4        | Tamworth Regional (A) - Part B    | 50       | Upper Lachlan (A)                   | 96       |
| Maitland (C)  | 5        | Armidale Dumaresq (A) - City      | 51       | Yass Valley (A)                     | 97       |
| Newcastle (C) - Inner City  | 6        | Armidale Dumaresq (A) Balance     | 52       | Young (A)                           | 98       |
| Newcastle (C) - Outer West  | 7        | Glen Innes Severn (A)             | 53       | Bega Valley (A)                     | 99       |
| Newcastle (C) - Throsby   | 8        | Guyra (A)                         | 54       | Eurobodalla (A)                     | 100      |
| Port Stephens (A)   | 9        | Inverell (A) - Part B             | 55       | Bombala (A)                         | 101      |
| Dungog (A)  | 10       | Tenterfield (A)                   | 56       | Cooma-Monaro (A)                    | 102      |
| Gloucester (A)  | 11       | Uralla (A)                        | 57       | Snowy River (A)                     | 103      |
| Great Lakes (A)   | 12       | Walcha (A)                        | 58       | Wagga Wagga (C) - Part A            | 104      |
| Muswellbrook (A)  | 13       | Moree Plains (A)                  | 59       | Coolamon (A)                        | 105      |
| Singleton (A)   | 14       | Narrabri (A)                      | 60       | Cootamundra (A)                     | 106      |
| Upper Hunter Shire (A)  | 15       | Dubbo (C) - Part A                | 61       | Gundagai (A)                        | 107      |
| Kiama (A)   | 16       | Dubbo (C) - Part B                | 62       | Junee (A)                           | 108      |
| Shellharbour (C)  | 17       | Gilgandra (A)                     | 63       | Lockhart (A)                        | 109      |
| Wollongong (C) - Inner  | 18       | Mid-Western Regional (A) - Part A | 64       | Narrandera (A)                      | 110      |
| Wollongong (C) Balance  | 19       | Narromine (A)                     | 65       | Temora (A)                          | 111      |
| Shoalhaven (C) - Part A   | 20       | Warrumbungle Shire (A)            | 66       | Tumut Shire (A)                     | 112      |
| Shoalhaven (C) - Part B   | 21       | Wellington (A)                    | 67       | Wagga Wagga (C) - Part B            | 113      |
| Wingecarribee (A)   | 22       | Bogan (A)                         | 68       | Carrathool (A)                      | 114      |
| Tweed (A) - Tweed-Heads   | 23       | Coonamble (A)                     | 69       | Griffith (C)                        | 115      |
| Tweed (A) - Tweed Coast   | 24       | Walgett (A)                       | 70       | Hay (A)                             | 116      |
| Lismore (C) - Part A  | 25       | Warren (A)                        | 71       | Leeton (A)                          | 117      |
| Ballina (A)   | 26       | Bourke (A)                        | 72       | Murrumbidgee (A)                    | 118      |
| Byron (A)   | 27       | Brewarrina (A)                    | 73       | Albury (C)                          | 119      |
| Kyogle (A)  | 28       | Cobar (A)                         | 74       | Greater Hume Shire (A) - Part A     | 120      |
| Lismore (C) - Part B  | 29       | Bathurst Regional (A) - Part A    | 75       | Corowa Shire (A)                    | 121      |
| Richmond Valley (A) - Casino  | 30       | Bathurst Regional (A) - Part B    | 76       | Greater Hume Shire (A) - Part B     | 122      |
| Richmond Valley (A) Balance   | 31       | Blayney (A)                       | 77       | Tumbarumba (A)                      | 123      |
| Tweed (A) - Part B  | 32       | Cabonne (A)                       | 78       | Urana (A)                           | 124      |
| Coffs Harbour (C) - Part A  | 33       | Lithgow (C)                       | 79       | Berrigan (A)                        | 125      |
| Hastings (A) - Part A   | 34       | Mid-Western Regional (A) - Part B | 80       | Conargo (A)                         | 126      |
| Bellingen (A)   | 35       | Oberon (A)                        | 81       | Deniliquin (A)                      | 127      |
| Clarence Valley (A) - Coast   | 36       | Bland (A)                         | 82       | Jerilderie (A)                      | 128      |
| Clarence Valley (A) - Grafton   | 37       | Cowra (A)                         | 83       | Murray (A)                          | 129      |
| Clarence Valley (A) Balance   | 38       | Forbes (A)                        | 84       | Wakool (A)                          | 130      |
| Coffs Harbour (C) - Part B  | 39       | Lachlan (A)                       | 85       | Balranald (A)                       | 131      |
| Nambucca (A)  | 40       | Parkes (A)                        | 86       | Wentworth (A)                       | 132      |
| Greater Taree (C)   | 41       | Weddin (A)                        | 87       | Broken Hill (C)                     | 133      |
| Hastings (A) - Part B   | 42       | Orange (C)                        | 88       | Central Darling (A)                 | 134      |
| Kempsey (A)   | 43       | Palerang (A) - Part A             | 89       | Unincorporated Far West             | 135      |
| Lord Howe Island  | 44       | Queanbeyan (C)                    | 90       |                                     |          |
| Tamworth Regional (A) - Part A  | 45       | Boorowa (A)                       | 91       |                                     |          |
| Gunnedah (A)  | 46       | Goulburn Mulwaree (A) - Goulburn  | 92       |                                     |          |
|   |          |                                   |          | <b>Australian Capital Territory</b> |          |
|   |          |                                   |          | Remainder of ACT                    | 136      |

Map 60: Key to Statistical Local Areas mapped for non-metropolitan New South Wales and the Australian Capital Territory

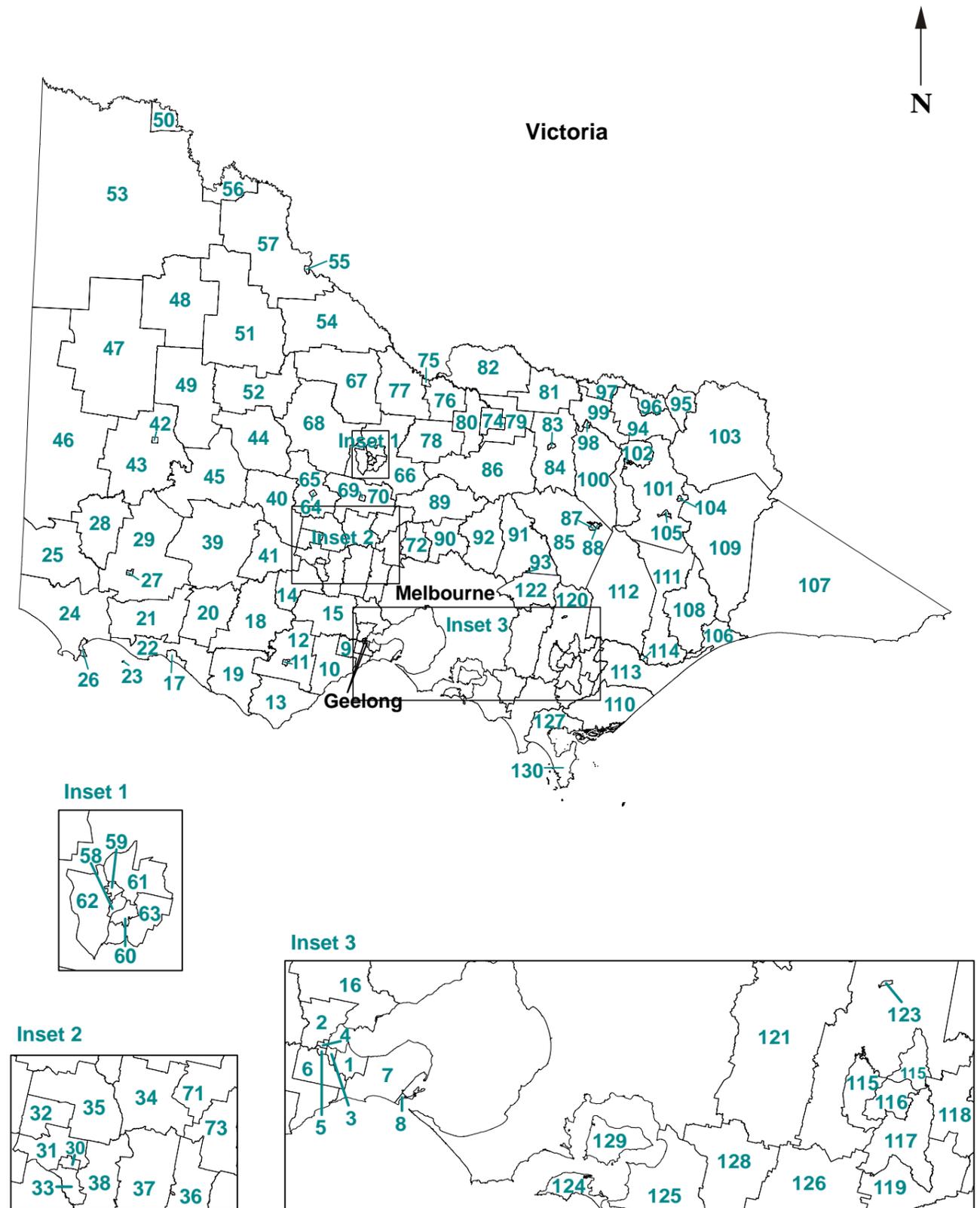


Map 60: Key to Statistical Local Areas mapped for non-metropolitan New South Wales and the Australian Capital Territory ... *continued*

| Alphabetical Key to Statistical Local Areas (ASGC 2006) in non-metropolitan New South Wales and the Australian Capital Territory |          |                                      |          |                                      |          |
|--|----------|--------------------------------------|----------|--------------------------------------|----------|
| Statistical Local Area   | Map ref. | Statistical Local Area               | Map ref. | Statistical Local Area               | Map ref. |
| <b>New South Wales</b>   |          | <b>New South Wales ... continued</b> |          | <b>New South Wales ... continued</b> |          |
| Albury (C)   | 119      | Goulburn Mulwaree (A) Balance        | 93       | Oberon (A)                           | 81       |
| Armidale Dumaresq (A) - City   | 51       | Great Lakes (A)                      | 12       | Orange (C)                           | 88       |
| Armidale Dumaresq (A) Balance  | 52       | Greater Hume Shire (A) - Part A      | 120      | Palerang (A) - Part A                | 89       |
| Ballina (A)  | 26       | Greater Hume Shire (A) - Part B      | 122      | Palerang (A) - Part B                | 95       |
| Balranald (A)  | 131      | Greater Taree (C)                    | 41       | Parkes (A)                           | 86       |
| Bathurst Regional (A) - Part A   | 75       | Griffith (C)                         | 115      | Port Stephens (A)                    | 9        |
| Bathurst Regional (A) - Part B   | 76       | Gundagai (A)                         | 107      | Queanbeyan (C)                       | 90       |
| Bega Valley (A)  | 99       | Gunnedah (A)                         | 46       | Richmond Valley (A) - Casino         | 30       |
| Bellingen (A)  | 35       | Guyra (A)                            | 54       | Richmond Valley (A) Balance          | 31       |
| Berrigan (A)   | 125      | Gwydir (A)                           | 47       | Shellharbour (C)                     | 17       |
| Bland (A)  | 82       | Harden (A)                           | 94       | Shoalhaven (C) - Part A              | 20       |
| Blayney (A)  | 77       | Hastings (A) - Part A                | 34       | Shoalhaven (C) - Part B              | 21       |
| Bogan (A)  | 68       | Hastings (A) - Part B                | 42       | Singleton (A)                        | 14       |
| Bombala (A)  | 101      | Hay (A)                              | 116      | Snowy River (A)                      | 103      |
| Boorowa (A)  | 91       | Inverell (A) - Part A                | 48       | Tamworth Regional (A) - Part A       | 45       |
| Bourke (A)   | 72       | Inverell (A) - Part B                | 55       | Tamworth Regional (A) - Part B       | 50       |
| Brewarrina (A)   | 73       | Jerilderie (A)                       | 128      | Temora (A)                           | 111      |
| Broken Hill (C)  | 133      | Junee (A)                            | 108      | Tenterfield (A)                      | 56       |
| Byron (A)  | 27       | Kempsey (A)                          | 43       | Tumbarumba (A)                       | 123      |
| Cabonne (A)  | 78       | Kiama (A)                            | 16       | Tumut Shire (A)                      | 112      |
| Carrathool (A)   | 114      | Kyogle (A)                           | 28       | Tweed (A) - Part B                   | 32       |
| Central Darling (A)  | 134      | Lachlan (A)                          | 85       | Tweed (A) - Tweed Coast              | 24       |
| Cessnock (C)   | 1        | Lake Macquarie (C) - East            | 2        | Tweed (A) - Tweed-Heads              | 23       |
| Clarence Valley (A) - Coast  | 36       | Lake Macquarie (C) - North           | 3        | Unincorporated Far West              | 135      |
| Clarence Valley (A) - Grafton  | 37       | Lake Macquarie (C) - West            | 4        | Upper Hunter Shire (A)               | 15       |
| Clarence Valley (A) Balance  | 38       | Leeton (A)                           | 117      | Upper Lachlan (A)                    | 96       |
| Cobar (A)  | 74       | Lismore (C) - Part A                 | 25       | Uralla (A)                           | 57       |
| Coffs Harbour (C) - Part A   | 33       | Lismore (C) - Part B                 | 29       | Urana (A)                            | 124      |
| Coffs Harbour (C) - Part B   | 39       | Lithgow (C)                          | 79       | Wagga Wagga (C) - Part A             | 104      |
| Conargo (A)  | 126      | Liverpool Plains (A)                 | 49       | Wagga Wagga (C) - Part B             | 113      |
| Coolamon (A)   | 105      | Lockhart (A)                         | 109      | Wakool (A)                           | 130      |
| Cooma-Monaro (A)   | 102      | Lord Howe Island                     | 44       | Walcha (A)                           | 58       |
| Coonamble (A)  | 69       | Maitland (C)                         | 5        | Walgett (A)                          | 70       |
| Cootamundra (A)  | 106      | Mid-Western Regional (A) - Part A    | 64       | Warren (A)                           | 71       |
| Corowa Shire (A)   | 121      | Mid-Western Regional (A) - Part B    | 80       | Warrumbungle Shire (A)               | 66       |
| Cowra (A)  | 83       | Moree Plains (A)                     | 59       | Weddin (A)                           | 87       |
| Deniliquin (A)   | 127      | Murray (A)                           | 129      | Wellington (A)                       | 67       |
| Dubbo (C) - Part A   | 61       | Murrumbidgee (A)                     | 118      | Wentworth (A)                        | 132      |
| Dubbo (C) - Part B   | 62       | Muswellbrook (A)                     | 13       | Wingecarribee (A)                    | 22       |
| Dungog (A)   | 10       | Nambucca (A)                         | 40       | Wollongong (C) - Inner               | 18       |
| Eurobodalla (A)  | 100      | Narrabri (A)                         | 60       | Wollongong (C) Balance               | 19       |
| Forbes (A)   | 84       | Narrandera (A)                       | 110      | Yass Valley (A)                      | 97       |
| Gilgandra (A)  | 63       | Narromine (A)                        | 65       | Young (A)                            | 98       |
| Glen Innes Severn (A)  | 53       | Newcastle (C) - Inner City           | 6        |                                      |          |
| Gloucester (A)   | 11       | Newcastle (C) - Outer West           | 7        | <b>Australian Capital Territory</b>  |          |
| Goulburn Mulwaree (A) - Goulburn   | 92       | Newcastle (C) - Throsby              | 8        | Remainder of ACT                     | 136      |

Map 61: Key to Statistical Local Areas mapped for non-metropolitan Victoria

| Numerical Key to Statistical Local Areas (ASGC 2006) in non-metropolitan Victoria |          |                                  |          |                               |          |
|---|----------|----------------------------------|----------|-------------------------------|----------|
| Statistical Local Area  | Map ref. | Statistical Local Area           | Map ref. | Statistical Local Area        | Map ref. |
| Bellarine - Inner   | 1        | N. Grampians (S) - Stawell       | 45       | Mount Stirling Alpine Resort  | 88       |
| Corio - Inner   | 2        | West Wimmera (S)                 | 46       | Mitchell (S) - North          | 89       |
| Geelong   | 3        | Hindmarsh (S)                    | 47       | Mitchell (S) - South          | 90       |
| Geelong West  | 4        | Yarriambiack (S) - North         | 48       | Murrindindi (S) - East        | 91       |
| Newtown   | 5        | Yarriambiack (S) - South         | 49       | Murrindindi (S) - West        | 92       |
| South Barwon - Inner  | 6        | Mildura (RC) - Part A            | 50       | Lake Mountain Alpine Resort   | 93       |
| Greater Geelong (C) - Part B  | 7        | Buloke (S) - North               | 51       | Indigo (S) - Part A           | 94       |
| Queenscliffe (B)  | 8        | Buloke (S) - South               | 52       | Towong (S) - Part A           | 95       |
| Surf Coast (S) - East   | 9        | Mildura (RC) - Part B            | 53       | Wodonga (RC)                  | 96       |
| Surf Coast (S) - West   | 10       | Gannawarra (S)                   | 54       | Indigo (S) - Part B           | 97       |
| Colac-Otway (S) - Colac   | 11       | Swan Hill (RC) - Central         | 55       | Wangaratta (RC) - Central     | 98       |
| Colac-Otway (S) - North   | 12       | Swan Hill (RC) - Robinvale       | 56       | Wangaratta (RC) - North       | 99       |
| Colac-Otway (S) - South   | 13       | Swan Hill (RC) Balance           | 57       | Wangaratta (RC) - South       | 100      |
| Golden Plains (S) - North-West  | 14       | Gr. Bendigo (C) - Central        | 58       | Alpine (S) - East             | 101      |
| Golden Plains (S) - South-East  | 15       | Gr. Bendigo (C) - Eaglehawk      | 59       | Alpine (S) - West             | 102      |
| Greater Geelong (C) - Part C  | 16       | Gr. Bendigo (C) - Inner East     | 60       | Towong (S) - Part B           | 103      |
| Warrnambool (C)   | 17       | Gr. Bendigo (C) - Inner North    | 61       | Falls Creek Alpine Resort     | 104      |
| Corangamite (S) - North   | 18       | Gr. Bendigo (C) - Inner West     | 62       | Mount Hotham Alpine Resort    | 105      |
| Corangamite (S) - South   | 19       | Gr. Bendigo (C) - S'Saye         | 63       | E. Gippsland (S) - Bairnsdale | 106      |
| Moyne (S) - North-East  | 20       | C. Goldfields (S) - Marlborough  | 64       | E. Gippsland (S) - Orbost     | 107      |
| Moyne (S) - North-West  | 21       | C. Goldfields (S) Balance        | 65       | E. Gippsland (S) - South-West | 108      |
| Moyne (S) - South   | 22       | Gr. Bendigo (C) - Part B         | 66       | E. Gippsland (S) Balance      | 109      |
| Lady Julia Percy Island   | 23       | Loddon (S) - North               | 67       | Wellington (S) - Alberton     | 110      |
| Glenelg (S) - Heywood   | 24       | Loddon (S) - South               | 68       | Wellington (S) - Avon         | 111      |
| Glenelg (S) - North   | 25       | Mount Alexander (S) - C'maine    | 69       | Wellington (S) - Maffra       | 112      |
| Glenelg (S) - Portland  | 26       | Mount Alexander (S) Balance      | 70       | Wellington (S) - Rosedale     | 113      |
| S. Grampians (S) - Hamilton   | 27       | Macedon Ranges (S) - Kyneton     | 71       | Wellington (S) - Sale         | 114      |
| S. Grampians (S) - Wannan   | 28       | Macedon Ranges (S) - Romsey      | 72       | Baw Baw (S) - Part A          | 115      |
| S. Grampians (S) Balance  | 29       | Macedon Ranges (S) Balance       | 73       | Latrobe (C) - Moe             | 116      |
| Ballarat (C) - Central  | 30       | Gr. Shepparton (C) - Part A      | 74       | Latrobe (C) - Morwell         | 117      |
| Ballarat (C) - Inner North  | 31       | Campaspe (S) - Echuca            | 75       | Latrobe (C) - Traralgon       | 118      |
| Ballarat (C) - North  | 32       | Campaspe (S) - Kyabram           | 76       | Latrobe (C) Balance           | 119      |
| Ballarat (C) - South  | 33       | Campaspe (S) - Rochester         | 77       | Baw Baw (S) - Part B East     | 120      |
| Hepburn (S) - East  | 34       | Campaspe (S) - South             | 78       | Baw Baw (S) - Part B West     | 121      |
| Hepburn (S) - West  | 35       | Gr. Shepparton (C) - Part B East | 79       | Yarra Ranges (S) - Part B     | 122      |
| Moorabool (S) - Bacchus Marsh   | 36       | Gr. Shepparton (C) - Part B West | 80       | Mount Baw Baw Alpine Resort   | 123      |
| Moorabool (S) - Ballan  | 37       | Moira (S) - East                 | 81       | Bass Coast (S) - Phillip Is.  | 124      |
| Moorabool (S) - West  | 38       | Moira (S) - West                 | 82       | Bass Coast (S) Balance        | 125      |
| Ararat (RC)   | 39       | Benalla (RC) - Benalla           | 83       | South Gippsland (S) - Central | 126      |
| Pyrenees (S) - North  | 40       | Benalla (RC) Balance             | 84       | South Gippsland (S) - East    | 127      |
| Pyrenees (S) - South  | 41       | Mansfield (S)                    | 85       | South Gippsland (S) - West    | 128      |
| Horsham (RC) - Central  | 42       | Strathbogie (S)                  | 86       | French Island                 | 129      |
| Horsham (RC) Balance  | 43       | Mount Buller Alpine Resort       | 87       | Bass Strait Islands           | 130      |
| N. Grampians (S) - St Arnaud  | 44       |                                  |          |                               |          |



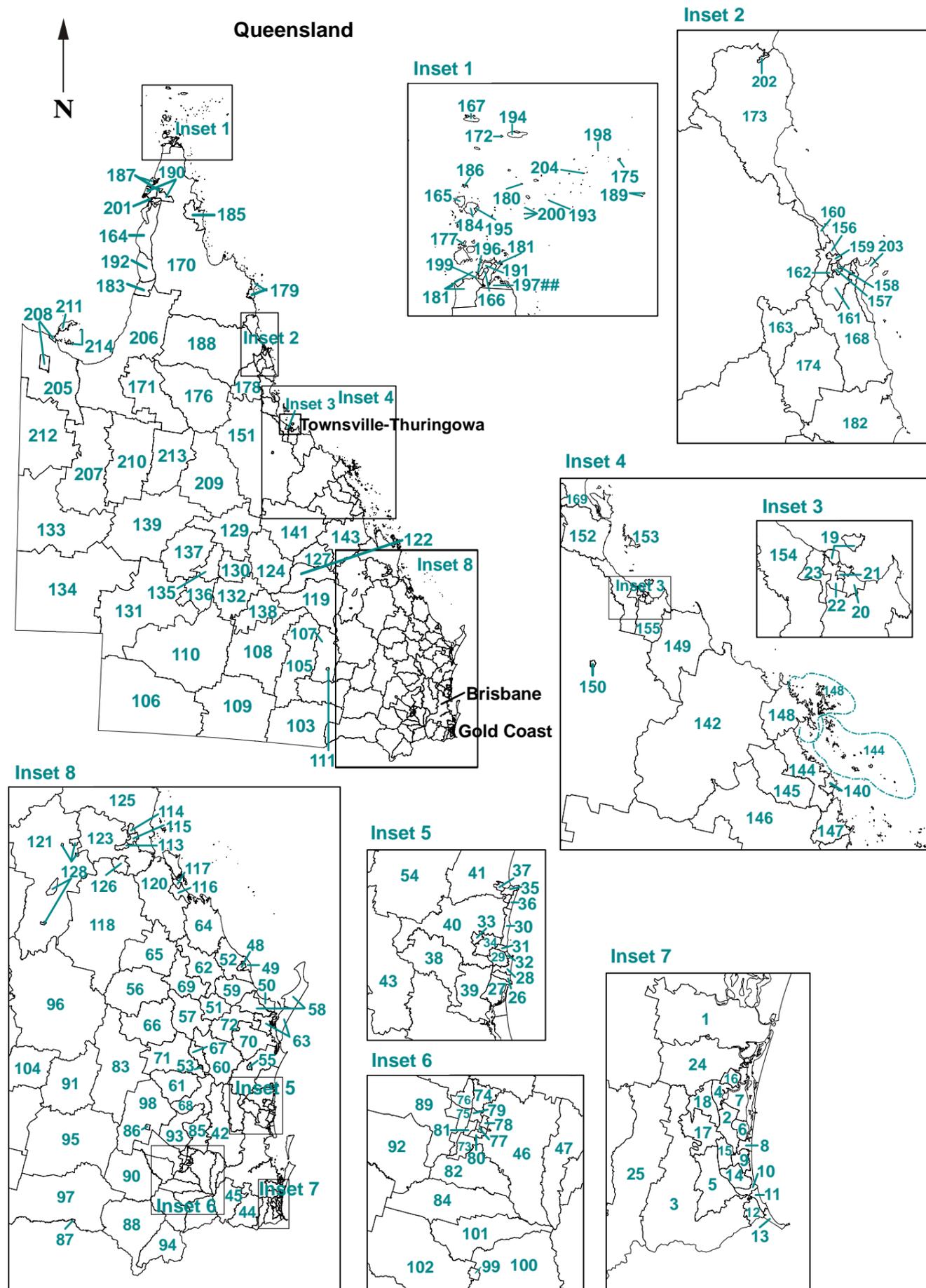
Map 61: Key to Statistical Local Areas mapped for non-metropolitan Victoria  
... continued

| Alphabetical Key to Statistical Local Areas (ASGC 2006) in non-metropolitan Victoria |          |                                  |          |                               |          |
|--|----------|----------------------------------|----------|-------------------------------|----------|
| Statistical Local Area   | Map ref. | Statistical Local Area           | Map ref. | Statistical Local Area        | Map ref. |
| Alpine (S) - East  | 101      | Gr. Bendigo (C) - Central        | 58       | Mount Buller Alpine Resort    | 87       |
| Alpine (S) - West  | 102      | Gr. Bendigo (C) - Eaglehawk      | 59       | Mount Hotham Alpine Resort    | 105      |
| Ararat (RC)  | 39       | Gr. Bendigo (C) - Inner East     | 60       | Mount Stirling Alpine Resort  | 88       |
| Ballarat (C) - Central   | 30       | Gr. Bendigo (C) - Inner North    | 61       | Moyne (S) - North-East        | 20       |
| Ballarat (C) - Inner North   | 31       | Gr. Bendigo (C) - Inner West     | 62       | Moyne (S) - North-West        | 21       |
| Ballarat (C) - North   | 32       | Gr. Bendigo (C) - Part B         | 66       | Moyne (S) - South             | 22       |
| Ballarat (C) - South   | 33       | Gr. Bendigo (C) - S'Saye         | 63       | Murrindindi (S) - East        | 91       |
| Bass Coast (S) - Phillip Is.   | 124      | Gr. Shepparton (C) - Part A      | 74       | Murrindindi (S) - West        | 92       |
| Bass Coast (S) Balance   | 125      | Gr. Shepparton (C) - Part B East | 79       | N. Grampians (S) - St Arnaud  | 44       |
| Bass Strait Islands  | 130      | Gr. Shepparton (C) - Part B West | 80       | N. Grampians (S) - Stawell    | 45       |
| Baw Baw (S) - Part A   | 115      | Greater Geelong (C) - Part B     | 7        | Newtown                       | 5        |
| Baw Baw (S) - Part B East  | 120      | Greater Geelong (C) - Part C     | 16       | Pyrenees (S) - North          | 40       |
| Baw Baw (S) - Part B West  | 121      | Hepburn (S) - East               | 34       | Pyrenees (S) - South          | 41       |
| Bellarine - Inner  | 1        | Hepburn (S) - West               | 35       | Queenscliffe (B)              | 8        |
| Benalla (RC) - Benalla   | 83       | Hindmarsh (S)                    | 47       | S. Grampians (S) - Hamilton   | 27       |
| Benalla (RC) Balance   | 84       | Horsham (RC) - Central           | 42       | S. Grampians (S) - Wannon     | 28       |
| Buloke (S) - North   | 51       | Horsham (RC) Balance             | 43       | S. Grampians (S) Balance      | 29       |
| Buloke (S) - South   | 52       | Indigo (S) - Part A              | 94       | South Barwon - Inner          | 6        |
| C. Goldfields (S) - Marlborough  | 64       | Indigo (S) - Part B              | 97       | South Gippsland (S) - Central | 126      |
| C. Goldfields (S) Balance  | 65       | Lady Julia Percy Island          | 23       | South Gippsland (S) - East    | 127      |
| Campaspe (S) - Echuca  | 75       | Lake Mountain Alpine Resort      | 93       | South Gippsland (S) - West    | 128      |
| Campaspe (S) - Kyabram   | 76       | Latrobe (C) - Moe                | 116      | Strathbogie (S)               | 86       |
| Campaspe (S) - Rochester   | 77       | Latrobe (C) - Morwell            | 117      | Surf Coast (S) - East         | 9        |
| Campaspe (S) - South   | 78       | Latrobe (C) - Traralgon          | 118      | Surf Coast (S) - West         | 10       |
| Colac-Otway (S) - Colac  | 11       | Latrobe (C) Balance              | 119      | Swan Hill (RC) - Central      | 55       |
| Colac-Otway (S) - North  | 12       | Loddon (S) - North               | 67       | Swan Hill (RC) - Robinvale    | 56       |
| Colac-Otway (S) - South  | 13       | Loddon (S) - South               | 68       | Swan Hill (RC) Balance        | 57       |
| Corangamite (S) - North  | 18       | Macedon Ranges (S) - Kyneton     | 71       | Towong (S) - Part A           | 95       |
| Corangamite (S) - South  | 19       | Macedon Ranges (S) - Romsey      | 72       | Towong (S) - Part B           | 103      |
| Corio - Inner  | 2        | Macedon Ranges (S) Balance       | 73       | Wangaratta (RC) - Central     | 98       |
| E. Gippsland (S) - Bairnsdale  | 106      | Mansfield (S)                    | 85       | Wangaratta (RC) - North       | 99       |
| E. Gippsland (S) - Orbost  | 107      | Mildura (RC) - Part A            | 50       | Wangaratta (RC) - South       | 100      |
| E. Gippsland (S) - South-West  | 108      | Mildura (RC) - Part B            | 53       | Warrnambool (C)               | 17       |
| E. Gippsland (S) Balance   | 109      | Mitchell (S) - North             | 89       | Wellington (S) - Albeton      | 110      |
| Falls Creek Alpine Resort  | 104      | Mitchell (S) - South             | 90       | Wellington (S) - Avon         | 111      |
| French Island  | 129      | Moira (S) - East                 | 81       | Wellington (S) - Maffra       | 112      |
| Gannawarra (S)   | 54       | Moira (S) - West                 | 82       | Wellington (S) - Rosedale     | 113      |
| Geelong  | 3        | Moorabool (S) - Bacchus Marsh    | 36       | Wellington (S) - Sale         | 114      |
| Geelong West   | 4        | Moorabool (S) - Ballan           | 37       | West Wimmera (S)              | 46       |
| Glenelg (S) - Heywood  | 24       | Moorabool (S) - West             | 38       | Wodonga (RC)                  | 96       |
| Glenelg (S) - North  | 25       | Mount Alexander (S) - C'maine    | 69       | Yarra Ranges (S) - Part B     | 122      |
| Glenelg (S) - Portland   | 26       | Mount Alexander (S) Balance      | 70       | Yarriambiack (S) - North      | 48       |
| Golden Plains (S) - North-West   | 14       | Mount Baw Baw Alpine Resort      | 123      | Yarriambiack (S) - South      | 49       |
| Golden Plains (S) - South-East   | 15       |                                  |          |                               |          |

Map 62: Key to Statistical Local Areas and Grouped Statistical Local Areas mapped for non-metropolitan Queensland

| Numerical Key to Statistical Local Areas (SLAs) and Grouped SLAs* (ASGC 2006) in non-metropolitan Queensland |             |  |             |  |             |
|--|-------------|--|-------------|--|-------------|
| Statistical Local Area/<br>Grouped SLA   | Map<br>ref. | Statistical Local Area/<br>Grouped SLA | Map<br>ref. | Statistical Local Area/<br>Grouped SLA | Map<br>ref. |
| Bethania-Waterford/Eagleby   | 1           | Cambooya (S) - Part A                  | 73          | Mackay (C) - Part B                    | 144         |
| Arundel/Ashmore  | 2           | Crow's Nest (S) - Part A               | 74          | Mirani (S)                             | 145         |
| Guanaba-Currumbin Valley   | 3           | Jondaryan (S) - Part A                 | 75          | Nebo (S)                               | 146         |
| Helensvale   | 4           | Rosalie (S) - Part A                   | 76          | Sarina (S)                             | 147         |
| Worongary-Tallai/Mudgeeraba  | 5           | Toowoomba (C) - Central                | 77          | Whitsunday (S)                         | 148         |
| Labrador/Southport   | 6           | Toowoomba (C) - North-East             | 78          | Burdekin (S)                           | 149         |
| Paradise Point/Biggera Waters  | 7           | Toowoomba (C) - North-West             | 79          | Charters Towers (C)                    | 150         |
| Surfers Paradise/Benowa  | 8           | Toowoomba (C) - South-East             | 80          | Dalrymple (S)                          | 151         |
| Broadbeach Waters/Mermaid Waters   | 9           | Toowoomba (C) - West                   | 81          | Hinchinbrook (S)                       | 152         |
| Broadbeach/Burleigh Heads  | 10          | Cambooya (S) - Part B                  | 82          | Palm Island (S)                        | 153         |
| Palm Beach/Currumbin   | 11          | Chinchilla (S)                         | 83          | Thuringowa (C) - Part B                | 154         |
| Currumbin Waters/Elanora   | 12          | Clifton (S)                            | 84          | Townsville (C) - Part B                | 155         |
| Coolangatta/Tugun  | 13          | Crow's Nest (S) - Part B               | 85          | Cairns (C) - Barron                    | 156         |
| Robina/Burleigh Waters   | 14          | Dalby (T)                              | 86          | Cairns (C) - Central Suburbs           | 157         |
| Carrara-Merrimac   | 15          | Goondiwindi (T)                        | 87          | Cairns (C) - City                      | 158         |
| Hope Island  | 16          | Inglewood (S)                          | 88          | Cairns (C) - Mt Whitfield              | 159         |
| Nerang   | 17          | Jondaryan (S) - Part B                 | 89          | Cairns (C) - Northern Suburbs          | 160         |
| Oxenford   | 18          | Millmerran (S)                         | 90          | Cairns (C) - Trinity                   | 161         |
| Townsville Coastal/Magnetic Island   | 19          | Murilla (S)                            | 91          | Cairns (C) - Western Suburbs           | 162         |
| Townsville South East  | 20          | Pittsworth (S)                         | 92          | Atherton (S)                           | 163         |
| Gulliver/Hermit Park   | 21          | Rosalie (S) - Part B                   | 93          | Aurukun (S)                            | 164         |
| Murray/Mt Louisa   | 22          | Stanthorpe (S)                         | 94          | Badu (IC)                              | 165         |
| Thuringowa - Part A  | 23          | Tara (S)                               | 95          | Bamaga (IC)                            | 166         |
| Coomera-Cedar Creek  | 24          | Taroom (S)                             | 96          | Boigu (IC)                             | 167         |
| Beaudesert (S) - Part B  | 25          | Waggamba (S)                           | 97          | Cairns (C) - Part B                    | 168         |
| Caloundra (C) - Caloundra N.   | 26          | Wambo (S)                              | 98          | Cardwell (S)                           | 169         |
| Caloundra (C) - Caloundra S.   | 27          | Warwick (S) - Central                  | 99          | Cook (S)                               | 170         |
| Caloundra (C) - Kawana   | 28          | Warwick (S) - East                     | 100         | Croydon (S)                            | 171         |
| Maroochy (S) - Buderim   | 29          | Warwick (S) - North                    | 101         | Dauan (IC)                             | 172         |
| Maroochy (S) - Coastal North   | 30          | Warwick (S) - West                     | 102         | Douglas (S)                            | 173         |
| Maroochy (S) - Maroochydoore   | 31          | Balonne (S)                            | 103         | Eacham (S)                             | 174         |
| Maroochy (S) - Mooloolaba  | 32          | Bendmere (S)                           | 104         | Erub (IC)                              | 175         |
| Maroochy (S) - Nambour   | 33          | Booringa (S)                           | 105         | Etheridge (S)                          | 176         |
| Maroochy (S) - Paynter-Petrie Creek  | 34          | Bulloo (S)                             | 106         | Hammond (IC)                           | 177         |
| Noosa (S) - Noosa-Noosaville   | 35          | Bungil (S)                             | 107         | Herberton (S)                          | 178         |
| Noosa (S) - Sunshine-Peregian  | 36          | Murweh (S)                             | 108         | Hope Vale (S)                          | 179         |
| Noosa (S) - Tewantin   | 37          | Paroo (S)                              | 109         | Iama (IC)                              | 180         |
| Caloundra (C) - Hinterland   | 38          | Quilpie (S)                            | 110         | Injinoo (S)                            | 181         |
| Caloundra (C) - Rail Corridor  | 39          | Roma (T)                               | 111         | Johnstone (S)                          | 182         |
| Maroochy (S) Balance   | 40          | Warroo (S)                             | 112         | Kowanyama (S)                          | 183         |
| Noosa (S) Balance  | 41          | Fitzroy (S) - Part A                   | 113         | Kubin (IC)                             | 184         |
| Esk (S)  | 42          | Livingstone (S) - Part A               | 114         | Lockhart River (S)                     | 185         |
| Kilcoy (S)   | 43          | Rockhampton (C)                        | 115         | Mabuiag (IC)                           | 186         |
| Beaudesert (S) - Part C  | 44          | Calliope (S) - Part A                  | 116         | Mapoon (S)                             | 187         |
| Boonah (S)   | 45          | Gladstone (C)                          | 117         | Mareeba (S)                            | 188         |
| Gatton (S)   | 46          | Banana (S)                             | 118         | Mer (IC)                               | 189         |
| Laidley (S)  | 47          | Bauhinia (S)                           | 119         | Napranum (S)                           | 190         |
| Bundaberg (C)  | 48          | Calliope (S) - Part B                  | 120         | New Mapoon (S)                         | 191         |
| Burnett (S) - Part A   | 49          | Duaringa (S)                           | 121         | Pormpuraaw (S)                         | 192         |
| Hervey Bay (C) - Part A  | 50          | Emerald (S)                            | 122         | Poruma (IC)                            | 193         |
| Biggenden (S)  | 51          | Fitzroy (S) - Part B                   | 123         | Saibai (IC)                            | 194         |
| Burnett (S) - Part B   | 52          | Jericho (S)                            | 124         | St Pauls (IC)                          | 195         |
| Cherbourg (S)  | 53          | Livingstone (S) - Part B               | 125         | Seisia (IC)                            | 196         |
| Cooloola (S) (excl. Gympie)  | 54          | Mount Morgan (S)                       | 126         | Torres (S)                             | 197         |
| Cooloola (S) - Gympie only   | 55          | Peak Downs (S)                         | 127         | Ugar (IC)                              | 198         |
| Eidsvold (S)   | 56          | Woorabinda (S)                         | 128         | Umagico (S)                            | 199         |
| Gayndah (S)  | 57          | Aramac (S)                             | 129         | Warraber (IC)                          | 200         |
| Hervey Bay (C) - Part B  | 58          | Barcaldine (S)                         | 130         | Weipa (T)                              | 201         |
| Isis (S)   | 59          | Barcoo (S)                             | 131         | Wujal Wujal (S)                        | 202         |
| Kilkivan (S)   | 60          | Blackall (S)                           | 132         | Yarrabah (S)                           | 203         |
| Kingaroy (S)   | 61          | Boulia (S)                             | 133         | Yorke (IC)                             | 204         |
| Kolan (S)  | 62          | Diamantina (S)                         | 134         | Burke (S)                              | 205         |
| Maryborough (C)  | 63          | Ilfracombe (S)                         | 135         | Carpentaria (S)                        | 206         |
| Miriam Vale (S)  | 64          | Isisford (S)                           | 136         | Cloncurry (S)                          | 207         |
| Monto (S)  | 65          | Longreach (S)                          | 137         | Doomadgee (S)                          | 208         |
| Mundubbera (S)   | 66          | Tambo (S)                              | 138         | Flinders (S)                           | 209         |
| Murgon (S)   | 67          | Winton (S)                             | 139         | McKinlay (S)                           | 210         |
| Nanango (S)  | 68          | Mackay (C) - Part A                    | 140         | Mornington (S)                         | 211         |
| Perry (S)  | 69          | Belyando (S)                           | 141         | Mount Isa (C)                          | 212         |
| Tiaro (S)  | 70          | Bowen (S)                              | 142         | Richmond (S)                           | 213         |
| Wondai (S)   | 71          | Broadsound (S)                         | 143         | Unincorporated Islands                 | 214         |
| Woocoo (S)   | 72          |  |             |  |             |

\*See Appendix D for a list of the allocation of Statistical Local Areas to Grouped Statistical Local Areas



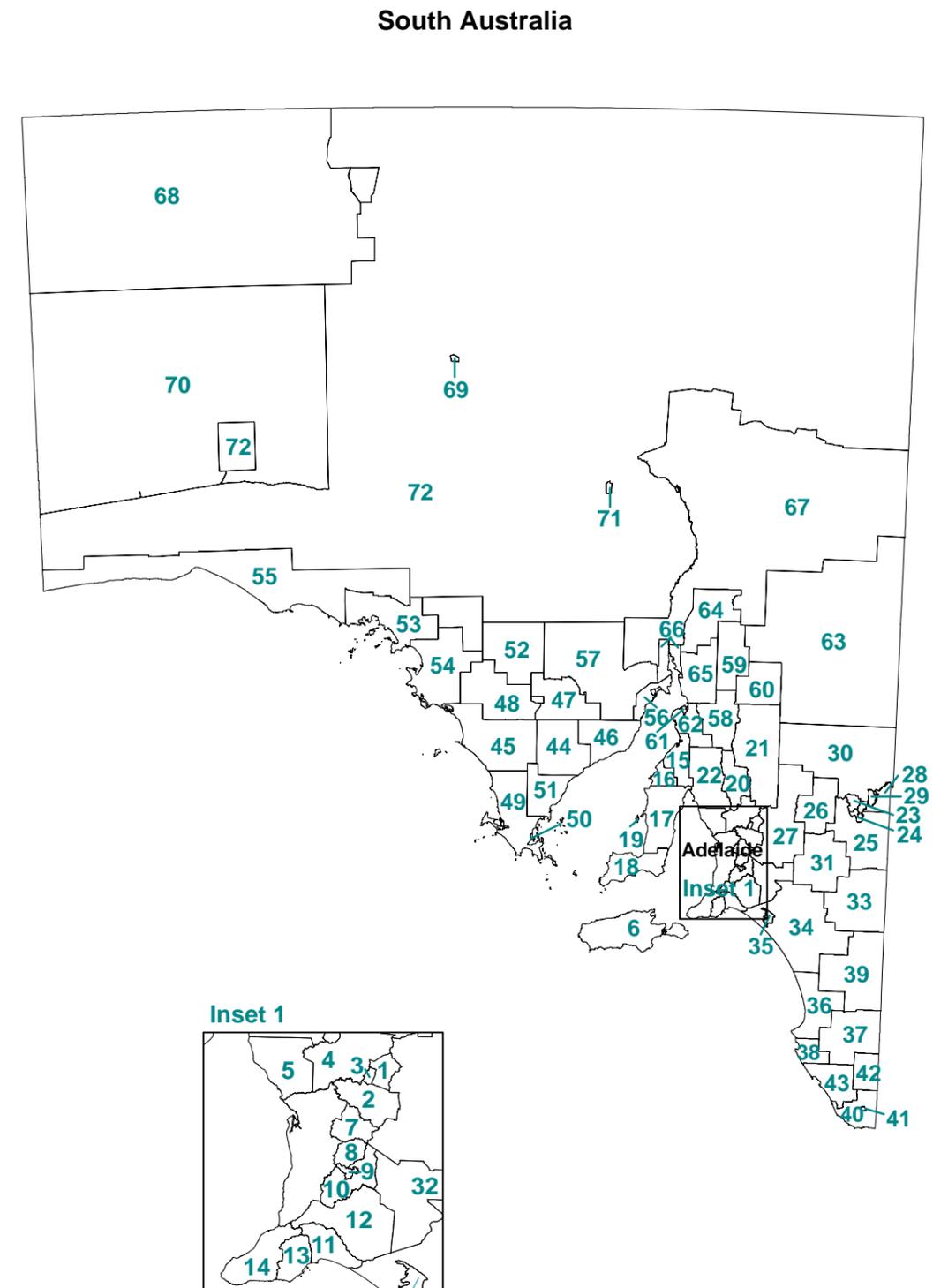
Map 62: Key to SLAs and Grouped SLAs mapped for non-metropolitan Queensland ... continued

| Alphabetical Key to Statistical Local Areas (SLAs) and Grouped SLAs* (ASGC 2006) in non-metropolitan Queensland |             |  |             |  |             |
|---|-------------|--|-------------|--|-------------|
| Statistical Local Area/<br>Grouped SLA  | Map<br>ref. | Statistical Local Area/<br>Grouped SLA | Map<br>ref. | Statistical Local Area/<br>Grouped SLA | Map<br>ref. |
| Aramac (S)  | 129         | Douglas (S)                            | 173         | Murilla (S)                            | 91          |
| Arundel/Ashmore   | 2           | Duaringa (S)                           | 121         | Murray/Mt Louisa                       | 22          |
| Atherton (S)  | 163         | Eacham (S)                             | 174         | Murweh (S)                             | 108         |
| Aurukun (S)   | 164         | Eidsvold (S)                           | 56          | Nanango (S)                            | 68          |
| Badu (IC)   | 165         | Emerald (S)                            | 122         | Napranum (S)                           | 190         |
| Balonne (S)   | 103         | Erub (IC)                              | 175         | Nebo (S)                               | 146         |
| Bamaga (IC)   | 166         | Esk (S)                                | 42          | Nerang                                 | 17          |
| Banana (S)  | 118         | Etheridge (S)                          | 176         | New Mapoon (S)                         | 191         |
| Barcaldine (S)  | 130         | Fitzroy (S) - Part A                   | 113         | Noosa (S) - Noosa-Noosaville           | 35          |
| Barcoo (S)  | 131         | Fitzroy (S) - Part B                   | 123         | Noosa (S) - Sunshine-Peregian          | 36          |
| Bauhinia (S)  | 119         | Flinders (S)                           | 209         | Noosa (S) - Tewantin                   | 37          |
| Beaudesert (S) - Part B   | 25          | Gatton (S)                             | 46          | Noosa (S) Balance                      | 41          |
| Beaudesert (S) - Part C   | 44          | Gayndah (S)                            | 57          | Oxenford                               | 18          |
| Belyando (S)  | 141         | Gladstone (C)                          | 117         | Palm Beach/Currumbin                   | 11          |
| Bendemere (S)   | 104         | Goondiwindi (T)                        | 87          | Palm Island (S)                        | 153         |
| Bethania-Waterford/Eagleby  | 1           | Guanaba-Currumbin Valley               | 3           | Paradise Point/Biggera Waters          | 7           |
| Biggenden (S)   | 51          | Gulliver/Hermit Park                   | 21          | Paroo (S)                              | 109         |
| Blackall (S)  | 132         | Hammond (IC)                           | 177         | Peak Downs (S)                         | 127         |
| Boigu (IC)  | 167         | Helensvale                             | 4           | Perry (S)                              | 69          |
| Boonah (S)  | 45          | Herberton (S)                          | 178         | Pittsworth (S)                         | 92          |
| Booringa (S)  | 105         | Hervey Bay (C) - Part A                | 50          | Pompuraaw (S)                          | 192         |
| Boulia (S)  | 133         | Hervey Bay (C) - Part B                | 58          | Poruma (IC)                            | 193         |
| Bowen (S)   | 142         | Hinchinbrook (S)                       | 152         | Quilpie (S)                            | 110         |
| Broadbeach Waters/Mermaid Waters  | 9           | Hope Island                            | 16          | Richmond (S)                           | 213         |
| Broadbeach/Burleigh Heads   | 10          | Hope Vale (S)                          | 179         | Robina/Burleigh Waters                 | 14          |
| Broadsound (S)  | 143         | Iama (IC)                              | 180         | Rockhampton (C)                        | 115         |
| Bulloo (S)  | 106         | Ilfracombe (S)                         | 135         | Roma (T)                               | 111         |
| Bundaberg (C)   | 48          | Inglewood (S)                          | 88          | Rosalie (S) - Part A                   | 76          |
| Bungil (S)  | 107         | Injinoos (S)                           | 181         | Rosalie (S) - Part B                   | 93          |
| Burdekin (S)  | 149         | Isis (S)                               | 59          | Saibai (IC)                            | 194         |
| Burke (S)   | 205         | Isisford (S)                           | 136         | Sarina (S)                             | 147         |
| Burnett (S) - Part A  | 49          | Jericho (S)                            | 124         | Seisia (IC)                            | 196         |
| Burnett (S) - Part B  | 52          | Johnstone (S)                          | 182         | St Pauls (IC)                          | 195         |
| Cairns (C) - Barron   | 156         | Jondaryan (S) - Part A                 | 75          | Stanthorpe (S)                         | 94          |
| Cairns (C) - Central Suburbs  | 157         | Jondaryan (S) - Part B                 | 89          | Surfers Paradise/Benowa                | 8           |
| Cairns (C) - City   | 158         | Kilcoy (S)                             | 43          | Tambo (S)                              | 138         |
| Cairns (C) - Mt Whitfield   | 159         | Kilkivan (S)                           | 60          | Tara (S)                               | 95          |
| Cairns (C) - Northern Suburbs   | 160         | Kingaroy (S)                           | 61          | Taroom (S)                             | 96          |
| Cairns (C) - Part B   | 168         | Kolan (S)                              | 62          | Thuringowa - Part A                    | 23          |
| Cairns (C) - Trinity  | 161         | Kowanyama (S)                          | 183         | Thuringowa (C) - Part B                | 154         |
| Cairns (C) - Western Suburbs  | 162         | Kubin (IC)                             | 184         | Tiaro (S)                              | 70          |
| Calliope (S) - Part A   | 116         | Labrador/Southport                     | 6           | Toowoomba (C) - Central                | 77          |
| Calliope (S) - Part B   | 120         | Laidley (S)                            | 47          | Toowoomba (C) - North-East             | 78          |
| Caloundra (C) - Caloundra N.  | 26          | Livingstone (S) - Part A               | 114         | Toowoomba (C) - North-West             | 79          |
| Caloundra (C) - Caloundra S.  | 27          | Livingstone (S) - Part B               | 125         | Toowoomba (C) - South-East             | 80          |
| Caloundra (C) - Hinterland  | 38          | Lockhart River (S)                     | 185         | Toowoomba (C) - West                   | 81          |
| Caloundra (C) - Kawana  | 28          | Longreach (S)                          | 137         | Torres (S)                             | 197         |
| Caloundra (C) - Rail Corridor   | 39          | Mabuiag (IC)                           | 186         | Townsville (C) - Part B                | 155         |
| Cambooya (S) - Part A   | 73          | Mackay (C) - Part A                    | 140         | Townsville Coastal/Magnetic Island     | 19          |
| Cambooya (S) - Part B   | 82          | Mackay (C) - Part B                    | 144         | Townsville South East                  | 20          |
| Cardwell (S)  | 169         | Mapoon (S)                             | 187         | Ugar (IC)                              | 198         |
| Carpentaria (S)   | 206         | Mareeba (S)                            | 188         | Umagico (S)                            | 199         |
| Carrara-Merrimac  | 15          | Maroochy (S) - Buderim                 | 29          | Unincorporated Islands                 | 214         |
| Charters Towers (C)   | 150         | Maroochy (S) - Coastal North           | 30          | Waggamba (S)                           | 97          |
| Cherbourg (S)   | 53          | Maroochy (S) - Maroochydore            | 31          | Wambo (S)                              | 98          |
| Chinchilla (S)  | 83          | Maroochy (S) - Mooloolaba              | 32          | Warraber (IC)                          | 200         |
| Clifton (S)   | 84          | Maroochy (S) - Nambour                 | 33          | Warroo (S)                             | 112         |
| Cloncurry (S)   | 207         | Maroochy (S) - Paynter-Petrie Creek    | 34          | Warwick (S) - Central                  | 99          |
| Cook (S)  | 170         | Maroochy (S) Balance                   | 40          | Warwick (S) - East                     | 100         |
| Coolangatta/Tugun   | 13          | Maryborough (C)                        | 63          | Warwick (S) - North                    | 101         |
| Cooloola (S) - Gympie only  | 55          | McKinlay (S)                           | 210         | Warwick (S) - West                     | 102         |
| Cooloola (S) (excl. Gympie)   | 54          | Mer (IC)                               | 189         | Weipa (T)                              | 201         |
| Coomera-Cedar Creek   | 24          | Millmerran (S)                         | 90          | Whitsunday (S)                         | 148         |
| Crow's Nest (S) - Part A  | 74          | Mirani (S)                             | 145         | Winton (S)                             | 139         |
| Crow's Nest (S) - Part B  | 85          | Miriam Vale (S)                        | 64          | Wondai (S)                             | 71          |
| Croydon (S)   | 171         | Monto (S)                              | 65          | Woocoo (S)                             | 72          |
| Currumbin Waters/Elanora  | 12          | Mornington (S)                         | 211         | Woorabinda (S)                         | 128         |
| Dalby (T)   | 86          | Mount Isa (C)                          | 212         | Worongary-Tallai/Mudgeeraba            | 5           |
| Dalrymple (S)   | 151         | Mount Morgan (S)                       | 126         | Wujal Wujal (S)                        | 202         |
| Dauan (IC)  | 172         | Mundubbera (S)                         | 66          | Yarrabah (S)                           | 203         |
| Diamantina (S)  | 134         | Murgon (S)                             | 67          | Yorke (IC)                             | 204         |
| Doomadgee (S)   | 208         |  |             |  |             |

\*See Appendix D for a list of the allocation of Statistical Local Areas to Grouped Statistical Local Areas

Map 63: Key to Statistical Local Areas mapped for non-metropolitan South Australia

| Numerical Key to Statistical Local Areas (SLAs) (ASGC 2006) in non-metropolitan South Australia |          |                                |          |
|---|----------|--------------------------------|----------|
| Statistical Local Area  | Map ref. | Statistical Local Area         | Map ref. |
| Barossa (DC) - Angaston   | 1        | Naracoorte and Lucindale (DC)  | 37       |
| Barossa (DC) - Barossa  | 2        | Robe (DC)                      | 38       |
| Barossa (DC) - Tanunda  | 3        | Tatiara (DC)                   | 39       |
| Light (RegC)  | 4        | Grant (DC)                     | 40       |
| Mallala (DC)  | 5        | Mount Gambier (C)              | 41       |
| Kangaroo Island (DC)  | 6        | Wattle Range (DC) - East       | 42       |
| Adelaide Hills (DC) - North   | 7        | Wattle Range (DC) - West       | 43       |
| Adelaide Hills (DC) Balance   | 8        | Cleve (DC)                     | 44       |
| Mount Barker (DC) - Central   | 9        | Elliston (DC)                  | 45       |
| Mount Barker (DC) Balance   | 10       | Franklin Harbour (DC)          | 46       |
| Alexandrina (DC) - Coastal  | 11       | Kimba (DC)                     | 47       |
| Alexandrina (DC) - Strathalbyn  | 12       | Le Hunte (DC)                  | 48       |
| Victor Harbor (C)   | 13       | Lower Eyre Peninsula (DC)      | 49       |
| Yankalilla (DC)   | 14       | Port Lincoln (C)               | 50       |
| Barunga West (DC)   | 15       | Tumby Bay (DC)                 | 51       |
| Copper Coast (DC)   | 16       | Unincorporated Lincoln         | 52       |
| Yorke Peninsula (DC) - North  | 17       | Ceduna (DC)                    | 53       |
| Yorke Peninsula (DC) - South  | 18       | Streaky Bay (DC)               | 54       |
| Unincorporated Yorke  | 19       | Unincorporated West Coast      | 55       |
| Clare and Gilbert Valleys (DC)  | 20       | Whyalla (C)                    | 56       |
| Goyder (DC)   | 21       | Unincorporated Whyalla         | 57       |
| Wakefield (DC)  | 22       | Northern Areas (DC)            | 58       |
| Berri & Barmera (DC) - Barmera  | 23       | Orroroo/Carrieton (DC)         | 59       |
| Berri & Barmera (DC) - Berri  | 24       | Peterborough (DC)              | 60       |
| Loxton Waikerie (DC) - East   | 25       | Port Pirie C Dists (M) - City  | 61       |
| Loxton Waikerie (DC) - West   | 26       | Port Pirie C Dists (M) Balance | 62       |
| Mid Murray (DC)   | 27       | Unincorporated Pirie           | 63       |
| Renmark Paringa (DC) - Paringa  | 28       | Flinders Ranges (DC)           | 64       |
| Renmark Paringa (DC) - Renmark  | 29       | Mount Remarkable (DC)          | 65       |
| Unincorporated Riverland  | 30       | Port Augusta (C)               | 66       |
| Karoonda East Murray (DC)   | 31       | Unincorporated Flinders Ranges | 67       |
| Murray Bridge (RC)  | 32       | Anangu Pitjantjatjara (AC)     | 68       |
| Southern Mallee (DC)  | 33       | Coober Pedy (DC)               | 69       |
| The Coorong (DC)  | 34       | Maralinga Tjarutja (AC)        | 70       |
| Unincorporated Murray Mallee  | 35       | Roxby Downs (M)                | 71       |
| Kingston (DC)   | 36       | Unincorporated Far North       | 72       |

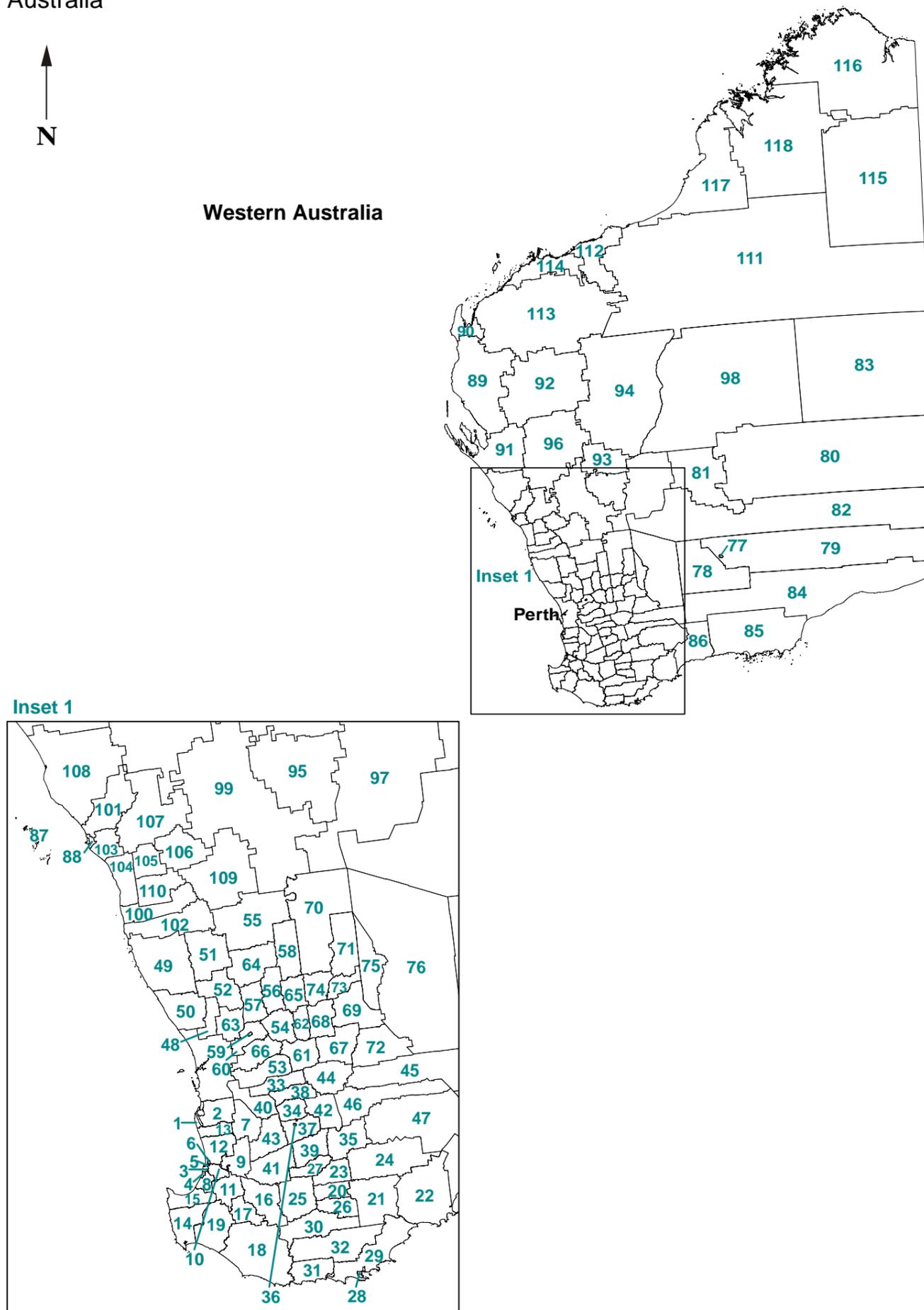


Map 63: Key to Statistical Local Areas mapped for non-metropolitan South Australia  
 ... continued

| Alphabetical Key to Statistical Local Areas (SLAs) (ASGC 2006) in non-metropolitan South Australia |          |                                |          |
|--|----------|--------------------------------|----------|
| Statistical Local Area   | Map ref. | Statistical Local Area         | Map ref. |
| Adelaide Hills (DC) - North  | 7        | Mount Remarkable (DC)          | 65       |
| Adelaide Hills (DC) Balance  | 8        | Murray Bridge (RC)             | 32       |
| Alexandrina (DC) - Coastal   | 11       | Naracoorte and Lucindale (DC)  | 37       |
| Alexandrina (DC) - Strathalbyn   | 12       | Northern Areas (DC)            | 58       |
| Anangu Pitjantjatjara (AC)   | 68       | Orroroo/Carrieton (DC)         | 59       |
| Barossa (DC) - Angaston  | 1        | Peterborough (DC)              | 60       |
| Barossa (DC) - Barossa   | 2        | Port Augusta (C)               | 66       |
| Barossa (DC) - Tanunda   | 3        | Port Lincoln (C)               | 50       |
| Barunga West (DC)  | 15       | Port Pirie C Dists (M) - City  | 61       |
| Berri & Barmera (DC) - Barmera   | 23       | Port Pirie C Dists (M) Balance | 62       |
| Berri & Barmera (DC) - Berri   | 24       | Renmark Paringa (DC) - Paringa | 28       |
| Ceduna (DC)  | 53       | Renmark Paringa (DC) - Renmark | 29       |
| Clare and Gilbert Valleys (DC)   | 20       | Robe (DC)                      | 38       |
| Cleve (DC)   | 44       | Roxby Downs (M)                | 71       |
| Cooper Pedy (DC)   | 69       | Southern Mallee (DC)           | 33       |
| Copper Coast (DC)  | 16       | Streaky Bay (DC)               | 54       |
| Elliston (DC)  | 45       | Tatiara (DC)                   | 39       |
| Flinders Ranges (DC)   | 64       | The Coorong (DC)               | 34       |
| Franklin Harbour (DC)  | 46       | Tumby Bay (DC)                 | 51       |
| Goyder (DC)  | 21       | Unincorporated Far North       | 72       |
| Grant (DC)   | 40       | Unincorporated Flinders Ranges | 67       |
| Kangaroo Island (DC)   | 6        | Unincorporated Lincoln         | 52       |
| Karoonda East Murray (DC)  | 31       | Unincorporated Murray Mallee   | 35       |
| Kimba (DC)   | 47       | Unincorporated Pirie           | 63       |
| Kingston (DC)  | 36       | Unincorporated Riverland       | 30       |
| Le Hunte (DC)  | 48       | Unincorporated West Coast      | 55       |
| Light (RegC)   | 4        | Unincorporated Whyalla         | 57       |
| Lower Eyre Peninsula (DC)  | 49       | Unincorporated Yorke           | 19       |
| Loxton Waikerie (DC) - East  | 25       | Victor Harbor (C)              | 13       |
| Loxton Waikerie (DC) - West  | 26       | Wakefield (DC)                 | 22       |
| Mallala (DC)   | 5        | Wattle Range (DC) - East       | 42       |
| Maralinga Tjarutja (AC)  | 70       | Wattle Range (DC) - West       | 43       |
| Mid Murray (DC)  | 27       | Whyalla (C)                    | 56       |
| Mount Barker (DC) - Central  | 9        | Yankalilla (DC)                | 14       |
| Mount Barker (DC) Balance  | 10       | Yorke Peninsula (DC) - North   | 17       |
| Mount Gambier (C)  | 41       | Yorke Peninsula (DC) - South   | 18       |

| Numerical Key to Statistical Local Areas (ASGC 2006) in non-metropolitan Western Australia |          |                                 |          |                            |          |
|--|----------|---------------------------------|----------|----------------------------|----------|
| Statistical Local Area   | Map ref. | Statistical Local Area          | Map ref. | Statistical Local Area     | Map ref. |
| Mandurah (C)   | 1        | West Arthur (S)                 | 41       | Laverton (S)               | 80       |
| Murray (S)   | 2        | Wickepin (S)                    | 42       | Leonora (S)                | 81       |
| Bunbury (C)  | 3        | Williams (S)                    | 43       | Menzies (S)                | 82       |
| Capel (S) - Part A   | 4        | Corrigin (S)                    | 44       | Ngaanyatjarraku (S)        | 83       |
| Dardanup (S) - Part A  | 5        | Kondinin (S)                    | 45       | Dundas (S)                 | 84       |
| Harvey (S) - Part A  | 6        | Kulin (S)                       | 46       | Esperance (S)              | 85       |
| Boddington (S)   | 7        | Lake Grace (S)                  | 47       | Ravensthorpe (S)           | 86       |
| Capel (S) - Part B   | 8        | Chittering (S)                  | 48       | Geraldton (C)              | 87       |
| Collie (S)   | 9        | Dandaragan (S)                  | 49       | Greenough (S) - Part A     | 88       |
| Dardanup (S) - Part B  | 10       | Gingin (S)                      | 50       | Carnarvon (S)              | 89       |
| Donnybrook-Balingup (S)  | 11       | Moora (S)                       | 51       | Exmouth (S)                | 90       |
| Harvey (S) - Part B  | 12       | Victoria Plains (S)             | 52       | Shark Bay (S)              | 91       |
| Waroona (S)  | 13       | Beverley (S)                    | 53       | Upper Gascoyne (S)         | 92       |
| Augusta-Margaret River (S)   | 14       | Cunderdin (S)                   | 54       | Cue (S)                    | 93       |
| Busselton (S)  | 15       | Dalwallinu (S)                  | 55       | Meekatharra (S)            | 94       |
| Boyup Brook (S)  | 16       | Dowerin (S)                     | 56       | Mount Magnet (S)           | 95       |
| Bridgetown-Greenbushes (S)   | 17       | Goomalling (S)                  | 57       | Murchison (S)              | 96       |
| Manjimup (S)   | 18       | Koorda (S)                      | 58       | Sandstone (S)              | 97       |
| Nannup (S)   | 19       | Northam (T)                     | 59       | Wiluna (S)                 | 98       |
| Broomehill (S)   | 20       | Northam (S)                     | 60       | Yalgoo (S)                 | 99       |
| Gnowangerup (S)  | 21       | Quairading (S)                  | 61       | Carnamah (S)               | 100      |
| Jerramungup (S)  | 22       | Tammin (S)                      | 62       | Chapman Valley (S)         | 101      |
| Katanning (S)  | 23       | Toodyay (S)                     | 63       | Coorow (S)                 | 102      |
| Kent (S)   | 24       | Wongan-Ballidu (S)              | 64       | Greenough (S) - Part B     | 103      |
| Kojonup (S)  | 25       | Wyalkatchem (S)                 | 65       | Irwin (S)                  | 104      |
| Tambellup (S)  | 26       | York (S)                        | 66       | Mingenew (S)               | 105      |
| Woodanilling (S)   | 27       | Bruce Rock (S)                  | 67       | Morawa (S)                 | 106      |
| Albany (C) - Central   | 28       | Kellerberrin (S)                | 68       | Mullewa (S)                | 107      |
| Albany (C) Balance   | 29       | Merredin (S)                    | 69       | Northampton (S)            | 108      |
| Cranbrook (S)  | 30       | Mount Marshall (S)              | 70       | Perenjori (S)              | 109      |
| Denmark (S)  | 31       | Mukinbudin (S)                  | 71       | Three Springs (S)          | 110      |
| Plantagenet (S)  | 32       | Narembeen (S)                   | 72       | East Pilbara (S)           | 111      |
| Brookton (S)   | 33       | Nungarin (S)                    | 73       | Port Hedland (T)           | 112      |
| Cuballing (S)  | 34       | Trayning (S)                    | 74       | Ashburton (S)              | 113      |
| Dumbleyung (S)   | 35       | Westonia (S)                    | 75       | Roebourne (S)              | 114      |
| Narrogin (T)   | 36       | Yilgarn (S)                     | 76       | Halls Creek (S)            | 115      |
| Narrogin (S)   | 37       | Kalgoorlie/Boulder (C) - Part A | 77       | Wyndham-East Kimberley (S) | 116      |
| Pingelly (S)   | 38       | Coolgardie (S)                  | 78       | Broome (S)                 | 117      |
| Wagin (S)  | 39       | Kalgoorlie/Boulder (C) - Part B | 79       | Derby-West Kimberley (S)   | 118      |
| Wandering (S)  | 40       |                                 |          |                            |          |

Map 64: Key to Statistical Local Areas mapped for non-metropolitan Western Australia

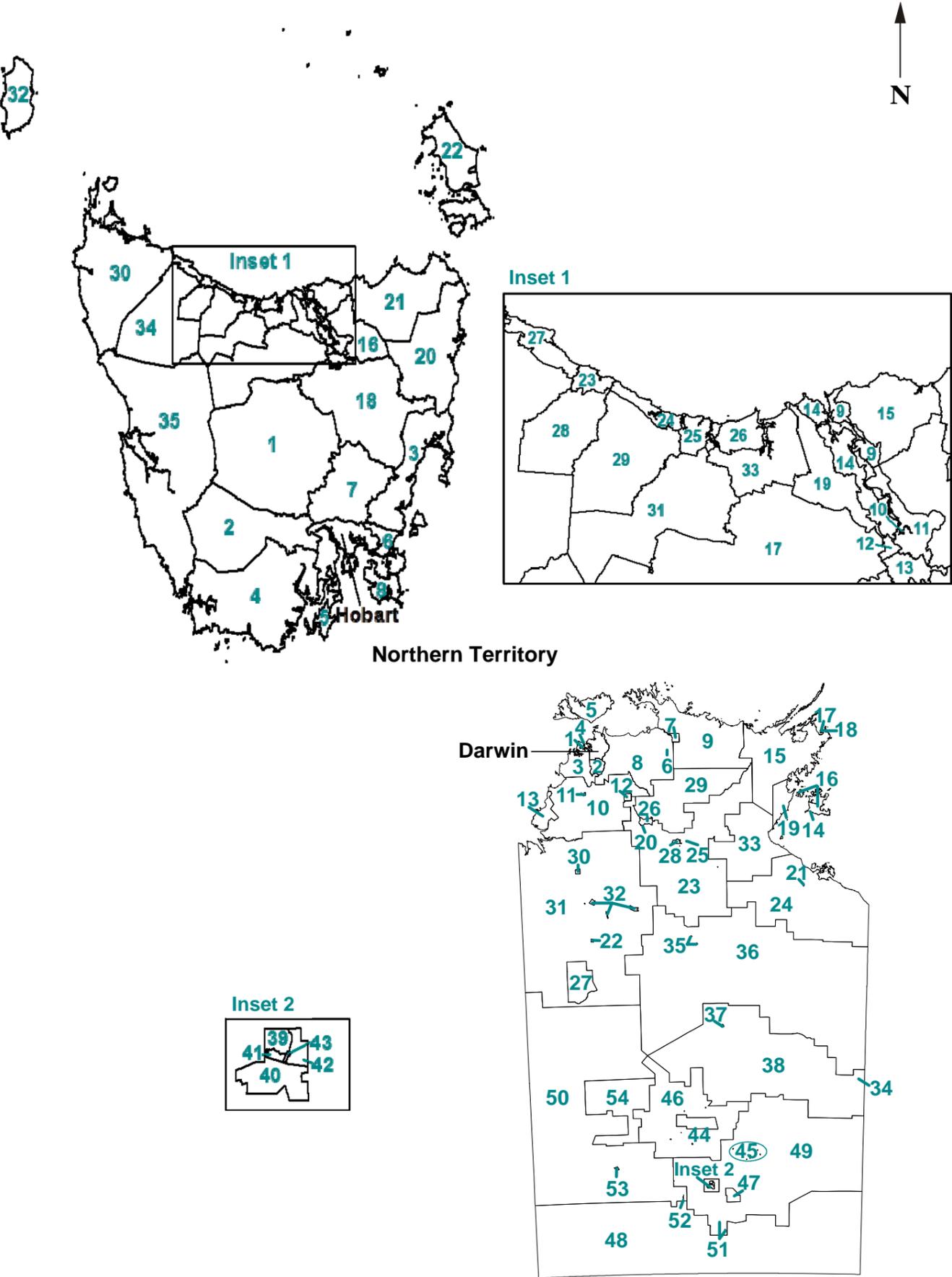


Map 64: Key to Statistical Local Areas mapped for non-metropolitan Western Australia  
... continued

| Alphabetical Key to Statistical Local Areas (ASGC 2006) in non-metropolitan Western Australia |          |                                 |          |                            |          |
|---|----------|---------------------------------|----------|----------------------------|----------|
| Statistical Local Area  | Map ref. | Statistical Local Area          | Map ref. | Statistical Local Area     | Map ref. |
| Albany (C) - Central  | 28       | Exmouth (S)                     | 90       | Narembeen (S)              | 72       |
| Albany (C) Balance  | 29       | Geraldton (C)                   | 87       | Narrogin (S)               | 37       |
| Ashburton (S)   | 113      | Gingin (S)                      | 50       | Narrogin (T)               | 36       |
| Augusta-Margaret River (S)  | 14       | Gnowangerup (S)                 | 21       | Ngaanyatjarraku (S)        | 83       |
| Beverley (S)  | 53       | Goomalling (S)                  | 57       | Northam (S)                | 60       |
| Boddington (S)  | 7        | Greenough (S) - Part A          | 88       | Northam (T)                | 59       |
| Boyup Brook (S)   | 16       | Greenough (S) - Part B          | 103      | Northampton (S)            | 108      |
| Bridgetown-Greenbushes (S)  | 17       | Halls Creek (S)                 | 115      | Nungarin (S)               | 73       |
| Brookton (S)  | 33       | Harvey (S) - Part A             | 6        | Perenjori (S)              | 109      |
| Broome (S)  | 117      | Harvey (S) - Part B             | 12       | Pingelly (S)               | 38       |
| Broomehill (S)  | 20       | Irwin (S)                       | 104      | Plantagenet (S)            | 32       |
| Bruce Rock (S)  | 67       | Jerramungup (S)                 | 22       | Port Hedland (T)           | 112      |
| Bunbury (C)   | 3        | Kalgoorlie/Boulder (C) - Part A | 77       | Quairading (S)             | 61       |
| Busselton (S)   | 15       | Kalgoorlie/Boulder (C) - Part B | 79       | Ravensthorpe (S)           | 86       |
| Capel (S) - Part A  | 4        | Katanning (S)                   | 23       | Roebourne (S)              | 114      |
| Capel (S) - Part B  | 8        | Kellerberrin (S)                | 68       | Sandstone (S)              | 97       |
| Carnamah (S)  | 100      | Kent (S)                        | 24       | Shark Bay (S)              | 91       |
| Carnarvon (S)   | 89       | Kojonup (S)                     | 25       | Tambellup (S)              | 26       |
| Chapman Valley (S)  | 101      | Kondinin (S)                    | 45       | Tammin (S)                 | 62       |
| Chittering (S)  | 48       | Koorda (S)                      | 58       | Three Springs (S)          | 110      |
| Collie (S)  | 9        | Kulin (S)                       | 46       | Toodyay (S)                | 63       |
| Coolgardie (S)  | 78       | Lake Grace (S)                  | 47       | Trayning (S)               | 74       |
| Coorow (S)  | 102      | Laverton (S)                    | 80       | Upper Gascoyne (S)         | 92       |
| Corrigin (S)  | 44       | Leonora (S)                     | 81       | Victoria Plains (S)        | 52       |
| Cranbrook (S)   | 30       | Mandurah (C)                    | 1        | Wagin (S)                  | 39       |
| Cuballing (S)   | 34       | Manjimup (S)                    | 18       | Wandering (S)              | 40       |
| Cue (S)   | 93       | Meekatharra (S)                 | 94       | Waroona (S)                | 13       |
| Cunderdin (S)   | 54       | Menzies (S)                     | 82       | West Arthur (S)            | 41       |
| Dalwallinu (S)  | 55       | Merredin (S)                    | 69       | Westonia (S)               | 75       |
| Dandaragan (S)  | 49       | Mingenew (S)                    | 105      | Wickepin (S)               | 42       |
| Dardanup (S) - Part A   | 5        | Moora (S)                       | 51       | Williams (S)               | 43       |
| Dardanup (S) - Part B   | 10       | Morawa (S)                      | 106      | Wiluna (S)                 | 98       |
| Denmark (S)   | 31       | Mount Magnet (S)                | 95       | Wongan-Ballidu (S)         | 64       |
| Derby-West Kimberley (S)  | 118      | Mount Marshall (S)              | 70       | Woodanilling (S)           | 27       |
| Donnybrook-Balingup (S)   | 11       | Mukinbudin (S)                  | 71       | Wyalkatchem (S)            | 65       |
| Dowerin (S)   | 56       | Mullewa (S)                     | 107      | Wyndham-East Kimberley (S) | 116      |
| Dumbleyung (S)  | 35       | Murchison (S)                   | 96       | Yalgoo (S)                 | 99       |
| Dundas (S)  | 84       | Murray (S)                      | 2        | Yilgarn (S)                | 76       |
| East Pilbara (S)  | 111      | Nannup (S)                      | 19       | York (S)                   | 66       |
| Esperance (S)   | 85       |                                 |          |                            |          |

Map 65: Key to Statistical Local Areas mapped for non-metropolitan Tasmania and the Northern Territory

| Numerical Key to Statistical Local Areas (SLAs) (ASGC 2006) in non-metropolitan Tasmania and the Northern Territory |          |   |          |
|---|----------|---|----------|
| Statistical Local Area  | Map ref. | Statistical Local Area                  | Map ref. |
| <b>Tasmania</b>   |          | <b>Northern Territory ... continued</b> |          |
| Central Highlands (M)   | 1        | Daly                                    | 10       |
| Derwent Valley (M) - Part B   | 2        | Naiyu Nambiyu (CGC)                     | 11       |
| Glamorgan/Spring Bay (M)  | 3        | Pine Creek (CGC)                        | 12       |
| Huon Valley (M)   | 4        | Thamarrurr (CGC)                        | 13       |
| Kingborough (M) - Part B  | 5        | Angurugu (CGC)                          | 14       |
| Sorell (M) - Part B   | 6        | East Arnhem - Balance                   | 15       |
| Southern Midlands (M)   | 7        | Groote Eylandt                          | 16       |
| Tasman (M)  | 8        | Marngarr (CGC)                          | 17       |
| George Town (M) - Part A  | 9        | Nhulunbuy                               | 18       |
| Launceston (C) - Inner  | 10       | Numbulwar Numburindi (CGC)              | 19       |
| Launceston (C) - Part B   | 11       | Binjari (CGC)                           | 20       |
| Meander Valley (M) - Part A   | 12       | Borroloola (CGC)                        | 21       |
| Northern Midlands (M) - Part A  | 13       | Daguragu (CGC)                          | 22       |
| West Tamar (M) - Part A   | 14       | Elsley                                  | 23       |
| George Town (M) - Part B  | 15       | Gulf                                    | 24       |
| Launceston (C) - Part C   | 16       | Jilkminggan (CGC)                       | 25       |
| Meander Valley (M) - Part B   | 17       | Katherine (T)                           | 26       |
| Northern Midlands (M) - Part B  | 18       | Lajamanu (CGC)                          | 27       |
| West Tamar (M) - Part B   | 19       | Mataranka (CGC)                         | 28       |
| Break O'Day (M)   | 20       | Nyirrangulung Mardruk Ngadberre (CGC)   | 29       |
| Dorset (M)  | 21       | Timber Creek (CGC)                      | 30       |
| Flinders (M)  | 22       | Victoria                                | 31       |
| Burnie (C) - Part A   | 23       | Walangeri Ngumpinku (CGC)               | 32       |
| Central Coast (M) - Part A  | 24       | Yugul Mangi (CGC)                       | 33       |
| Devonport (C)   | 25       | Alpurrulam (CGC)                        | 34       |
| Latrobe (M) - Part A  | 26       | Elliott District (CGC)                  | 35       |
| Waratah/Wynyard (M) - Part A  | 27       | Tableland                               | 36       |
| Burnie (C) - Part B   | 28       | Tennant Creek (T)                       | 37       |
| Central Coast (M) - Part B  | 29       | Tennant Creek - Balance                 | 38       |
| Circular Head (M)   | 30       | Alice Springs (T) - Charles             | 39       |
| Kentish (M)   | 31       | Alice Springs (T) - Heavitree           | 40       |
| King Island (M)   | 32       | Alice Springs (T) - Larapinta           | 41       |
| Latrobe (M) - Part B  | 33       | Alice Springs (T) - Ross                | 42       |
| Waratah/Wynyard (M) - Part B  | 34       | Alice Springs (T) - Stuart              | 43       |
| West Coast (M)  | 35       | Anmatjere (CGC)                         | 44       |
|   |          | Arltarpilta (CGC)                       | 45       |
|   |          | Hanson                                  | 46       |
| <b>Northern Territory</b>   |          | Ltyentye Purte (CGC)                    | 47       |
| Belyuen (CGC)   | 1        | Petermann-Simpson                       | 48       |
| Coomalie (CGC)  | 2        | Sandover                                | 49       |
| Cox-Finniss   | 3        | Tanami                                  | 50       |
| Cox Peninsula (CGC)   | 4        | Tapatjatjaka (CGC)                      | 51       |
| Tiwi Islands (CGC)  | 5        | Wallace Rockhole (CGC)                  | 52       |
| Jabiru (T)  | 6        | Watiyawanu (CGC)                        | 53       |
| Kunbarllanjnja (CGC)  | 7        | Yuendumu (CGC)                          | 54       |
| South Alligator   | 8        |   |          |
| West Arnhem   | 9        |   |          |



Map 65: Key to Statistical Local Areas mapped for non-metropolitan Tasmania and the Northern Territory ... *continued*

| Alphabetical Key to Statistical Local Areas (SLAs) (ASGC 2006) in non-metropolitan Tasmania and Northern Territory |          |   |          |
|--|----------|---|----------|
| Statistical Local Area   | Map ref. | Statistical Local Area                  | Map ref. |
| <b>Tasmania</b>  |          | <b>Northern Territory ... continued</b> |          |
| Break O'Day (M)  | 20       | Belyuen (CGC)                           | 1        |
| Burnie (C) - Part A  | 23       | Binjari (CGC)                           | 20       |
| Burnie (C) - Part B  | 28       | Borrooloola (CGC)                       | 21       |
| Central Coast (M) - Part A   | 24       | Coomalie (CGC)                          | 2        |
| Central Coast (M) - Part B   | 29       | Cox Peninsula (CGC)                     | 4        |
| Central Highlands (M)  | 1        | Cox-Finiss                              | 3        |
| Circular Head (M)  | 30       | Daguragu (CGC)                          | 22       |
| Derwent Valley (M) - Part B  | 2        | Daly                                    | 10       |
| Devonport (C)  | 25       | East Arnhem - Balance                   | 15       |
| Dorset (M)   | 21       | Elliott District (CGC)                  | 35       |
| Flinders (M)   | 22       | Elsey                                   | 23       |
| George Town (M) - Part A   | 9        | Groote Eylandt                          | 16       |
| George Town (M) - Part B   | 15       | Gulf                                    | 24       |
| Glamorgan/Spring Bay (M)   | 3        | Hanson                                  | 46       |
| Huon Valley (M)  | 4        | Jabiru (T)                              | 6        |
| Kentish (M)  | 31       | Jilkminggan (CGC)                       | 25       |
| King Island (M)  | 32       | Katherine (T)                           | 26       |
| Kingborough (M) - Part B   | 5        | Kunbarllanjnja (CGC)                    | 7        |
| Latrobe (M) - Part A   | 26       | Lajamanu (CGC)                          | 27       |
| Latrobe (M) - Part B   | 33       | Ltyentye Purte (CGC)                    | 47       |
| Launceston (C) - Inner   | 10       | Marngarr (CGC)                          | 17       |
| Launceston (C) - Part B  | 11       | Mataranka (CGC)                         | 28       |
| Launceston (C) - Part C  | 16       | Naiyu Nambiyu (CGC)                     | 11       |
| Meander Valley (M) - Part A  | 12       | Nhulunbuy                               | 18       |
| Meander Valley (M) - Part B  | 17       | Numbulwar Numburindi (CGC)              | 19       |
| Northern Midlands (M) - Part A   | 13       | Nyirrangulung Mardruk Ngadberre (CGC)   | 29       |
| Northern Midlands (M) - Part B   | 18       | Petermann-Simpson                       | 48       |
| Sorell (M) - Part B  | 6        | Pine Creek (CGC)                        | 12       |
| Southern Midlands (M)  | 7        | Sandover                                | 49       |
| Tasman (M)   | 8        | South Alligator                         | 8        |
| Waratah/Wynyard (M) - Part A   | 27       | Tableland                               | 36       |
| Waratah/Wynyard (M) - Part B   | 34       | Tanami                                  | 50       |
| West Coast (M)   | 35       | Tapatjatjaka (CGC)                      | 51       |
| West Tamar (M) - Part A  | 14       | Tennant Creek - Balance                 | 38       |
| West Tamar (M) - Part B  | 19       | Tennant Creek (T)                       | 37       |
|  |          | Thamarrurr (CGC)                        | 13       |
|  |          | Timber Creek (CGC)                      | 30       |
| <b>Northern Territory</b>  |          | Tiwi Islands (CGC)                      | 5        |
| Alice Springs (T) - Charles  | 39       | Victoria                                | 31       |
| Alice Springs (T) - Heavitree  | 40       | Walangeri Ngumpinku (CGC)               | 32       |
| Alice Springs (T) - Larapinta  | 41       | Wallace Rockhole (CGC)                  | 52       |
| Alice Springs (T) - Ross   | 42       | Watiyawanu (CGC)                        | 53       |
| Alice Springs (T) - Stuart   | 43       | West Arnhem                             | 9        |
| Alpurrurulam (CGC)   | 34       | Yuendumu (CGC)                          | 54       |
| Angurugu (CGC)   | 14       | Yugul Mangi (CGC)                       | 33       |
| Anmatjere (CGC)  | 44       |   |          |
| Arltarlpilta (CGC)   | 45       |   |          |