

# Appendix A: Notes on the indicators and data sources

## Background details

### Data differences

In some instances, the totals for the Brimbank LGA for an indicator may differ between tables. For example, the Aboriginal and Torres Strait Islander population is shown as 696 in Table 18 and as 712 in Table 19. The difference is the result of the ABS method of confidentialisation, whereby some numbers are randomly altered to avoid revealing details of individuals.

### Data not mapped

In the maps, some areas are shown as data 'not mapped'. Data have not been mapped where there were only a small number of cases for the particular indicator: in general, this was fewer than five cases, although in the case of the AEDC, it was where there were at least 15 children with valid AEDC data living in the 'Community' (in Brimbank City, a suburb or group of suburbs).

### Glossary

DoE – Australian Government Department of Education

ERP is the ABS Estimated Resident Population and is the most accurate representation of the population living in an area. It is based on the URP (see below) but includes adjustments for overseas visitors, undercounting, and Australian residents who were temporarily overseas on Census night.

URP, the Usual Resident Population, is the ABS count of people in Australia on Census night.

.. not applicable

### Maps

The maps show data for the usual resident address of the person to whom the statistic refers (e.g., of women smoking during pregnancy, or of children living in jobless families).

### Measures used

Data are presented as percentages, rates per population, or ratios. Where it was considered that variations in the age distribution of the population in an area for a particular variable could affect the analysis, the data have been indirectly age-standardised.

Indirectly age-standardised rates compare the actual number of events in an area (e.g., in the SLA of Sunshine) with the expected number of events based on rates in a reference population (in this atlas, Australia). These rates are generally based on the five-year age group and sex data in the reference population. The standardised ratios are the ratio of the observed (actual) to expected number of events. The observed figure comes from the local area, and the expected from applying the rate in the reference population to the local population.

This effectively means any differences in age-standardised rates between areas are reflecting the influence of factors other than age.

## Notes and data sources

The following notes and data sources are provided where it was thought necessary to provide additional information to that included on the indicator pages in Section 3.

### Socioeconomic status

#### [Index of Relative Socio-economic Disadvantage, 2011](#)

The Index of Relative Socio-economic Disadvantage is one of four socioeconomic indexes produced by the ABS from the 2011 Census. The Index has a base value of 1000 for Australia: scores above 1000 indicate relative advantage and those below 1000 indicate relative 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 (e.g., Indigenous status and separated/divorced). Full details of the composition and construction of this and the other three

indexes are available from the Technical Paper, *Socio-Economic Indexes for Areas (SEIFA), 2011* (ABS Cat. no. 2033.0.55.001).

*Source: Compiled by PHIDU using data from ABS SEIFA, 2011 Census.*

### Community strengths: modelled estimates from the 2010 General Social Survey

Can get support in times of crisis from outside of the household (modelled estimates)

Provides support to relatives living outside the household (modelled estimates)

Feels very safe/safe walking alone in local area after dark (modelled estimates)

### Personal and financial stressors: modelled estimates from the 2010 General Social Survey

Government support as main source of income in last 2 years (modelled estimates)

### Access to services: financial and transport barriers: modelled estimates from the 2010 General Social Survey

Delayed medical consultation because could not afford it (modelled estimates)

Delayed purchasing prescribed medication due to cost (modelled estimates)

Have difficulty accessing services (modelled estimates)

Respondents aged 18 years and over were asked if they could, for example, “get support in times of crisis from outside of the household”, or had “delayed medical consultation because could not afford it”.

For further information on modelled estimates, refer to Appendix C.

*Source: Compiled by PHIDU using data estimated from the 2010 General Social Survey, ABS (unpublished); and ABS Estimated Resident Population, 30 June 2010.*

### People living with disability, who are living in the community

The 'Core Activity Need for Assistance' variable was developed by the Australian Bureau of Statistics (ABS) for use in the five-yearly population Census to measure the number of people with a profound or severe disability, and to show their geographic distribution. A person with profound or severe limitation is defined as needing help or supervision always (profound) or sometimes (severe) to perform activities that most people undertake at least daily, that is, the core activities of self-care, mobility and/or communication, because of a disability, long-term health condition (lasting six months or more), and/or older age. Fewer people are reported under this measure as having a profound or severe disability than are measured in the ABS Survey of Disability, Ageing and Carers (SDAC). The reasons for this are definitional: the SDAC approach, which uses a filtering approach to determine whether the respondent has a disability, and the severity, as compared to the self-report approach in the Census; and the large not-stated category in the Census data, with more people not responding to this set of questions than are reported as having a profound or severe disability. While the SDAC figures should be used as the measure for this concept, the Census data are appropriate for getting an understanding of the geographic distribution of this population group.

The ABS figures include people of all ages, including those living in long-term residential accommodation in nursing homes, accommodation for the retired or aged (not self-contained), hostels for those with a disability, and psychiatric hospitals. The data in this atlas exclude people living in these accommodation types, to provide estimates of the number 'living in the community'.

*Source: Compiled by PHIDU using data from the ABS 2011 Census.*

## **Health and wellbeing**

### Mothers and babies

#### Low birthweight babies and smoking during pregnancy

The data presented are of

- babies (live born) weighing less than 2500 grams at birth, as a proportion of all live births; and
- women who reported that they had smoked at any time during the first 20 weeks of pregnancy, as a proportion of all women who were pregnant in each year.

Source: Compiled by PHIDU using data supplied by State and territory health departments.

### Childhood immunisations

The data presented are children fully immunised at five years, (those who have received their fourth or fifth vaccination dependent on the type of vaccine used for diphtheria, tetanus and whooping cough, their fourth vaccination for polio and their second vaccination for measles mumps and rubella, all prior to the age of 5 years), as a proportion of children registered at five years of age on the Australian Childhood Immunisation Register.

Compiled by PHIDU based on data from the Australian Childhood Immunisation Register, Medicare Australia

### Hospitalisations for ambulatory care-sensitive conditions

Ambulatory care-sensitive conditions (ACSCs) are those conditions for which hospitalisation should be able to be avoided because the disease or condition has been prevented from occurring, or because individuals have had timely access to effective primary care. Further details are at

<http://www.health.vic.gov.au/healthstatus/admin/acsc/index.htm>

Source: Compiled by PHIDU using data supplied by the Victorian Department of Health.

### Health status: modelled estimates from the 2011-13 Australian Health Survey

The Australian Health Survey (AHS), conducted by the Australian Bureau of Statistics in 2011-13, is made up of three components:

- the National Health Survey (NHS);
- the National Nutrition and Physical Activity Survey (NNPAS); and
- the National Health Measures Survey (NHMS).

All people selected in the AHS were selected in either the NHS or the NNPAS; however, data items in the core were common to both surveys and therefore information for these data items is available for all persons in the AHS. All people aged 5 years and over were then invited to participate in the voluntary NHMS.

Around 20,500 people participated in the NHS, answering questions about items such as detailed health conditions, health risk factors and medications as well as all items in the core content. For the NHS component (those items collected only in the NHS and not the core), the sample size is similar to that of previous National Health Surveys and the results are therefore comparable. However, for those items collected in the core, the sample size (32,000 people - results for which are published in *Australian Health Survey: Updated Results, 2011-12* [ABS Cat. no. 4364.0.55.003]) is approximately 1.5 times that in the past and the estimates for core items, such as smoking and Body Mass Index, are more accurate, particularly at finer disaggregations, than in previous surveys.

For full details, refer to the *Australian Health Survey: Users' Guide, 2011-13* (ABS Cat. no. 4363.0.55.001) at

<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/74D87E30B3539C53CA257BBB0014BB36?opendocument>.

**For further information on modelled estimates, refer to Appendix C.**

### Self-assessed health status reported as 'fair' or 'poor'

With respect to self-assessed health, respondents aged 15 years and over were asked to assess their health on a scale from 'poor' to 'excellent' (the scale was 'poor', 'fair', 'good', 'very good', or 'excellent'), as part of the 2011-13 Australian Health Survey (AHS). The data reported are the sum of responses categorised as 'poor' or 'fair'.

### Prevalence of diabetes mellitus

The prevalence of diabetes mellitus was measured by a glycated haemoglobin test (commonly referred to as HbA1c), derived from tests on blood samples from volunteering participants selected as part of the NHMS: people with an HbA1c level of greater than or equal to 6.5% were recorded as

having diabetes mellitus (6.5% is the World Health Organization's recommended diagnostic cut-off point for diabetes).

### Prevalence of circulatory system diseases

Respondents aged two years and over were asked if they "had ever been told by a doctor or nurse that they had a heart or circulatory system condition", as part of the AHS.

*Source: Compiled by PHIDU using data estimated from the 2011–13 Australian Health Survey, ABS (unpublished); and ABS Estimated Resident Population, average of 30 June 2011 and 2012.*

### Prevalence of high or very high psychological distress: males

### Prevalence of high or very high psychological distress: females

With regard to psychological distress, information was collected from respondents aged 18 years and over using the Kessler Psychological Distress Scale-10 (K10). The ten-item questionnaire yields a measure of psychological distress based on questions about negative emotional states (with different degrees of severity) experienced in the four weeks prior to interview. For each question, there is a five-level response scale based on the amount of time that a respondent experienced those particular feelings. The response options are 'none of the time'; 'a little of the time'; 'some of the time'; 'most of the time'; or 'all of the time'.

Each of the items are scored from 1 for 'none' to 5 for 'all of the time'. Scores for the ten items are summed, yielding a minimum possible score of 10 and a maximum possible score of 50, with low scores indicating low levels of psychological distress and high scores indicating high levels of psychological distress.

K10 results are commonly grouped for output. Results from the 2011-13 AHS are grouped into the following four levels of psychological distress: 'low' (scores of 10-15, indicating little or no psychological distress); 'moderate' (scores of 16-21); 'high' (scores of 22-29); and 'very high' (scores of 30-50). Based on research from other population studies, a 'very high' level of psychological distress shown by the K10 may indicate a need for professional help. For the indicator in this atlas, data are for respondents aged 18 years and over who scored in the 'high' or 'very high' levels of psychological distress.

### Smoking: males

### Smoking: females

With regard to smoking, this refers to tobacco smoking, and includes manufactured (packet) cigarettes, roll-your-own cigarettes, cigars, and pipes. It excludes chewing tobacco and smoking of non-tobacco products. As part of the AHS, respondents aged 15 years and over were asked to describe their smoking status at the time of interview:

- current smokers: daily, weekly, other;
- ex-smokers;
- never smoked (those who had never smoked 100 cigarettes, nor pipes, cigars or other tobacco products at least 20 times, in their lifetime).

For the indicator in this atlas, data are for respondents aged 18 years and over who responded that they were "a current, daily or at least once weekly smoker".

### Obesity: males

### Obesity: females

The Body Mass Index (BMI) (or Quetelet's index) is a measure of relative weight based on an individual's mass and height. The height (cm) and weight (kg) of respondents, as measured during the AHS interview, were used to calculate the BMI; and obesity was determined where a person's BMI was 30 or greater. The BMI is a useful tool, at a population level, for measuring trends in body weight and helping to define population groups who are at higher risk of developing long-term medical conditions associated with a high BMI, such as type 2 diabetes and cardiovascular disease.

*Source: Compiled by PHIDU using data estimated from the 2011–13 Australian Health Survey, ABS (unpublished); and ABS Estimated Resident Population, average of 30 June 2011 and 2012.*

## Health status: Deaths

### Infant mortality – Deaths before the age of 12 months, 2006-2010

The data presented are the number of deaths that occurred before 12 months of age, expressed as an age-standardised rate per 100,000 population.

*Source: Compiled by PHIDU using data from 2006 to 2010 supplied by ABS as a consultancy; and Births, 30 June 2006 to 2010.*

### Child mortality – Deaths at ages 1 to 4 years, 2006-2010

The data presented are the number of deaths at ages 1 to 4 years, expressed as an age-standardised rate per 100,000 population.

*Source: Compiled by PHIDU using data from 2006 to 2010 supplied by ABS as a consultancy; and ABS Estimated Resident Population, 30 June 2006 to 2010.*

### Premature mortality – Deaths at ages 0 to 74 years by sex (from all causes), and from accidents, poisonings and violence (or external causes), 2006-2010

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 by PHIDU using data supplied by ABS on behalf of State and Territory Registrars of Deaths, 2006 to 2010; and ABS Estimated Resident Population, 30 June 2006 to 2010.*

## **Education and child development**

### Participation in preschool and secondary school

Data by geographic location of student residential address are not available from current education/schools collections. However, estimates can be made from ABS Census data for

- preschool participation, where the data are the number of children attending preschool/ kindergartens/ child parent centres/ children's services centres, as a proportion of the population 3 and 4 years of age.
- secondary school participation, where the data are the number of children attending secondary school, as a proportion of the population 12 to 17 years of age in NSW, Victoria, Tasmania, NT and ACT; and 13 to 17 years of age in Queensland, SA and WA.

*Source: Compiled by PHIDU using data from the ABS 2011 Census.*

### Participation in vocational education and training

Data refer to the number of students participating in vocational education and training, expressed as a proportion of the population.

*Source: Compiled by PHIDU based on data from the National Centre for Vocational Education Research Ltd, 2010; and ABS Estimated Resident Population, 2010.*

## NAPLAN (the National Assessment Program - Literacy and Numeracy)

### Reading outcomes in Year 3 and Year 9

### Numeracy outcomes in Year 3 and Year 9

The NAPLAN results are presented as the number of children in Year 3 or Year 9 who have scores below the national minimum standard for reading or numeracy.

*Source: Compiled by PHIDU using data supplied by the Victorian Curriculum and Assessment Authority.*

### School leavers admitted to university

The data are presented as the number of people who are school leavers (i.e., students who attained a Year 12 qualification in 2012 in any State/ Territory through the completion of one or more Year 12 courses) and who are identified as enrolled at an Australian university, as at 31 March 2013.

*Source: Compiled by PHIDU using data supplied by State and Territory tertiary admissions bodies and ABS Estimated Resident Population, 30 June 2012.*

## AEDC (the Australian Early Development Census)

Children 'on track' in the Physical health and wellbeing domain, or in the Language and cognitive skills (school-based) domain

Children developmentally vulnerable in one or more domains of the AEDC

The AEDC results are presented as the number of children who are considered to be 'on track' in the physical health and wellbeing domain, or in the language and cognitive skills (school-based) domain, as a proportion of all children assessed using the AEDC (children who score above the 25th percentile (in the top 75 per cent) of the AEDC population are classified as 'on track'). Data are also provided for children who are considered to be 'developmentally vulnerable' (children who score in the lowest ten per cent) on one or more of the five domains (or areas of early child development, which are: physical health and wellbeing; social competence; emotional maturity; language and cognitive skills (school-based); and communication skills and general knowledge), as a proportion of all children assessed using the AEDC.

Although the data published for Melbourne and Melbourne - West closely approximate the ABS GCCSA of Melbourne and the ABS SA4 of Melbourne - West, they are not exact figures, having been compiled from data coded to suburbs and groups of suburbs, whose boundaries do not match these ABS geographic areas.

*Source: Compiled by PHIDU using data supplied by the Department of Education and Early Childhood Development, Victoria.*

## Appendix B: Correlation analysis

The full matrix is available overleaf (Table 87).

A correlation analysis has been undertaken to illustrate the extent of association at the Statistical Local Area (SLA) level between the indicators in this atlas for which data were available for the 80 SLAs in Melbourne.

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 in this atlas 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. Readers should note that correlations between the IRSD and poor health outcomes (e.g., high rates of premature death) appear in the tables 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.

The results of the correlation analysis are discussed under each indicator in Section 3, where you can find full definitions and links to data sources. In discussing the correlations across Melbourne's SLAs, attention is drawn to the existence of similar associations at the PHA level within Brimbank.

Data for indicators included in Tables 1 and 2 which were available at the SLA level, but not by PHA, have been included in the correlation analysis (and have been underlined). They are indicators of community strengths (people can get support in times of crisis from outside of household, provide support to relatives living outside the household, feeling very safe/safe walking alone in local area after dark); of financial and transport barriers to accessing services (people delayed medical consultation because could not afford it, delayed purchasing prescribed medication due to cost, have difficulty accessing services); of health and wellbeing (childhood immunisation at five years of age, infant death rate, child mortality rate and premature mortality for males, females and from external causes); and of education and child development (participation in vocational education and training, and school leavers admitted to university).

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**Table 87: Correlations matrix of the indicator data at the Statistical Local Area level in Greater Melbourne ...continued**

Indicators	Education and child development									
	Participation in preschool	Young people participating in full-time secondary education	Participation in vocational education and training	Early school leavers	School leavers enrolled in higher education	Highest level of education			AEDC: Children developmentally	
						Bachelor Degree or higher	Advanced Diploma, Diploma or Certificate	on track: physical health and wellbeing	on track: language and cognitive skills	vulnerable : on one or more domains
Index of Relative Socio-economic Disadvantage (IRSD)	0.78**	0.65**	-0.68**	-0.64**	0.44**	0.63**	0.02	0.73**	0.82**	-0.84**
Children living in jobless families	-0.81**	-0.70**	0.61**	0.49**	-0.39**	-0.50**	-0.15	-0.76**	-0.84**	0.87**
Children in families where mother has low educational attainment	-0.75**	-0.64**	0.90**	0.89**	-0.74**	-0.88**	0.44**	-0.72**	-0.84**	0.78**
Learning or earning at ages 15 to 24 yrs	0.76**	0.78**	-0.70**	-0.61**	0.64**	0.65**	-0.13	0.66**	0.71**	-0.66**
Recent arrivals of people born in NES countries	-0.33**	-0.33**	-0.24*	-0.38**	0.31**	0.29**	-0.65**	-0.07	-0.05	0.25*
Longer term residents born in NES countries	-0.44**	-0.07	0.12	0.00	0.27*	0.00	-0.52**	-0.27*	-0.34**	0.49**
People born overseas reporting poor proficiency in English	-0.48**	-0.18	0.16	0.07	0.20	-0.04	-0.55**	-0.36**	-0.45**	0.58**
Aboriginal and Torres Strait Islander peoples	-0.41**	-0.55**	0.58**	0.60**	-0.60**	-0.59**	0.41**	-0.44**	-0.43**	0.35**
Unemployment	-0.72**	-0.56**	0.32**	0.16	-0.07	-0.20	-0.41**	-0.50**	-0.58**	0.73**
Unemployed youth	-0.56**	-0.48**	0.09	-0.05	0.05	0.00	-0.50**	-0.28*	-0.35**	0.52**
Female labour force participation	0.38**	0.31**	-0.35**	-0.36**	0.06	0.31**	0.09	0.41**	0.53**	-0.58**
People working as managers or professionals	0.64**	0.48**	-0.91**	-0.95**	0.72**	0.97**	-0.66**	0.53**	0.69**	-0.62**
People working as labourers	-0.68**	-0.52**	0.87**	0.89**	-0.65**	-0.88**	0.44**	-0.61**	-0.78**	0.72**
Social housing	-0.17	-0.15	-0.10	-0.21	0.09	0.24*	-0.49**	-0.38**	-0.18	0.29*
Low income households under financial stress from rent or mortgage	-0.70**	-0.65**	0.53**	0.45**	-0.32**	-0.47**	-0.09	-0.57**	-0.68**	0.74**
No motor vehicle	-0.19	-0.35**	-0.42**	-0.53**	0.30**	0.45**	-0.74**	-0.08	0.05	0.08
No Internet access at home	-0.63**	-0.46**	0.66**	0.70**	-0.47**	-0.63**	0.05	-0.61**	-0.70**	0.67**
Voluntary work through an organisation	0.82**	0.55**	-0.63**	-0.54**	0.36**	0.60**	0.03	0.55**	0.63**	-0.70**
Support in times of crisis	0.80**	0.61**	-0.45**	-0.32**	0.22	0.39**	0.29**	0.56**	0.63**	-0.73**
Support to other relatives living outside the household	0.60**	0.64**	-0.68**	-0.73**	0.73**	0.74**	-0.37**	0.57**	0.59**	-0.50**
Feeling very safe/safe walking alone in local area after dark	0.57**	0.24*	-0.48**	-0.41**	0.17	0.43**	0.04	0.42**	0.54**	-0.62**
Delayed medical consultation because could not afford it	-0.65**	-0.59**	0.63**	0.65**	-0.58**	-0.63**	0.21	-0.59**	-0.56**	0.56**
Delayed purchasing prescribed medication because could not afford it	-0.71**	-0.65**	0.69**	0.67**	-0.61**	-0.67**	0.17	-0.68**	-0.71**	0.69**
Difficulty accessing services	0.01	-0.25*	0.07	0.19	-0.23*	-0.14	0.17	-0.04	0.01	-0.11
Children living with disability aged 0 to 14 yrs	-0.32**	-0.29*	0.72**	0.81**	-0.72**	-0.76**	0.74**	-0.34**	-0.45**	0.36**
People living with disability aged 15 yrs and over	-0.43**	-0.24*	0.52**	0.58**	-0.25*	-0.48**	0.00	-0.49**	-0.60**	0.57**
Low birthweight babies	-0.47**	-0.38**	0.49**	0.58**	-0.43**	-0.56**	0.15	-0.41**	-0.47**	0.48**
Women smoking during pregnancy	-0.51**	-0.61**	0.76**	0.81**	-0.82**	-0.82**	0.64**	-0.50**	-0.58**	0.46**
Children fully immunised at 5 years of age	0.13	0.34**	0.12	0.18	0.05	-0.10	0.14	0.11	0.06	-0.04
Hospitalisations for ACSCs: children aged 0 to 14 yrs	-0.48**	-0.46**	0.16	0.08	-0.02	-0.18	-0.14	-0.24*	-0.27*	0.38**
Hospitalisations for ACSCs: people aged 15 yrs and over	-0.60**	-0.48**	0.55**	0.54**	-0.41**	-0.57**	0.13	-0.47**	-0.53**	0.53**
Hospitalisations for ACSCs: Total	-0.60**	-0.49**	0.53**	0.52**	-0.38**	-0.55**	0.10	-0.46**	-0.53**	0.54**
Self assessed health status reported as 'fair' or 'poor' <sup>#</sup>	-0.79**	-0.60**	0.67**	0.66**	-0.41**	-0.65**	-0.01	-0.63**	-0.74**	0.76**
Prevalence of diabetes mellitus <sup>#</sup>	-0.68**	-0.39**	0.42**	0.35**	-0.10	-0.33**	-0.37**	-0.52**	-0.65**	0.69**
Prevalence of circulatory system diseases <sup>#</sup>	-0.51**	-0.46**	0.48**	0.56**	-0.51**	-0.53**	0.13	-0.38**	-0.40**	0.40**
Infant deaths	-0.37**	-0.44**	-0.02	-0.16	-0.06	0.07	-0.30*	-0.17	-0.09	0.16
Child mortality	-0.48**	-0.20	0.46**	0.32	-0.25	-0.39**	0.12	-0.47**	-0.43**	0.49**
Premature mortality - males	-0.58**	-0.54**	0.58**	0.53**	-0.49**	-0.51**	0.07	-0.61**	-0.56**	0.57**
Premature mortality - females	-0.44**	-0.44**	0.65**	0.65**	-0.62**	-0.60**	0.32**	-0.47**	-0.58**	0.50**
Premature mortality - external causes	-0.13	-0.40**	0.36**	0.37**	-0.39**	-0.36**	0.29**	-0.27*	-0.40**	0.24*
High or very high psychological distress - males <sup>#</sup>	-0.66**	-0.63**	0.35**	0.29**	-0.27*	-0.34**	-0.24*	-0.57**	-0.57**	0.64**
High or very high psychological distress - females <sup>#</sup>	-0.74**	-0.67**	0.59**	0.54**	-0.44**	-0.58**	0.02	-0.66**	-0.72**	0.76**
Male smokers <sup>#</sup>	-0.74**	-0.73**	0.86**	0.88**	-0.76**	-0.91**	0.46**	-0.66**	-0.76**	0.69**
Females smokers <sup>#</sup>	-0.44**	-0.61**	0.71**	0.80**	-0.82**	-0.81**	0.66**	-0.48**	-0.51**	0.38**
Obese males <sup>#</sup>	-0.45**	-0.30**	0.81**	0.91**	-0.66**	-0.91**	0.76**	-0.36**	-0.49**	0.41**
Obese females <sup>#</sup>	-0.53**	-0.40**	0.87**	0.95**	-0.74**	-0.94**	0.67**	-0.51**	-0.65**	0.54**
Participation in preschool	1.00	0.76**	-0.70**	-0.56**	0.51**	0.63**	-0.03	0.72**	0.71**	-0.80**
Young people participating in full-time secondary education	0.76**	1.00	-0.54**	-0.45**	0.59**	0.54**	-0.08	0.59**	0.61**	-0.60**
Participation in vocational education and training	-0.70**	-0.54**	1.00	0.89**	-0.74**	-0.91**	0.57**	-0.63**	-0.75**	0.68**
Early school leavers	-0.56**	-0.45**	0.89**	1.00	-0.77**	-0.96**	0.68**	-0.50**	-0.66**	0.54**
School leavers enrolled in higher education	0.51**	0.59**	-0.74**	-0.77**	1.00	0.81**	-0.64**	0.50**	0.55**	-0.42**
Highest level of education - Bachelor Degree or higher	0.63**	0.54**	-0.91**	-0.96**	0.81**	1.00	-0.71**	0.54**	0.66**	-0.56**
Highest level of education - Advanced Diploma, Diploma or Certificate	-0.03	-0.08	0.57**	0.68**	-0.64**	-0.71**	1.00	-0.07	-0.16	0.01
AEDC: Children developmentally on track - physical health and wellbeing	0.72**	0.59**	-0.63**	-0.50**	0.50**	0.54**	-0.07	1.00	0.75**	-0.83**
AEDC: Children developmentally on track - language and cognitive skills	0.71**	0.61**	-0.75**	-0.66**	0.55**	0.66**	-0.16	0.75**	1.00	-0.91**
AEDC: Children developmentally vulnerable on one or more domains	-0.80**	-0.60**	0.68**	0.54**	-0.42**	-0.56**	0.01	-0.83**	-0.91**	1.00

**Notes:**

# Data based on modelled estimates: see Appendix C for details.

\* Correlation is statistically significant, at the 95% confidence level

\*\* Correlation is statistically significant, at the 99% confidence level

Weak or no correlation:	< ± 0.30
Moderate correlation:	± 0.30 to ± 0.49
Strong correlation:	± 0.50 to ± 0.70
Very strong correlation:	> ± 0.70
Not applicable:	1.00

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## Appendix C: Details of modelled estimates

### Modelled estimates

The modelled estimates in this atlas were produced at the Population Health Area (PHA) level by the Australian Bureau of Statistics (ABS) from the 2010 General Social Survey (GSS) and the 2011–13 Australian Health Survey (AHS), and from known characteristics of the area. The estimates provide data at the PHA level for the prevalence of self-assessed health status (reported as ‘fair’ or ‘poor’), high or very high psychological distress, diabetes, circulatory system diseases, and the health risk factors of high or very high levels of psychological distress, smoking and obesity.

A modelled estimate can be interpreted as the likely value for a ‘typical’ area (in this case, the PHA) with those characteristics. This work was undertaken by the ABS, as they hold the unit record files on which the models were based.

The approach used is to undertake an analysis of the survey data for Australia to identify associations in the survey 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 e.g., smoking in the AHS, or people reporting being able to get support in times of crisis in the GSS, is also a part of the model developed by the ABS. For example, such associations might be between the number of people reporting smoking in the AHS 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).

The results of the modelling exercise are then applied to the PHA 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 prorating of Australian estimates to the small area level.

*The numbers are estimates for an area, not measured events as are, for example, death statistics. As such, they should be viewed as a tool that, when used in conjunction with local area knowledge and taking into consideration the prediction reliability, can provide useful information that can assist with decision making for small geographic regions.*

The raw numbers were then age-standardised in PHIDU, to adjust for the effects of differences in the age profiles of the populations in PHAs.

Although the data were modelled at the PHA (and not at the SLA) level, the PHA data have been allocated to SLAs to produce weighted estimates for all SLAs in Melbourne; these data are shown in the bar chart. This involved splitting data, for some PHAs, between SLAs. However, this was of little significance in Brimbank, as the boundaries of the PHAs in Brimbank very closely approximate the Keilor and Sunshine boundaries.

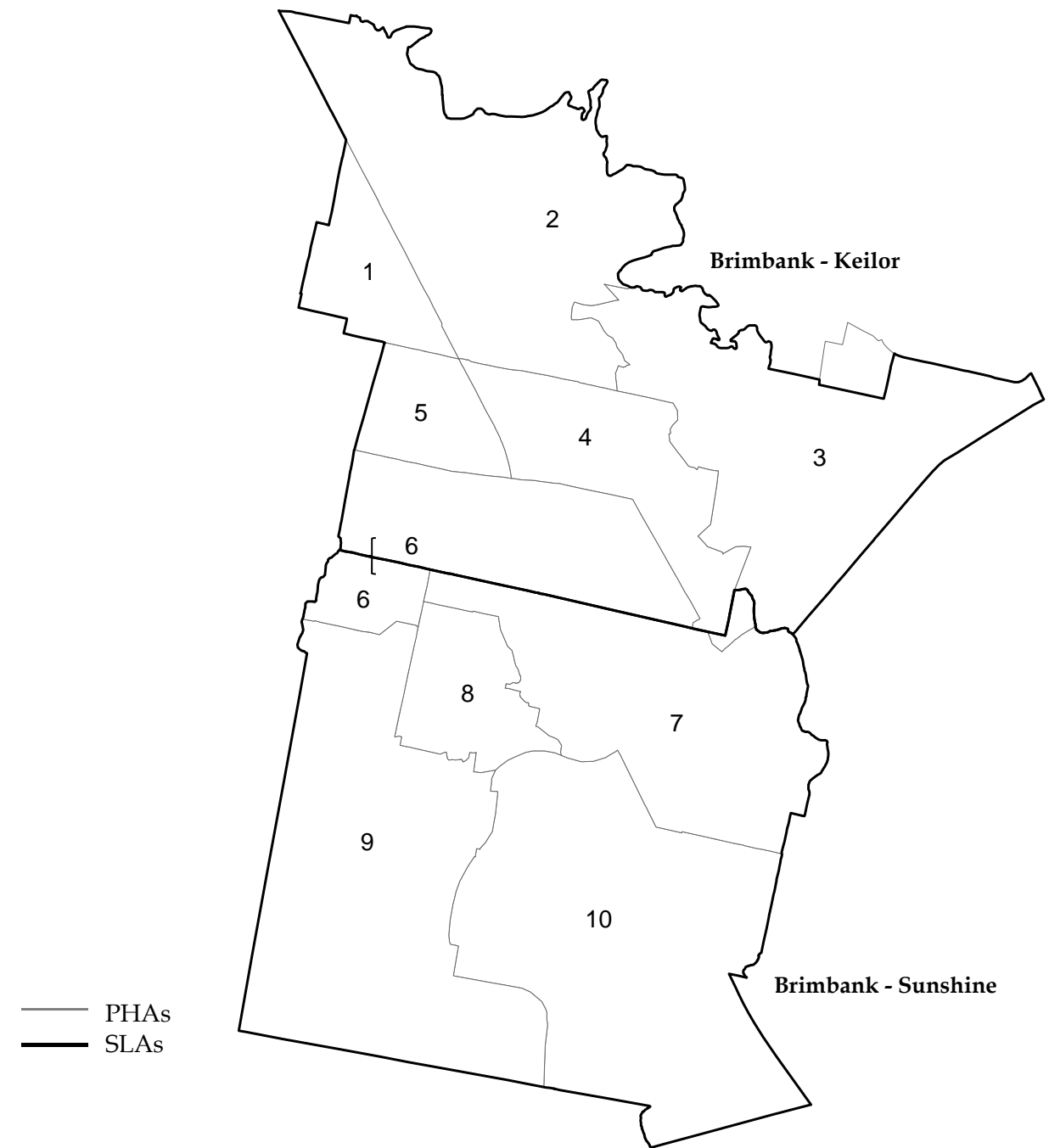
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## Appendix D: Key maps

The key maps on the following A3 sheets show the suburbs in Brimbank City, and the Population Health Areas (PHAs) in each Statistical Local Area in Brimbank City. These sheets can be folded out and used as a reference when viewing the maps and tables of PHAs.

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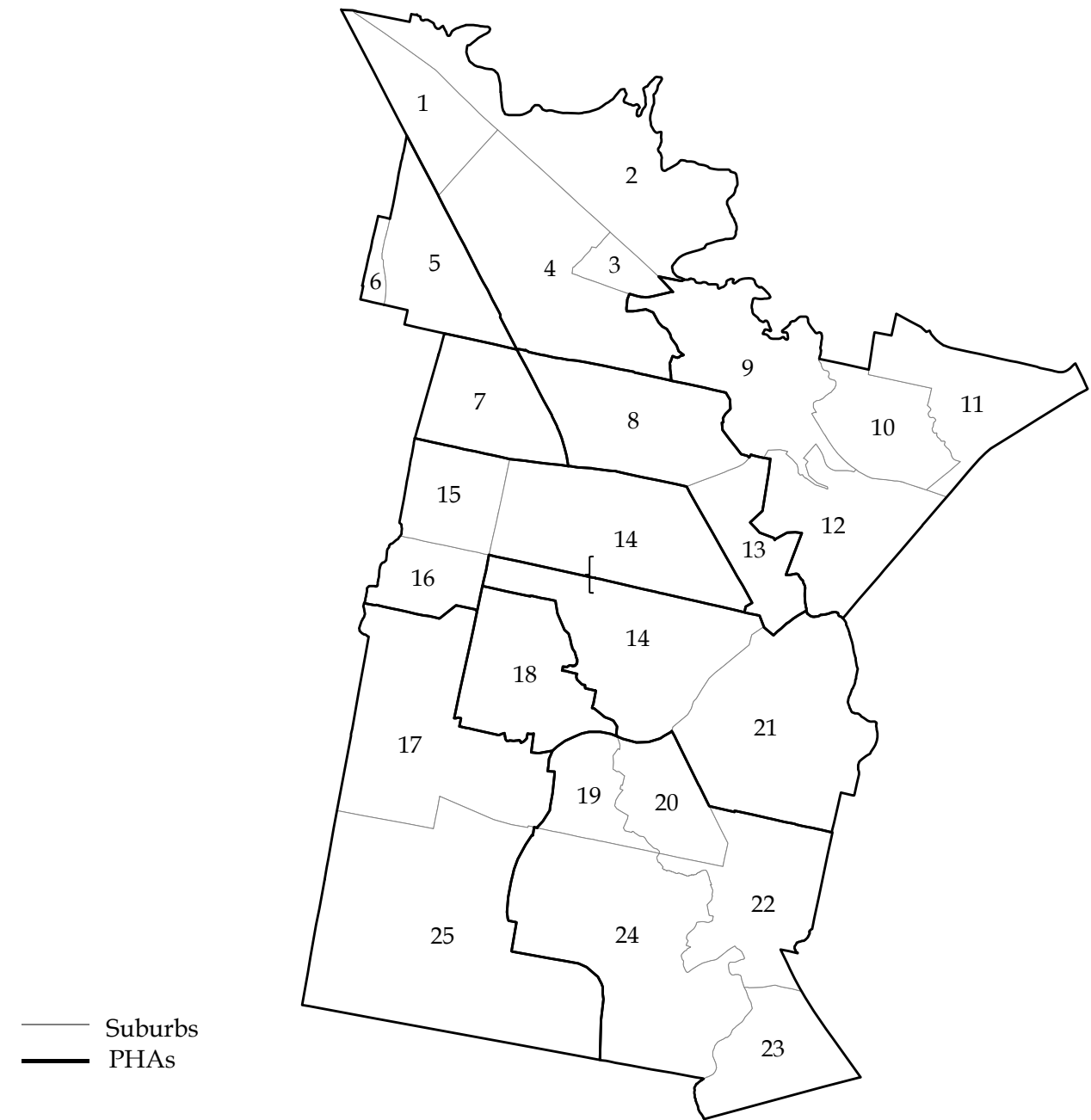




**Alphabetical key to Population Health Areas in the Brimbank City SLAs of Keilor and Sunshine**

Ardeer - Albion/ Sunshine/ Sunshine West	10	Keilor Downs	4
Cairnlea	8	St Albans-North/ Kings Park	6
Deer Park - Derrimut	9	St Albans-South/ Sunshine North	7
Delahey	5	Sydenham	1
Keilor	3	Taylors Lakes	2

Population Health Areas and suburbs, Brimbank City, 2011



**Alphabetical key to suburbs in Brimbank City**

Albanvale	16	Hillside	6	St Albans	14
Albion	20	Kealba	13	Sunshine	22
Ardeer	19	Keilor	9	Sunshine North	21
Brooklyn	23	Keilor Downs	8	Sunshine West	24
Cairnlea	18	Keilor East	12	Sydenham	5
Calder Park	1	Keilor Lodge	3	Taylors Lakes	4
Deer Park	17	Keilor North	2	Tullamarine	11
Delahey	7	Keilor Park	10		
Derrimut	25	Kings Park	15		