



# The Brimbank Atlas of Health and Education

2<sup>nd</sup> Edition

Produced for the Brimbank Collaboration:  
Victoria University and Brimbank City Council

September 2019





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and Brimbank City Council

by the  
Public Health Information Development Unit  
Torrens University Australia

September 2019



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## Acknowledgements

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The report has been prepared by John Glover and the team at Public Health Information and Development Unit (PHIDU) of Torrens University, Adelaide with contributions from Rosemary Calder, Professor of Health Policy and the *Growing Brimbank* program team at the Mitchell Institute, Victoria University.

Staff of the Brimbank City Council, led by Kath Brackett, Director, Community Wellbeing, including Rachel Deans, Glenn Menner and Mary-Ann Robinson of the *Growing Brimbank* coordinating team, have contributed over the life of the collaboration between Victoria University and the Brimbank City Council.

The PHIDU team for this Atlas were:

- Sarah McDonald, who wrote the text and produced the graphs and maps for the majority of indicators in Section 2 and Kristin Brombal, who produced the graphs and maps for some indicators and undertook the correlation analysis and set up the online atlas; and John Glover, who edited the report and managed the project.

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## Section 1:

### Context and purpose

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

- Background to the atlas and its place in the work of the Mitchell Institute
- Introduction
- A brief profile of Brimbank
- Outline of the atlas
- Taking a place-based approach
- Aims of the atlas

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## Background to the atlas

The Mitchell Institute for Education and Health was established in 2013 by Victoria University. The mission of the Mitchell Institute for Education and Health Policy at Victoria University, Melbourne is to strengthen the relationship between evidence and policy, and to improve equity of opportunity and success in both health and education.

The Mitchell Institute has invested in research translation into policy to improve health and education outcomes for individuals, communities and the nation, and particularly for individuals and communities affected by disadvantage.

Education is recognised as a crucial path to physical and mental health, which is important for both individual wellbeing and participation in society, and for lifelong learning and education. There has been little investment or policy attention in Australia to the relationship between health and education and the impact on individual wellbeing and economic participation.

In response to this policy gap, the Brimbank Collaboration, between Victoria University and the City of Brimbank, a local government in the western suburbs of Melbourne in close proximity of the University, was established in 2014 to create a unique set of measurements, together with contemporary evidence, to broker and influence the understanding of health and education policy makers, the community and the media about the most significant policies and measures that contribute to better health and education outcomes in communities.

To support this Collaboration, a research and policy partnership was established between:

- The Mitchell Institute at Victoria University;
- The Brimbank City Council; and
- The Public Health Information Development Unit (PHIDU) at Torrens University.

The development of this atlas by PHIDU provides the foundation data for the development of a suite of health and education indicators.

The first edition of the Brimbank Atlas of Health and Education, published in 2014, provided Brimbank and its residents with information

about their community and the Collaboration partners, community leaders and organisations with information to support the planning and development of services and other supports to enhance health and education outcomes in the community.

Following publication of the 2014 Atlas, the City of Brimbank and Victoria University established the *Growing Brimbank* program - a long term, place-based program translating best evidence to interventions to lift the health and education outcomes and wellbeing in the Brimbank community.

This second edition of the Brimbank Health and Education Atlas updates the selected indicators of health and education and the contributing social and economic factors that influence the health and education opportunities and outcomes for individuals within communities. It provides a range of information for decision-makers, planners, service providers, researchers and communities.

The Atlas is designed to be used in conjunction with two additional foundation reports:

- The Physical Activity, Sport, and Health in the City of Brimbank 2014
- The Brimbank Spatial Map of Physical and Social Infrastructure 2017.

The Brimbank Spatial Map of Physical and Social Infrastructure report describes how the health and wellbeing of a community is dependent on effective and linked planning of physical and social infrastructure within the community – such as roads, transport and community infrastructure, including services, schools, health services.

Together the reports are intended to support and enable understanding of the complex interactions between individuals and families, their environments and social structures over a lifetime, and how these factors influence the health, education and ultimately, the flourishing of current and future generations of Brimbank residents. They are also designed to provide Mitchell Institute and the City of Brimbank with information to guide targeted research strategies and projects and health and education interventions to improve or enhance health and education outcomes within the City's communities.

## Introduction

Over more than three decades, numerous reports and studies have highlighted substantial variations in the health and education of the Australian population, and significant gaps between those who are 'doing well' in Australia, and those who are not.<sup>1-6</sup>

In this atlas, these variations are referred to as 'inequalities', reflecting the fact that such differences exist. The notion of 'inequality' implies a sense of two things being different, not the same. Numerous inequalities exist across the population and they tend to divide the community into different groupings.

There are many types of inequality - age, sex, ethnicity, social and economic position, disability, 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 educational opportunities; material resources; safe working environments; effective services; living conditions in childhood; the experience of violence, racism and discrimination; and so on. Such inequalities can also alter expectations of what life offers in the future. Many inequalities are potentially avoidable and therefore, the fact that they occur implies a degree of unfairness or 'inequity'. Such inequities occur as a consequence of unjustifiable differences in opportunity, which result in unequal access to those resources and experiences that will optimise learning, development, health and wellbeing capacities, and lead to a fulfilling life.

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 those which are avoidable.<sup>4-6</sup> This atlas focuses on health and education, and the inequalities in these outcomes across the communities of the City of Brimbank. It highlights those communities and groups living in Brimbank who are doing well, and those where further effort is needed to improve their health and educational outcomes.

## A brief profile of Brimbank

Brimbank is a Local Government Area (LGA) in Victoria, which comprises 27 suburbs between 11 and 23 km west and northwest of Greater Melbourne's city centre. Brimbank has an area of 123.4 km<sup>2</sup> and a population in June 2017 of 204,009, making it the fifth most populous municipality in Greater Melbourne.

Brimbank lies within the area occupied by the Kurung-Jang-Balluk and Marin-Balluk clans of the Wurundjeri people (also known as the Woiwurung language group) who form part of the larger Kulin Nation.<sup>7</sup> Other groups who occupied land in the area include the Yalukit-Willam and Marpeang-Bulluk clans.<sup>7</sup> The peoples of the Kulin Nations are recognised as the traditional custodians of the land.<sup>8</sup>

The City of Brimbank was established on 15 December in 1994, after the merger of the former Cities of Keilor and Sunshine during the amalgamations of local councils by the Kennett Liberal government. Brimbank is bounded by the City of Hume in the north, the Cities of Maribyrnong and Moonee Valley in the east, the Cities of Hobsons Bay and Wyndham in the south and the Shire of Melton in the west.<sup>8</sup> The suburbs in Brimbank are divided into five local Districts:

- Sydenham District - including the suburbs of Calder Park, Delahey, Keilor Downs, Keilor North, Sydenham and part of Hillside, Keilor Lodge and Taylors Lakes;
- Keilor District - including the suburbs of Keilor, Keilor Park and part of Keilor East, Tullamarine, Keilor Lodge and Taylors Lakes;
- St Albans District - including the suburbs of St Albans, Kings Park and Kealba;
- Deer Park District - including the suburbs of Albanvale, Cairnlea, Deer Park and Derrimut; and
- Sunshine District - including the suburbs of Albion, Ardeer, Sunshine, Sunshine North and Sunshine West, and part of Brooklyn.<sup>8</sup>

For the purposes of the atlas, Brimbank is divided into Population Health Areas (PHAs), which are described in detail in Section 2.

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1 In the atlas, the term, 'inequality' refers to a difference, that is, 'not the same'. See also the box on p. 7.

Brimbank is one of Victoria's most culturally diverse municipalities - the result of waves of migration over many years. More than 160 different languages are spoken across the municipality, with 64.3% of the population speaking a language other than English at home; the rate of new arrivals with low or no proficiency in English has increased in recent years.<sup>7</sup>

In some of Brimbank's neighbourhoods, there are significant access and equity issues due to high levels of social and economic disadvantage. However, while Brimbank remains the second most disadvantaged Local Government Area (LGA) in Greater Melbourne, the community has many strengths (including neighbourhood groups, clubs, service organisations and service provider agencies), combined with its social, economic, human and environmental capital.<sup>8</sup>

Brimbank Council continues to invest in its community, delivering high quality services, promoting employment, education and health opportunities and creating vibrant urban environments including town centres, parks and gardens. Unprecedented investment in Brimbank through significant infrastructure development, such as the Sunshine Super Hub and Melbourne Airport Rail link, provides opportunities for Brimbank to prosper and leverage off this major investment. Brimbank Council recognises the importance of using these projects to generate new economic and social opportunities for the Brimbank community. Work with other levels of government, the private sector and the community has the potential to create a legacy of jobs for generations to come. Brimbank will leverage this investment to support job creation, lifelong learning opportunities, development of strategic community facilities and environmental equity to build a healthier, more sustainable and resilient city. All the strengths, assets and opportunities in Brimbank need to be considered, not only its more challenging statistics. A selection of both is contained in Section 2.

## Outline of the atlas

This atlas provides a range of information for decision-makers, planners, service providers, researchers and communities.

In order to do this, a suite of indicators has been chosen to describe different aspects of the

population, and, by using them, to highlight differences, especially in health and education outcomes, across the community. The indicators have also been selected to cover the lifespan; and the atlas offers a perspective on understanding inequalities across life and tracing outcomes at one stage of life, to the accumulation of experiences which occurred at earlier stages.<sup>9</sup>

In general, indicators are useful for:

- informing people about social issues, including use and access to services, or outcomes in education and health;
- monitoring such issues to identify change, both between groups in the population, and over time; and
- assessing progress toward set goals and targets, or achievement 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 communities 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 individuals, communities and governments to action.

The indicators, presented in this atlas and in an associated, interactive, atlas on the World Wide Web (available at [http://www.atlasesaustralia.com.au/Brimbank/atlas\\_2019/atlas.html](http://www.atlasesaustralia.com.au/Brimbank/atlas_2019/atlas.html)), have been selected because they describe the extent of inequality in health and educational access, participation and outcomes, in the context of the demographic and socioeconomic composition of Brimbank. They are also those for which available and reliable data can be mapped to show variations by area - across Brimbank, and compared with Greater Melbourne, Victoria and Australia as a whole.

However, indicators only act as signposts for issues warranting further investigation. The measurement and comparability of health inequalities across populations is an inexact science. Some of the challenges include the different distributions of disease; variation in the availability and quality of data; variation in

the comparability of self-reported information about specific health conditions due to diagnosis bias or avoidance; the comparability of self-reported overall health or education measures; and issues in measuring ethnicity, socioeconomic status, and the mechanisms underlying inequalities, such as discrimination or acculturation.

Therefore, while the indicators used in the atlas represent areas where considerable disparities are apparent, they can provide only a partial picture of the existing social and economic inequalities in health and education in Brimbank. However, the information contained in the atlas highlights these inequalities and their impact on different sections of the Brimbank population, and in doing so, provides a basis for further work.

## Taking a place-based approach

It is increasingly recognised that there is a clear association between the health and wellbeing of individuals and communities, and where they live. Place can influence health and wellbeing, both positively and negatively, directly and indirectly.

Place-based interventions target specific neighbourhoods or communities, and are a promising way to bring people, sectors and services together in a locality. Sectors that have applied place-based approaches include economic development, environmental sustainability, homelessness and housing strategy, poverty and social exclusion, regional development and public health.

A place-based approach assumes that geographical context matters, where context is understood in terms of its social, cultural, and institutional characteristics. The active role of local stakeholders is critical to the success of place-based approaches and requires local government, business and other bodies to shape local policy actively. Thus, successful place-based approaches put the development of human capital and the promotion of innovation at their centre.

Place-based approaches share a common set of characteristics which contribute to their success. Such approaches

- are designed to meet the unique needs of locations;
- engage stakeholders across all sectors in collaborative decision-making;

- seize opportunities, particularly local skills and resources;
- evolve and adapt to new learning and stakeholder interests;
- encourage collaborative action by crossing organisational borders and interests;
- pull together assets and knowledge through shared ownership; and
- encourage new behaviours and “norms” in a location.<sup>10</sup>

Place-based approaches impact the conditions that influence health and wellbeing in communities and are set in the context of the broader social, political and economic factors that shape health that need to be addressed at regional, state and national levels.<sup>10,11</sup>

As part of a place-based approach, community development can identify the assets and strengths of communities, and the abilities and insights of local residents become resources for addressing a neighbourhood’s challenges. This does not mean that disadvantaged neighbourhoods do not need outside help, but rather that any genuinely local project can be resident led, with outside agencies acting in a support role.

## Aims of the atlas

The Brimbank atlas aims:

- to describe a number of factors that have important influences on health and education for the Brimbank community;
- to identify significant inequalities in health and education across the Brimbank community, and to assess possible trends in such inequalities over time; and
- by mapping these indicators, to provide information in a form that will support discussion and action by communities and organisations at local, regional, state and national levels.

This atlas, in conjunction with the 1<sup>st</sup> edition published in 2014, is intended to facilitate understanding of the extent of inequalities across Brimbank and of trends over time, to assist in the development of place-based interventions that will reduce these disparities, and to track emerging issues of concern to particular communities in Brimbank.

The atlas design will also offer other communities the opportunity to consider in depth the health and education outcomes within

their communities, and to use the health and education indicators to guide community and service planning and development to achieve improvements for their communities.

### A note about terminology

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 by some people 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 areas, 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 underpin the information presented in the atlas.

1. McMichael AJ, Hartshorne JM. Cardiovascular disease and cancer mortality in Australia, by occupation, in relation to drinking, smoking, and eating. *Community Health Studies* 1980; IV(2): 76-84.
2. Broom D. The social distribution of illness: Is Australia more equal? *Social Science & Medicine* 1984; 18: 909-917.
3. Mathers C. Health differentials among Australian children. (Australian Institute of Health and Welfare (AIHW) Health Monitoring series No. 13). Canberra: AGPS, 1996.
4. Hetzel D, Page A, Glover J, Tennant A. *Inequality in South Australia (Volume 1: the evidence)*. Adelaide: Department of Health SA, 2004.
5. Victorian Department of Human Services (VDHS). *Fair Health Facts 2009*. Greater Melbourne: VDHS, 2009.
6. Glover J, Hetzel D, Tennant S, Leahy K. *Understanding educational opportunities and outcomes: a South Australian atlas*. Adelaide: Public Health Information Development Unit (PHIDU), The University of Adelaide.
7. ABS 2016 Census of Population and Housing Brimbank (C) (LGA21180) 123.4 sq Kms Catalogue number 2001.0.
8. *Community Planning: Policy and Research*, Brimbank City Council. The diverse communities of Brimbank. [Online resource]. At file:///C:/Users/a1155996/Downloads/The\_Diverse\_Communities\_of\_Brimbank\_Profile%20(3).pdf (accessed 27 February 2014).
9. Dyson A et al. *Childhood development, education and health inequalities*. Manchester, UK: Centre for Equity in Education, University of Manchester, 2009.
10. Health and Wellbeing Advisory Council, Tasmania. *Place-based approaches (fact sheet)*. Hobart: Department of Health and Human Services, 2012.
11. Government of Canada. *The evaluation of place-based approaches: questions for further research*. Ottawa: Government of Canada, 2011.

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## Section 2

# Indicators of health and wellbeing, and education and child development for Brimbank

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

- Introduction
- The value of indicators
- Selection and presentation of indicators
- Data gaps and limitations
- Interpreting data about an area
- Age distribution of the population
- Data sources
- Contextual indicators at the PHA level
- Health and wellbeing, and education and child development indicators at the PHA level
- Summary

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## Introduction

Information presented in this section describes a range of health and education outcomes, and the links between health and education, in the Brimbank community. In the absence of individual-level data, the approach taken to describe these links, or associations, is to compare the characteristics of the population living in geographic areas within Brimbank City Council (the Local Government Area (LGA)), referred to in this atlas as 'Brimbank'. Presenting data for the communities living in these small areas can assist in identifying inequalities in outcomes that exist between the communities.

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 and wellbeing, and education child development outcomes. The ensuing picture is one of significant differences in outcomes across the Brimbank population and in other LGAs in Greater Melbourne, for which the data are also presented.

More detail as to the indicators that we were able to present is provided under the heading 'Selection of Indicators', below.

### The value of indicators

One way to describe health and education outcomes, and the links between health and education, 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 geographic variations in indicators of outcomes, and of inequalities in those outcomes, provides information which can be used to understand the links between health and education. It can also be used to support progress towards reducing such inequalities.

### Selection and presentation of indicators

Table 97 (p. 111) and Table 98 (p. 113) provide a summary of a range of data about the health and education of the population in Brimbank. The tables are located in the Summary section

at the end of the document to support the summary of findings.

The data are presented in these tables at a suburb-based geographic area within the LGA, called a Population Health Area (PHA, see the box, 'Areas mapped' for a definition of PHAs) and many are also mapped and described in more detail later in this section.

The indicators are largely those presented in the first atlas, allowing for a discussion of changes over recent years. They are shown in two groups - one which we have identified as largely being 'contextual' indicators (Table 97), and the other of indicators which are more directly indicators of health and wellbeing, and education and child development (Table 98).

We recognise that the designation of some indicators as 'contextual', and others as 'direct', is somewhat artificial, as some are both. For example, we have shown the indicators for 'children in families with mothers with low educational attainment', and 'learning or earning at ages 15 to 24 years' as contextual indicators. Clearly, there are strong links between these indicators and outcomes in both education and health. However, we believe that these two indicators, together with the others in this set, provide a sound framework within which to view more traditionally recognised indicators of health and wellbeing, and education and child development outcomes.

Each of the indicators is introduced with a note as to its relevance to health, wellbeing, education and child development. This statement is followed by a definition of the composition of the indicator and 'Key points', drawn from the data.

The data are presented in tables, a map and a chart. The first table shows the number of people represented, this number as a percentage or rate, and the variation between the percentage or rate in Brimbank, Greater Melbourne (as defined in the box, 'Areas mapped') and Victoria from the figure for Australia.

The extent of variation from the figure for Australia is shown with a rate ratio (RR). The RR is simply the ratio of the percentage or rate in Brimbank to the percentage or rate in Australia. A RR of 1.00 indicates that the percentage or rate in Brimbank is the same as that in Australia. A RR of 1.28 indicates that the

percentage or rate in Brimbank is 28% above the level in Australia, and a RR of 0.72 that the percentage or rate in Brimbank is 28% below the level in Australia.

The data are also presented for an earlier period, to highlight change over time.

### Areas mapped

The data for Brimbank are mapped to Population Health Areas (PHAs). PHAs are aggregations of the Statistical Areas Level 2 (SA2) spatial area introduced by the Australian Bureau of Statistics on 1 July 2011.<sup>1</sup> As SA2s are relatively small, it is not possible to obtain data for some important datasets, either because the number of cases would be too small to be reliable, or because the data custodians believe the data could reveal confidential information about the person for whom the event was recorded. Examples are low birth weight babies and child mortality. As a result, PHIDU developed PHAs for the publication of population health data across Australia: for Brimbank, the 14 SA2s have been aggregated into ten PHAs (Map 1).

As noted, the data are also provided for the areas of 'Greater Melbourne' (the Greater Capital City Statistical Area of Greater Melbourne) and Victoria, as described by the Australian Bureau of Statistics (ABS).<sup>1</sup>

The key maps, located at the end of the atlas, show the boundaries for the PHAs in Brimbank (p. 133) and the suburbs in each PHA (p. 135).

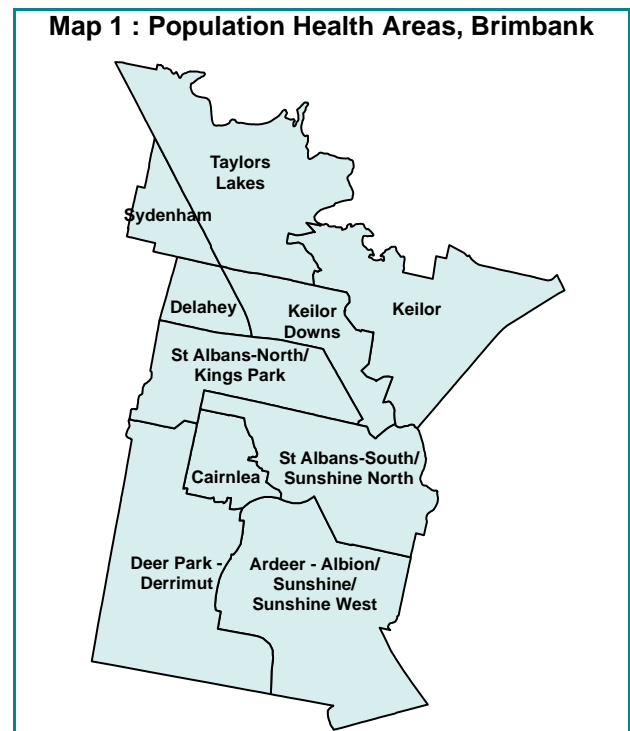
The other table shows these same details for the ten PHAs in Brimbank, highlighting the variation in the percentage or rate in the PHA from the figure for Brimbank. The percentage or rate shown in this table is then mapped by PHA.

A graph of the indicator values for all LGAs in Greater Melbourne is marked to show where Brimbank ranks in comparison with other LGAs.

The description of the indicator concludes with details of any correlations at the PHA level in Greater Melbourne with other indicators presented in the atlas.

The key map page on the last sheet in the atlas can be printed and viewed alongside the maps of the indicators, enabling identification of the PHAs in Brimbank.

The indicators are included in an interactive version of the atlas which is available at <http://www.atlasesaustralia.com.au/Brimbank/2019/Brimbank.html>.



### Data gaps and limitations

Traditionally, data about health, wellbeing, education and child development tend to describe difficulties and problems in a community, such as low literacy levels, aspects of ill health, or lack of education.

This has resulted in the availability of richer datasets that focus on the more negative data and far fewer that highlight a community's strengths and more positive attributes, such as resilience.

### Interpreting data about an area

Readers should note that the areas referred to represent the location of the usual address (at the PHA or LGA level) of the person about whom the event (e.g., infant deaths, education participation) is recorded.

Throughout the atlas, the geographic distribution at the PHA level generally highlights areas with socioeconomically disadvantaged populations, or poorer outcomes, using the darker shades.

However, just as there are differences between PHAs, there are variations, and sometimes substantial variations, within a PHA. As such, the figures for a PHA represent the average of the different population groups within the PHA.

## Correlation analysis

A correlation analysis has been undertaken to illustrate the extent of association across PHAs and LGAs in Greater Melbourne between the indicators presented in the atlas.

The results of the strongest correlations at the PHA level are discussed under each indicator; the tables in Appendix B include the full results of the correlation analyses at the PHA and the LGA level.

As a general rule, correlation coefficients of plus or minus 0.71 or above are considered to be 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.

## Terminology

In discussing the extent to which percentages or rates vary from the Australian or other figures, the following terms are used:

- "Notable", referring to a rate ratio from 1.10 to <1.20 (a difference of from 10% to <20%), or from 0.90 to <0.80 (a difference of from -10% to <-20%);

- "Marked", referring to a rate ratio from 1.20 to <1.50 (a difference of from 20% to <50%), or from 0.80 to <0.50 (a difference of from -20% to <-50%);
- "Substantial", referring to a rate ratio of 1.50 or above (a difference of 50% or more), or of 0.50 and below (a difference of greater than -50%).

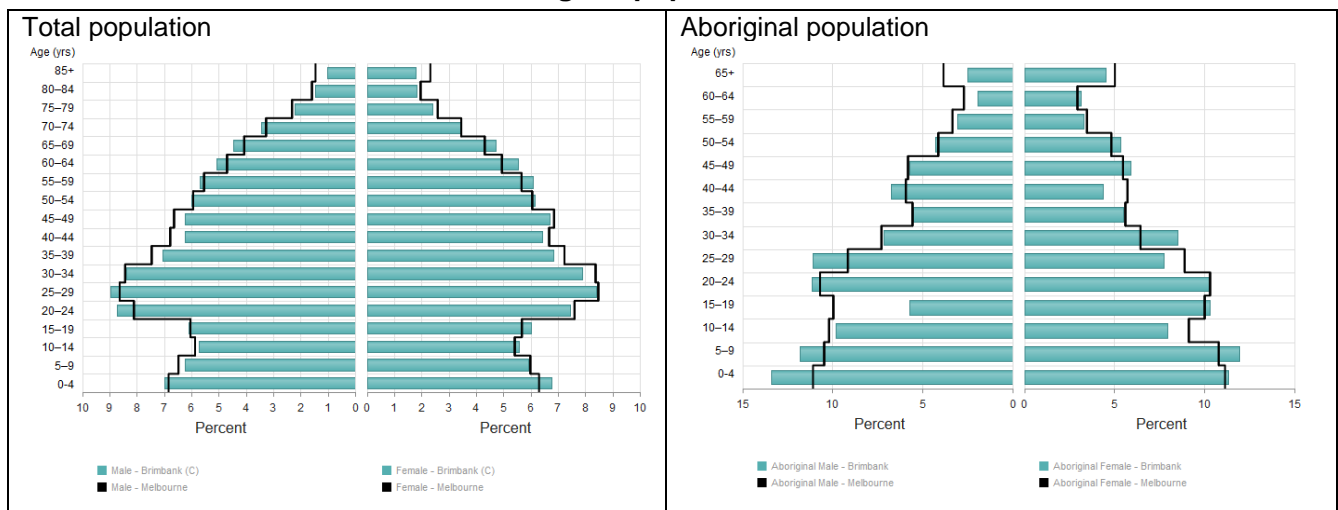
## Age distribution of the population

The following charts show the age profile of the populations in Brimbank in comparison with Greater Melbourne and in the PHAs within Brimbank.

The age profile in Brimbank, with an Estimated Resident Populations (ERP) of 204,009 in 2017, has many similarities to the profile in Greater Melbourne, with one of the main differences being the larger proportions of males at ages 20 to 24 and 25 to 29 years (Figure 1).

Despite the small numbers overall (1,018) and in most age groups, the estimated Aboriginal population in Brimbank in 2016 had higher proportions of young adults and young boys (at ages 0 to 4 and 5 to 9 years) and young girls (5 to 9 years) than in Greater Melbourne overall (Figure 2). There were also fewer people, in particular males, at the oldest ages. Of note is that there are markedly fewer males at ages 15 to 19 years, and fewer females at 10 to 14 years than in the total population.

**Figure 1: Age profile in Brimbank LGA compared with Greater Melbourne, total population and Aboriginal population, 2016**

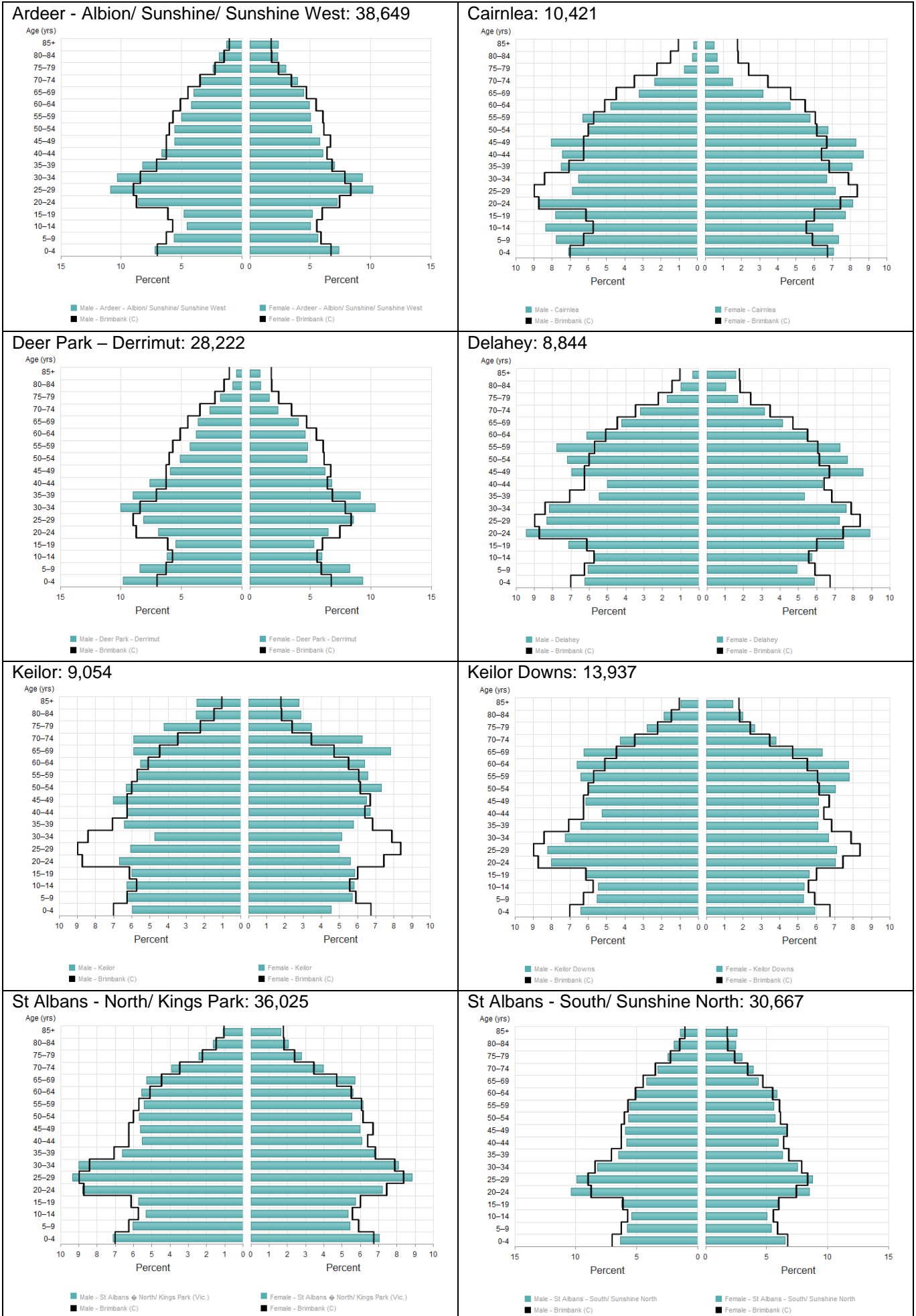


Source: Total population is the 2016 ERP, ABS; the 2016 Aboriginal population (includes Torres Strait Islander people) is an estimated resident population produced by PHIDU

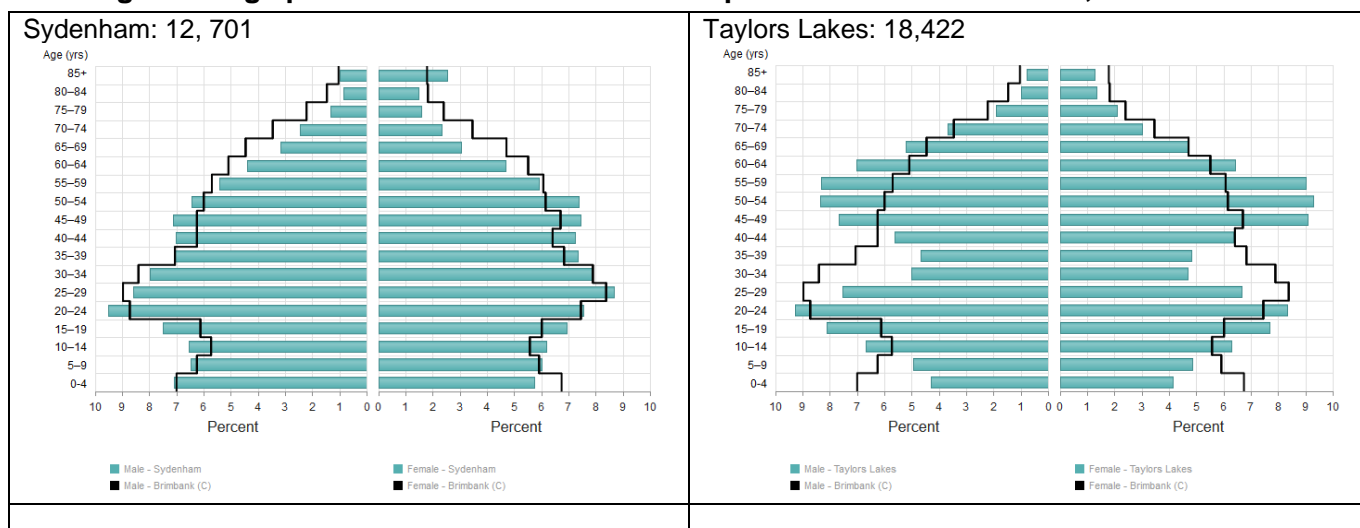
Some information as to those in the population aged 65 years and over who were born in countries where English was not the predominant language is provided on page 29.

At the PHA level, St Albans - North/ Kings Park and St Albans - South/ Sunshine North have age profiles that are most similar to the overall profile of Brimbank (Figure 2).

**Figure 2: Age profiles in Brimbank PHAs compared with Brimbank LGA, 2016**



**Figure 3: Age profiles in Brimbank PHAs compared with Brimbank LGA, 2016 ...cont**



Source: PHA populations compiled in PHIDU from ABS 2016 ERP populations by Statistical Areas Level 2; Brimbank LGA population from 2016 ERP, ABS

In Sydenham there are fewer people at older ages and more young children and parents; and in Taylors Lakes, again fewer at older ages, but with more teenagers and young adults and parents of these age groups. Notably, in both the PHAs of Sydenham and Taylors Lakes, the estimates indicate that there are fewer girls aged 0 to 4 years than there are boys.

Above-average proportions at younger ages can be seen in Deer Park (ages 0 to 4 and 5 to 9 years), and Cairnlea (5 to 9, 10 to 14 and 15 to 19 years), with corresponding higher proportions at ages 30 to 44 years (Deer Park) and 35 to 49 years (Cairnlea).

The age profile for Keilor shows it to have above-average proportions of its population from 40 years (females and 45 years (males, with well below-average proportions at ages 20 to 39 years.

In Ardeer - Albion/ Sunshine/ Sunshine West there are generally fewer people at ages 5 to 19 and from 45 to 69 years, and more at ages 20 to 44 years.

## Data sources

The source for each data item used in this section is listed in Appendix A.

## References

1. Australian Bureau of Statistics (ABS). Australian Statistical Geography Standard (ASGS). [Website]. At [http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+\(ASGS\)](http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+(ASGS)) (accessed 22 January 2019).

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## Contextual indicators at the Population Health Area level

Socioeconomic status	
Summary measure of socioeconomic disadvantage	18
Children in jobless families	20
Children in families with mothers with low educational attainment	22
Learning or earning at ages 15 to 24 years	24
Birthplace	
People recently arrived from countries in which English is not the predominant language	26
Longer term residents born in countries in which English is not the predominant language	28
People with poor English proficiency	30
Humanitarian Program arrivals	32
Aboriginal and Torres Strait Islander people	34
Labour force	
Unemployed	36
Unemployed youth	38
Female labour force participation	40
People working as managers or as professionals	42
People working as labourers	44
Housing and transport	
Social housing	46
Low income households under financial stress from rent or mortgage payments	48
Crowding	50
No motor vehicle	52
Internet not accessed at home	54
Electronic gaming machine: player losses	56
Voluntary work through an organisation	58
People living with disability, by age	60

For Indicators of health and wellbeing, and education and child development at the Population Health Area level, see page 63.

## Summary measure of socioeconomic disadvantage

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>1</sup>

**Indicator definition:** The IRSD is one of four socioeconomic indexes for areas compiled by the ABS, using data from the 2016 Census about the population living in an area, and their characteristics. The index has a base of 1000 for Australia: scores above 1000 indicate relative lack of disadvantage and those below 1000 indicate relatively greater disadvantage.

### Key points

- The IRSD score for Brimbank shows it to be the second most disadvantaged capital city LGA in Greater Melbourne and the sixth-ranked of all Australian capital cities under this measure.
- The IRSD paints a picture of the distribution of the population at the PHA level across Brimbank that will be seen repeatedly throughout this atlas, with the pattern of socioeconomic disadvantage driving many outcomes.

## Geographic variation

The IRSD score calculated for Brimbank at the 2016 Census (921) shows it to be relatively disadvantaged when compared with Australia overall, and even more disadvantaged when compared with Greater Melbourne overall (1021) (Table 1). The index score of 921 places it as the seventh most disadvantaged capital city LGA in Australia: in 2006 it was ranked tenth.

**Table 1: IRSD, Brimbank and comparators, 2006 and 2016**

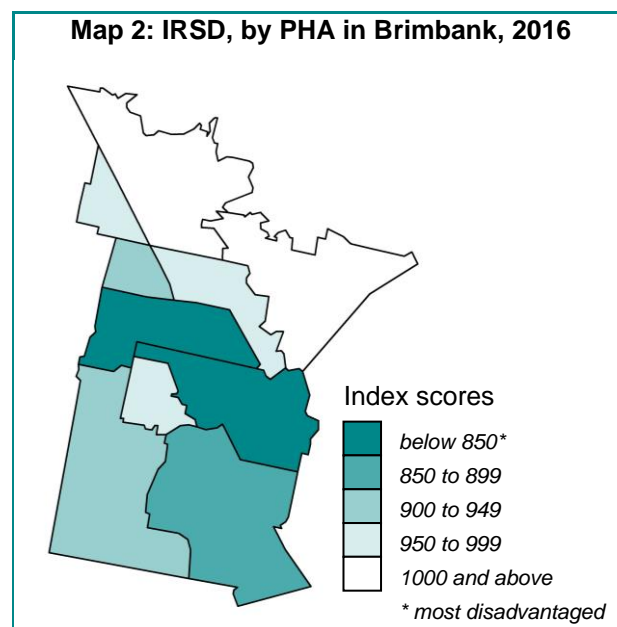
Region	Index score		
	Average	Min	Max
<b>2006</b>			
<b>Brimbank</b>	<b>930</b>	<b>772</b>	<b>1111</b>
Melbourne SD	1022	430	1176
Victoria	1010	430	1194
Australia	1000	205	1199
<b>2016</b>			
<b>Brimbank</b>	<b>921</b>	<b>694</b>	<b>1133</b>
Greater Melbourne	1021	341	1174
Victoria	1010	341	1174
Australia	1000	118	1186

Note: 'Average' is the index score for the area; 'Min' and 'Max' are the minimum and maximum scores at the Statistical Areas Level 1 in the relevant area

The IRSD paints a picture of the distribution of the population at the PHA level across Brimbank that will be seen repeatedly throughout this atlas, with the pattern of socioeconomic disadvantage driving many outcomes (Map 2 and Table 2). There are, however, marked variations in IRSD scores within the PHAs, as shown by the minimum and maximum scores in the table.

The most disadvantaged communities under this measure are in the central and southern PHAs of St Albans - South/ Sunshine North (with an index score of 841), St Albans - North/ Kings Park (846) and Ardeer - Albion/ Sunshine/ Sunshine West (889). Index scores of above the base level (of 1000, for Australia) were calculated for Taylors Lakes (1055) and Keilor (1049). These scores were little changed from 2006.

**Map 2: IRSD, by PHA in Brimbank, 2016**



Notably, the IRSD scores in St Albans - South/ Sunshine North and St Albans - North/ Kings Park are among the lowest of the capital city scores at the PHA level in Australia, with St Albans - South/ Sunshine North ranked thirty-first and St Albans - North/ Kings Park ranked thirty-fourth of the 651 capital city PHAs. Ardeer is ranked in seventy-sixth place. Again, there are marked variations within these PHAs.

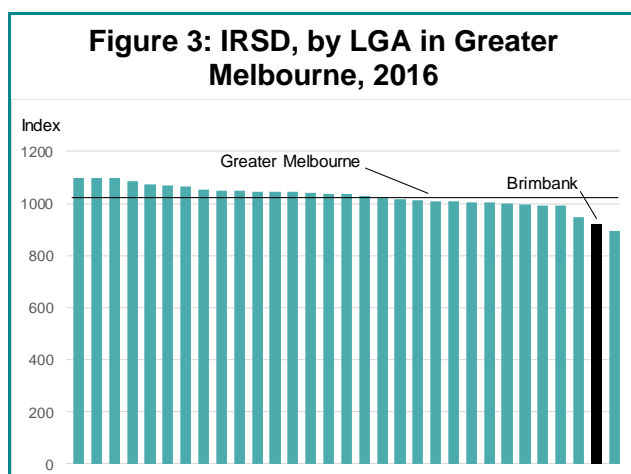
**Table 2: IRSD, by PHA in Brimbank, 2016**

PHA	IRSD		
	Avg	Min	Max
Ardeer - Albion/ Sunshine/ Sunshine West	889	733	1004
Cairnlea	976	884	1044
Deer Park - Derrimut	944	811	1056
Delahey	923	694	979
Keilor	1049	956	1133
Keilor Downs	973	917	1027
St Albans - North/ Kings Park	846	776	946
St Albans - South/ Sunshine North	841	707	1054
Sydenham	993	962	1044
Taylors Lakes	1055	931	1105
<b>Brimbank</b>	<b>921</b>	<b>684</b>	<b>1133</b>

Note: 'Avg' is the index score for the area; 'Min' and 'Max' are the minimum and maximum scores at the Statistical Areas Level 1 in the relevant area

### Regional comparisons

Brimbank had the second-lowest index score (921) of LGAs in Greater Melbourne in 2016, with the only lower score (896) recorded for Greater Dandenong (Figure 3). It was also the seventh-ranked LGA across all Australian capital cities under this measure.



### Correlations

There are very strong inverse correlations at the PHA level in Greater Melbourne between this indicator and many indicators of socioeconomic disadvantage (see Box re 'inverse' correlations).

High rates of children assessed as being developmentally vulnerable on one or more domains under the AEDC were also very strongly correlated with greater relative socioeconomic disadvantage under this measure at the PHA level in Greater Melbourne.

In contrast, there is a very strong correlation between high scores under the IRSD (i.e. relative lack of disadvantage, or relative advantage) and good outcomes for the child development indicator of children assessed as being developmentally on track in the language and cognitive skills domains under the AEDC.

For the area of health and wellbeing, there are very strong associations between low scores under the IRSD (i.e., greater relative disadvantage) and the indicators for people reporting their health as fair or poor, high or very high psychological distress, the prevalence of diabetes type 2, and female smokers (the estimates for these indicators are modelled estimates) (the estimates for these indicators are modelled estimates). There is a strong association with hospitalisations for ambulatory care-sensitive conditions, indicating relatively poorer access to adequate and timely primary health care by these disadvantaged communities.

The extent to which the outcomes for these indicators are similar in the PHAs in Brimbank can be seen in the description for each indicator in the following pages.

### Understanding correlations with the IRSD

The IRSD is constructed such that the lower the score the greater the level of disadvantage; hence, an inverse (negative) correlation between the IRSD and another indicator indicates an association with disadvantage and a positive correlation indicates an association with a relative lack of disadvantage.

To simplify the commentary in the text, rather than referencing correlations as being with the IRSD, and writing 'an inverse correlation', we have generally referenced correlations as being with 'socioeconomic disadvantage'; thus, an inverse correlation of an indicator with the IRSD can be referenced as that indicator being (positively) correlated with socioeconomic disadvantage.

A more detailed description of the correlation analysis is available in Appendix B.

### References

1. Australian Bureau of Statistics (ABS). Socio-Economic Indexes for Areas (SEIFA), 2011. (Technical paper: ABS Cat. no. 2033.0.55.001). Canberra: ABS, 2013.

## Children in jobless families

*Families where no parent is employed (“jobless families”) not only experience substantial economic disadvantage but may also have reduced social opportunities that affect their wellbeing and health.*

*Children who live without an employed parent may be at higher risk of experiencing financial hardship and other disadvantage in the short to medium term. They may not have a role model of employment to follow, and so the joblessness of the parent(s) may mean that such children are more likely to have outcomes such as welfare dependency in the long term.<sup>1</sup> Most of the children living without an employed parent live in lone-parent households with limited resources.<sup>2</sup>*

*In June 2017 there were 219,100 children aged 0–14 years in jobless couple families and a further 357,800 children at these ages in jobless one parent families.<sup>3</sup>*

**Indicator definition:** children under 15 years of age in families where no parent is in employment, expressed as a percentage of all families with children under 15 years of age.

### Key points

- Over six and a half thousand children under 15 years of age in Brimbank, or almost one in five children at these ages, were estimated to be living in families where no parent was employed.
- In some areas in Brimbank, around one in four children were living in jobless families, with implications for the level of resources needed in the community, and for the provision of services by government and non-government agencies.

### Geographic variation

Less than one in five (18.3%) children aged less than 15 years in Brimbank at the 2016 Census were living in jobless families, down from over one quarter (25.5%) in 2006 (Table 3). This proportion is still substantially above the Australian average, as shown by the rate ratio of 1.60 (i.e., in 2016 there were 60% more children in this population group in Brimbank than in Australia overall).

As a result, some 6,572 children in Brimbank aged less than 15 years were estimated to be living in families where no parent was in employment.

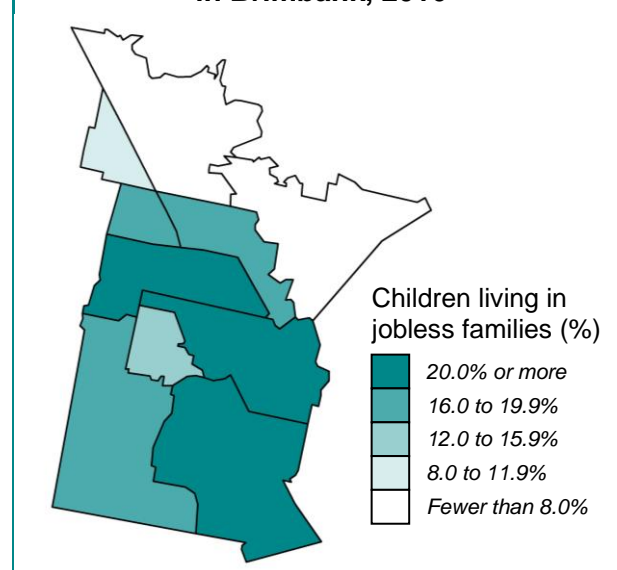
**Table 3: Children in jobless families, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>8,349</b>	<b>25.5</b>	<b>1.73</b>
Melbourne SD	85,597	13.4	0.91
Victoria	124,317	13.8	0.94
Australia	543,978	14.8	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>6,572</b>	<b>18.3</b>	<b>1.60</b>
Greater Melbourne	81,909	10.0	0.87
Victoria	114,194	10.5	0.91
Australia	503,293	11.5	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Very high proportions of children in these families were recorded in the PHAs of St Albans - North/ Kings Park (33.4%), St Albans - South/ Sunshine North (30.8%) and Ardeer - Albion/ Sunshine/ Sunshine West (29.4%) (Map 3 and Table 4). Although still very high, the proportions in each of these PHAs are between one fifth and one third lower than they were in 2006 (data for the earlier period are available at <https://tinyurl.com/yyy4race>).

**Map 3: Children in jobless families, by PHA in Brimbank, 2016**



The concentration of children in these families across much of Brimbank represents a major challenge for the community, with many of these families likely to have limited economic

resources, and for government and other agencies, in providing services and support.

In contrast, Keilor and Taylors Lakes had the lowest percentages of children less than 15 years of age in Brimbank living in jobless families, of 5.3% and 6.6%, respectively.

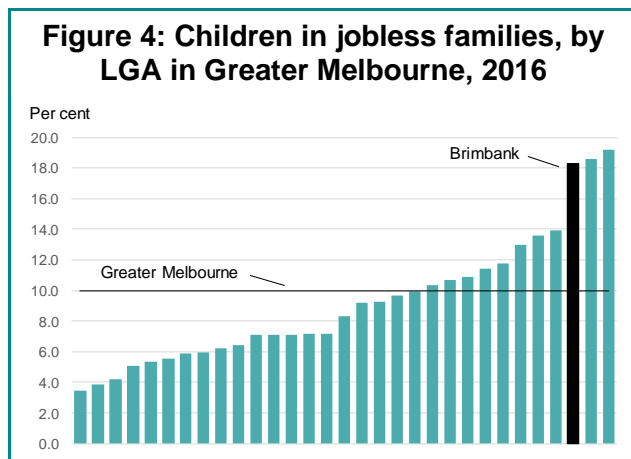
**Table 4: Children in jobless families, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	1,262	20.3	1.11
Cairnlea	312	14.2	0.78
Deer Park - Derrimut	996	16.0	0.87
Delahey	274	18.9	1.03
Keilor	76	5.3	0.29
Keilor Downs	373	17.1	0.93
St Albans - North/ Kings Park	1,641	27.0	1.47
St Albans - South/ Sunshine North	1,221	24.3	1.33
Sydenham	231	9.9	0.54
Taylors Lakes	182	6.6	0.36
<b>Brimbank</b>	<b>6,572</b>	<b>18.3</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

When compared with other LGAs in Greater Melbourne, Brimbank was had the third highest proportion of this population group; only Greater Dandenong (19.2%) and Hume (18.6%) had a higher proportion than that in Brimbank (18.3%) (Figure 4).



### Correlations

There are very strong correlations at the PHA level in Greater Melbourne between this indicator and many other indicators of socioeconomic disadvantage. These were most evident with high rates of unemployment, children in families where the mother has low educational attainment, overcrowding and households where no one accessed the Internet

from home. A very strong inverse correlation with the IRSD indicated that there was a low proportion of the population involved in learning or earning at ages 15 to 24 years.

A very strong inverse correlation showed that relatively fewer children were developmentally on track in the language and cognitive skills domains under the AEDC. Not surprisingly, given these findings, relatively more children were developmentally vulnerable on one or more domains under the AEDC.

For the health and wellbeing indicators, there were very strong correlations between this indicator and those for people reporting their health as fair or poor, the prevalence of diabetes type 2, and high or very high psychological distress (the estimates for these indicators are modelled estimates). Strong correlations were found for premature deaths of males and females, and hospitalisations for ambulatory care-sensitive conditions for adults, the latter indicating relatively poorer access to adequate and timely primary health care.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Hancock K, Edwards B, Zubrick S. Echoes of disadvantage across the generations? The influence of long-term joblessness and separation of grandparents on grandchildren. Greater Melbourne, Victoria: Australian Institute of Family Studies, 2013.
2. Australian Bureau of Statistics (ABS). Labour Force, Australia: labour force status and other characteristics of families, June 2011. (ABS Cat. no. 6224.0.55.001). Canberra: ABS, 2011.
3. Australian Bureau of Statistics (ABS). Labour Force, Australia: labour force status and other characteristics of families, June 2017. (ABS Cat. no. 6224.0.55.001). Canberra: ABS, 2017

## Children in families with mothers with low educational attainment

*A lack of successful educational experiences of parents, and in particular mothers, 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>1-5</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, expressed as a proportion of all children aged less than 15 years.

### Key points

- Some 7,000 children under 15 years of age in Brimbank were living in families with mothers with low educational attainment, comprising as many as one in four children in some suburbs.
- The lower percentages of children living in these families in the later period remind us that change can, and does, occur.

### Geographic variation

Almost one in five children in Brimbank aged less than 15 years were living in families with mothers with low educational attainment at the 2016 Census: this represents a marked improvement, with the proportion in 2016 (19.5%) two thirds of that in 2006 (29.3%) (Table 5). However, the change in Brimbank has not been as rapid as elsewhere, and the proportion is now above the level in Australia overall (of 17.0%) and substantially above that in Greater Melbourne (11.5%).

**Table 5: Children in families with mothers with low educational attainment, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>9,569</b>	<b>29.3</b>	<b>0.96</b>
Melbourne SD	129,149	20.2	0.66
Victoria	196,677	21.9	0.72
Australia	1,128,731	30.6	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>6,992</b>	<b>19.5</b>	<b>1.15</b>
Greater Melbourne	94,136	11.5	0.67
Victoria	137,839	12.7	0.75
Australia	746,089	17.0	1.00

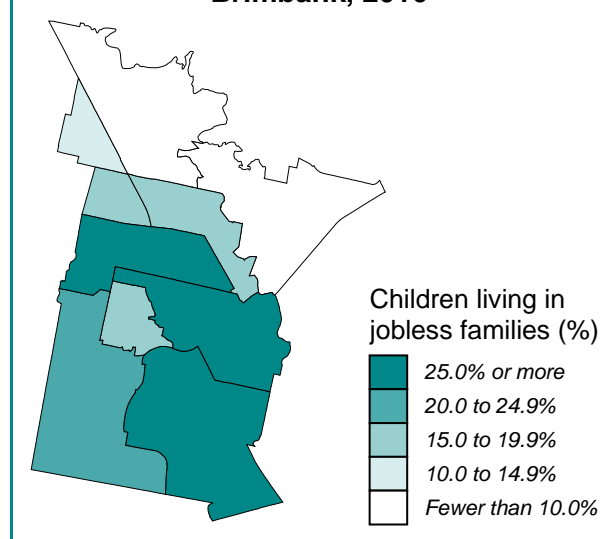
#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Very high proportions of children living in families where the mother had low educational attainment were recorded in the PHAs of St. Albans - South/ Sunshine North (27.6%) and St Albans - North/ Kings Park (25.7%), with proportions 42% and 32%, respectively above the Brimbank average (Map 4 and Table 6). Ardeer - Albion/ Sunshine/ Sunshine West had the next highest proportion, of 23.0%, 18% above average.

In contrast, the proportions of children in these families living in the PHAs of Keilor (6.7%), Taylors Lakes (8.6%) and Sydenham (10.5%) were between one third and one half of the Brimbank average.

It is of note that the same PHAs have the highest and lowest proportions in 2016 as was the case in 2006 although, in line with the city-wide experience, the proportions are now lower (data for the earlier period are available at <https://tinyurl.com/yyy4race>). These data highlight both the substantial variations evident for this indicator within the City, and that change can take place.

**Map 4: Children in families with mothers with low educational attainment, by PHA in Brimbank, 2016**



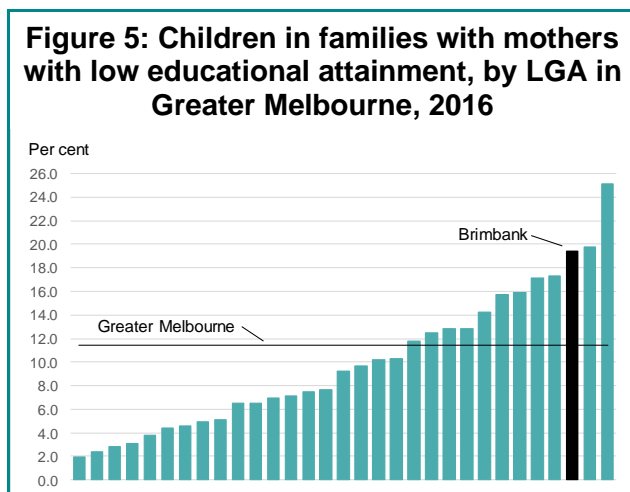
**Table 6: Children in families with mothers with low educational attainment, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	1,427	23.0	1.18
Cairnlea	342	15.6	0.80
Deer Park - Derrimut	1,058	16.9	0.87
Delahey	297	20.5	1.05
Keilor	97	6.7	0.35
Keilor Downs	341	15.6	0.80
St Albans - North/ Kings Park	1,565	25.7	1.32
St Albans - South/ Sunshine North	1,391	27.6	1.42
Sydenham	244	10.5	0.54
Taylors Lakes	238	8.6	0.44
<b>Brimbank</b>	<b>6,992</b>	<b>19.5</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

Brimbank had the third highest proportion of children aged less than 15 years living in families where the mother had low educational attainment, with 19.5%; this was well above the level in Greater Melbourne overall (Figure 5).



### Correlations

There are very strong correlations at the PHA level in Greater Melbourne between areas with high proportions of children aged less than 15 years living in families with mothers with low educational attainment and the indicators for children living in jobless families, unemployment, humanitarian migrants, and people working as labourers. Conversely, there were inverse correlations with high proportions of young people involved in learning or earning, and of high proportions of the workforce having the occupations of managers or professionals.

Very strong associations were also found with the education and child development indicators describing high levels of early school leavers, or with children who were developmentally vulnerable on one or more domains under the AEDC. Conversely, there were inverse correlations with children who were assessed as developmentally on track in the physical health and wellbeing, or the language and cognitive skills domains under the AEDC.

There were very strong correlations with this indicator and those for people reporting their health as fair or poor, high or very high psychological distress and adult smoking (the estimates for these indicators are modelled estimates).

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Cleland JG. Maternal education and child survival: further evidence and explanations. In: Caldwell J et al. (Eds.), What we know about the health transition (Vol. 1). Canberra: Health Transition Centre, Australian National University, 1990.
2. Graetz B. Socio-economic status in education research and policy. In: Ainley J et al. (Eds.), Socio-economic status and school education. Canberra: Department of Education, Employment and Training (DEET) and Australian Council for Educational Research (ACER), 1995.
3. Williams T, Long M, Carpenter P, Hayden M. Year 12 in the 1980's: report of a study supported by the Commonwealth EIP program. Canberra: AGPS, 1993.
4. Considine G, Zappala G. Factors influencing the educational performance of students from disadvantaged backgrounds. In: Eardley T, Bradbury B (Eds.), Competing visions: refereed Proceedings of the National Social Policy Conference 2001. (SPRC Report 1/02). Sydney: Social Policy Research Centre, University of New South Wales, 2002.
5. Ryan C, Sartbayeva S. Young Australians and social inclusion. Canberra: Social Policy Evaluation, Analysis, and Research (SPEAR) Centre, Australian National University, 2011.

## Learning or earning at ages 15 to 24 years

*Young people who fail to engage in school, work or further education/ training run a significant risk of school failure, unemployment, risky health behaviours and mental health problems, social exclusion, and economic and social disadvantage over the longer term.<sup>1,2</sup> The experience of unemployment harms a young person's financial and psychological wellbeing, and these effects are felt more severely by those who experience long-term unemployment.<sup>3</sup> Furthermore, those who experience unemployment while young are more likely to be unemployed, have poor health and have lower educational attainment when they are older, than those who are not affected by unemployment while young.<sup>3</sup>*

**Indicator definition:** Young people aged 15 to 24 years fully engaged in school, work or further education/ training. 'Fully engaged' includes people who reported at the 2016 Census that they were in full-time work or in full-time education, or in part-time work combined with part-time education. The remaining youth population, those who are 'not fully engaged' includes people who were working part-time (but not studying), unemployed (regardless of whether studying part-time), studying part-time (and not working) and not in the labour force (except those who were full-time students).

### Key points

- Despite a relatively high proportion of the youth population of Brimbank being fully engaged in education or work, more than 4,000 young people were not learning or earning.
- Again, there has been improvement in this measure over the ten years to the 2016 Census.

### Geographic variation

More than four in every five young people aged 15 to 24 years in Brimbank were fully engaged in education or work at the 2016 Census. This is consistent with the Australian figure (84.3%), although below the average in Greater Melbourne, of 87.3%. The proportion of young people earning or learning in Brimbank has increased since the 2006 Census, from 73.3% to 84.1%.

Despite the high proportion of the population aged 15 to 24 years being fully engaged in education or work, it is of concern that some 15.9% of young people in Brimbank were not so engaged.

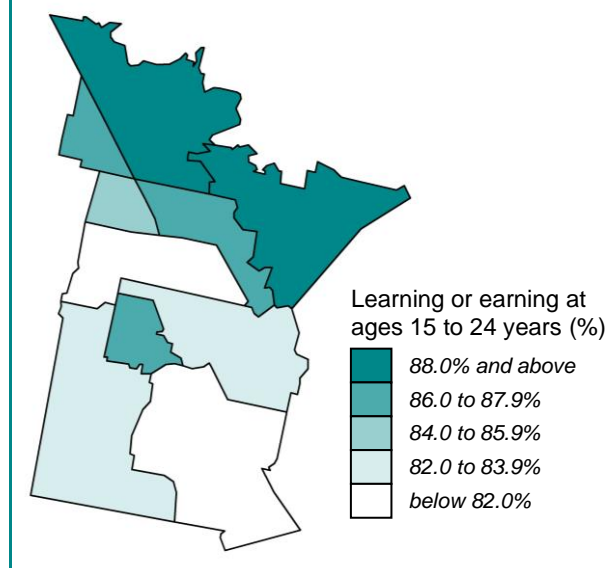
**Table 7: Learning or earning at ages 15 to 24, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
Brimbank	18,162	72.3	1.00
Melbourne SD	386,826	76.3	1.05
Victoria	508,632	75.5	1.04
Australia	1,963,409	72.6	1.00
<b>2016</b>			
Brimbank	23,036	84.1	1.00
Greater Melbourne	525,671	87.3	1.03
Victoria	664,148	86.2	1.02
Australia	2,519,692	84.3	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

The extent of involvement of this group in education or work varies markedly across Brimbank, from 91.1% in Taylors Lakes, to a low of 79.9% in St Albans - North/ Kings Park (Map 5 and Table 8). Keilor (90.4%) and Keilor Downs (86.8%) in the north, and Cairnlea (87.5%) in central Brimbank, also have relatively high rates of engagement. Ardeer - Young people in Albion/ Sunshine/ Sunshine West (80.8%) and St Albans - South/ Sunshine North (82.7%) had the second and third lowest rates.

**Map 5: Learning or earning at ages 15 to 24 years, by PHA in Brimbank, 2016**





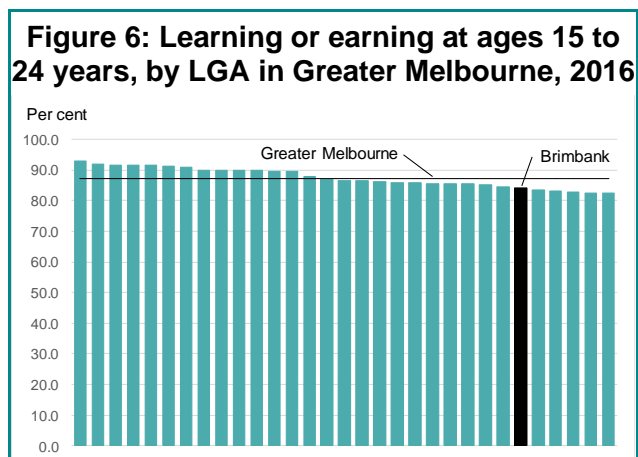
**Table 8: Learning or earning at ages 15 to 24 years, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	3,819	80.8	0.96
Cairnlea	1,336	87.5	1.04
Deer Park - Derrimut	2,633	83.3	0.99
Delahey	1,163	85.6	1.02
Keilor	926	90.4	1.08
Keilor Downs	1,553	86.8	1.03
St Albans - North/ Kings Park	3,756	79.9	0.95
St Albans - South/ Sunshine North	3,648	82.7	0.98
Sydenham	1,551	86.3	1.03
Taylors Lakes	2,646	91.1	1.08
<b>Brimbank</b>	<b>23,036</b>	<b>84.1</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

Brimbank had relatively fewer young people engaged in learning or earning than across Greater Melbourne, with the level 84.1% among the lowest of the LGAs (Figure 6).



### Correlations

There are very strong inverse correlations at the PHA level in Greater Melbourne between this indicator and a number of the indicators of socioeconomic disadvantage. Thus, areas with relatively high proportions of their young people learning or earning had relatively fewer children living in jobless families, or in families where the mother has low educational attainment, or unemployment, or in households where no one accessed the Internet.

Very strong correlations were also found between this indicator and those for child development, with relatively higher levels of children assessed as being developmentally on track in the language and cognitive skills domain of the AEDC.

For the health and wellbeing indicators, a very strong inverse correlation was found with this indicator and with those for people reporting their health as fair or poor, adult smokers, high or very high psychological distress, and the prevalence of diabetes type 2 (the estimates for these indicators are modelled estimates). There were also strong inverse correlations with the indicators for premature mortality and obesity (also a modelled estimate), and hospitalisations for ambulatory care-sensitive conditions, the latter indicating relatively poorer access to adequate and timely primary health care, which could potentially avoid the necessity for an hospital admission.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

### References

1. KPMG. Education provision for young people at risk of disengaging or disengaged from school. (Report for the Department of Education and Early Childhood Development, Victoria). Greater Melbourne: KPMG, 2009.
2. Taylor J. Stories of early school leaving: pointers for policy and practice. Fitzroy: Brotherhood of St Laurence, 2009.
3. Brotherhood of St Laurence (BSL). On the treadmill: young and long-term unemployed in Australia. Greater Melbourne: BSL, 2014.

## People recently arrived from countries in which English is not the predominant language

People born in countries in which English is not the predominant language and who have lived in Australia for less than five years (also referred to as recent arrivals) can face a number of difficulties. For many who arrive without proficiency in English, the combination of economic struggle with adjustment to a new language and a new cultural milieu can be expected to give rise to considerable stresses. Although a relatively small group, they also pose special challenges for deliverers of health, education, welfare and other community services.<sup>1</sup> Despite common experiences including those relating to migration and dislocation, this population is far from a homogeneous group. There is great diversity in language, culture, religion, socioeconomic status, education and age structure. The most rapidly growing non-English speaking groups are from Asia. In Victoria, over a quarter (27.8%) of households had people reporting speaking a language other than English in 2016, reflecting the degree to which different ethnic groups and nationalities are retaining their languages.<sup>2</sup>

**Indicator definition:** Comprises people born in countries in which English is not the predominant language (referred to below as NES (non-English speaking) countries), who arrived in Australia from 2012 to 2016, expressed as a proportion of the population.

### Key points

- Brimbank has a high proportion of its population who were born in countries in which English is not the predominant language, and who had arrived in Australia since the beginning of 2012.
- People in this group have mainly settled in a small number of Brimbank's suburbs.

### Geographic variation

People born in countries in which English is not the predominant language, and who had arrived in Australia since the beginning of 2012, comprised 7.4% of the Brimbank population in 2016 (Table 9). This is almost twice the Australian average, as shown by the rate ratio of 1.92; it is also markedly above the level for Greater Melbourne (5.9%).

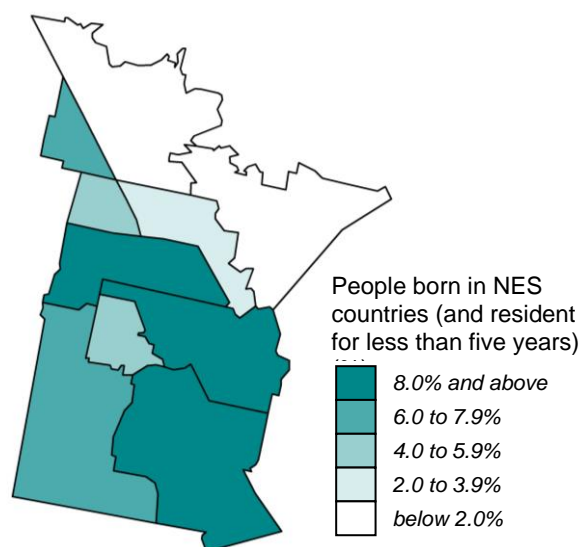
The growth of this population group in Brimbank has out-stripped growth in Greater Melbourne, Victoria and Australia.

**Table 9: People born in NES countries (and resident for less than five years), Brimbank and comparators, 2006 ad 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>6,795</b>	<b>4.0</b>	<b>1.82</b>
Melbourne SD	123,807	3.4	1.55
Victoria	131,382	2.7	1.23
Australia	434,670	2.2	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>14,391</b>	<b>7.4</b>	<b>1.92</b>
Greater Melbourne	264,604	5.9	1.53
Victoria	280,844	4.7	1.23
Australia	900,375	3.8	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

**Map 6: People born in NES countries (and resident for less than five years), by PHA in Brimbank, 2016**



The distribution of this population group at the PHA level across Brimbank varies markedly, from just 1.0% in Keilor and 1.6% in Taylors Lakes, to 11.7% in Ardeer - Albion/ Sunshine/ Sunshine West and 10.5% in St Albans - South/ Sunshine North (Map 6 and Table 10). St Albans - North/ Kings Park (8.6%), Sydenham (7.7%) and Deer Park - Derrimut (7.0%) also had proportions above the Greater Melbourne average.

**Table 10: People born in NES countries (and resident for less than five years), by PHA in Brimbank, 2016**

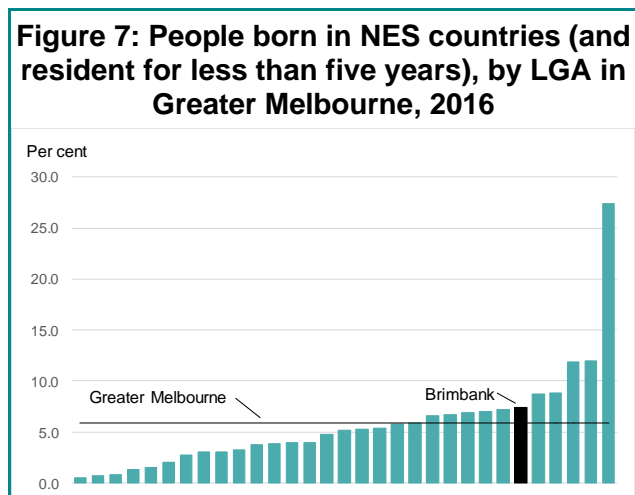
PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	4,220	11.7	1.57
Cairnlea	410	4.2	0.57
Deer Park - Derrimut	1,839	7.0	0.95
Delahey	339	4.1	0.55
Keilor	84	1.0	0.13
Keilor Downs	385	2.9	0.39
St Albans - North/ Kings Park	2,914	8.6	1.16
St Albans - South/ Sunshine North	3,051	10.5	1.42
Sydenham	930	7.7	1.05
Taylors Lakes	271	1.6	0.21
<b>Brimbank</b>	<b>14,391</b>	<b>7.4</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

Figure 7 highlights the high proportions of this population group living in a relatively small number of LGAs, in particular in areas with high proportions of students from countries in which English is not the predominant language. The most evident example is in the LGA of Greater Melbourne, where this population group represents 27.3% of the population, of whom the 19,491 students, under 30 years of age studying at a university or other tertiary institution, represent 52.4% of all people in this population group.

Several other areas have substantial numbers of these students; although relatively smaller, the data show there to be 1,890 students in the overall number of 14,391 people in this population group in Brimbank.



### Correlations

There are very strong correlations at the PHA level in Greater Melbourne between this indicator and the level of youth unemployment, low income households under financial stress from rent or mortgage payments and of dwellings without access to a motor vehicle. Strong correlations were also found between this indicator and longer-term residents born in NES countries and people living in crowded dwellings.

Strong inverse correlations were found between this indicator and those for children fully immunised at five years of age, young people participating in full-time secondary education and for people with their highest level of education being an Advanced Diploma, Diploma or Certificate.

Similar outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Australian Institute of Health and Welfare (AIHW). Australia's welfare, 2011. (AIHW Cat. no. AUS 142). Canberra: AIHW, 2011.
2. Australian Bureau of Statistics (ABS). 2016 Census QuickStats [http://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/quickstat/2?opendocument](http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/2?opendocument) (accessed January 2019).

## Longer term residents born in countries in which English is not the predominant language

People in this category were born in countries in which English is not the predominant language and arrived in Australia five or more years ago. In the post-war period (in particular from the 1950s), the majority of immigrants from non-English-speaking countries came from Europe; more recently, the proportion of these immigrants from Europe has declined. In Victoria, culturally diverse older people may be excluded from social and economic participation because of social isolation, varying levels of English, low levels of literacy even in languages other than English, lack of information in languages other than English, no driver's license and lack of confidence using public transport.<sup>3</sup> Victorian non-English speaking seniors also tend to have low levels of health literacy and internet literacy, and are at a higher risk of poor health outcomes such as advanced dementia and depression.<sup>3</sup>

**Indicator definition:** Comprises people born in countries in which English is not the predominant language (referred to below as NES (non-English speaking) countries), who arrived in Australia before 2012, expressed as a proportion of the population.

### Key points

- Longer term residents, who were born in countries in which English is not the predominant language, make up over one third of the population in Brimbank.
- Residents in this group are spread widely throughout the City, comprising between 19% and 43% of the population at the PHA level.

### Geographic variation

Greater Melbourne and Brimbank have higher proportions of these longer term residents than were seen in the previous indicator for those arriving in recent years, both overall and when compared with Australia (Table 11).

In Brimbank, 35.7%, or just over one third of the population, were in this population group at the 2016 Census, more than two and a half times the Australian proportion.

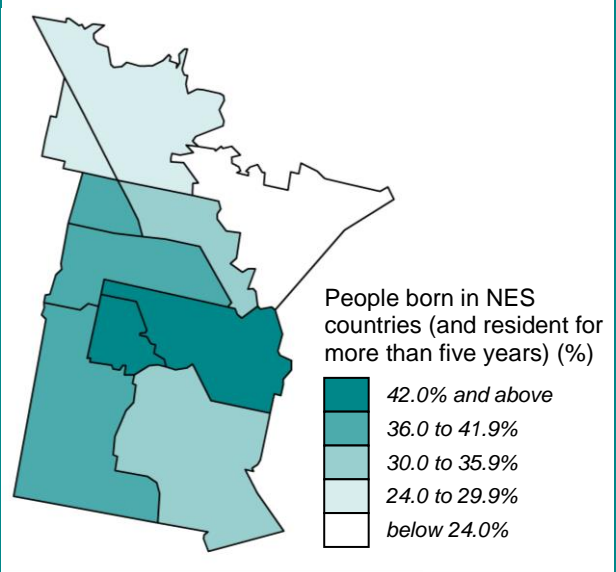
**Table 11: People born in NES countries (and resident for five years or more), Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>57,711</b>	<b>34.3</b>	<b>3.12</b>
Melbourne SD	626,888	17.4	1.58
Victoria	683,117	13.8	1.25
Australia	2,175,744	11.0	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>69,400</b>	<b>35.7</b>	<b>2.66</b>
Greater Melbourne	911,055	20.3	1.51
Victoria	978,767	16.5	1.23
Australia	3,140,701	13.4	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

All but one of the PHAs in Brimbank had at least one fifth of their population born in countries in which English is not the predominant language, and who arrived in Australia before 2007 (Map 7 and Table 12).

**Map 7: People born in NES countries (and resident for five years or more), by PHA in Brimbank, 2016**



The highest proportions of this population group, of one third or more of the population, were in St Albans - South/ Sunshine North (43.0%), Cairnlea (42.7%), St Albans - North/ Kings Park (41.1%), Delahey (38.9%) and Ardeer - Albion/ Sunshine/ Sunshine West (34.4%). Keilor had the lowest proportion of this population group (18.9%)

The overall high numbers of this population group, and their widespread nature throughout the City, presents challenges for

the delivery of a range of services at the local level. Adding to this challenge is that just over one quarter (26.0%, 17,059 people) of this population group is aged 65 years and over. Brimbank LGA has the second highest proportion of its population aged 65 years and over born in these countries (64.7%, with 69.6% in Greater Dandenong).

**Table 12: People born in NES countries (and resident for five years or more), by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	12,436	34.4	0.96
Cairnlea	4,121	42.7	1.19
Deer Park - Derrimut	9,529	36.3	1.02
Delahey	3,248	38.9	1.09
Keilor	1,606	18.9	0.53
Keilor Downs	4,319	32.7	0.92
St Albans - North/ Kings Park	13,948	41.1	1.15
St Albans - South/ Sunshine North	12,431	43.0	1.20
Sydenham	3,407	28.4	0.79
Taylors Lakes	4,520	26.1	0.73
<b>Brimbank</b>	<b>69,400</b>	<b>35.7</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

At the PHA level, the largest numbers are in St Albans - North/ Kings Park (3,607 people), Ardeer - Albion/ Sunshine/ Sunshine West (3,301) and St Albans - South/ Sunshine North (3,127) (**Error! Not a valid bookmark self-reference.**). There are also notable numbers in several other PHAs.

**Table 13: People aged 65 years and over born in NES countries (and resident for five years or more), by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	3,301	60.7	0.94
Cairnlea	515	83.1	1.28
Deer Park - Derrimut	1,453	58.8	0.91
Delahey	711	77.9	1.20
Keilor	855	44.5	0.69
Keilor Downs	1,512	72.4	1.12
St Albans - North/ Kings Park	3,607	69.6	1.08
St Albans - South/ Sunshine North	3,127	70.8	1.09
Sydenham	654	52.7	0.81
Taylors Lakes	1,317	63.5	0.98
<b>Brimbank</b>	<b>17,059</b>	<b>64.7</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

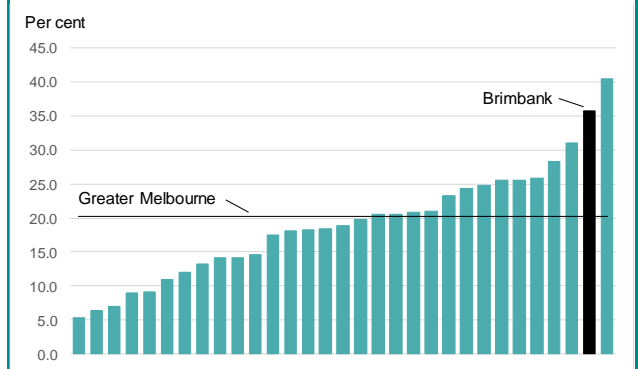
The countries of birth with the largest numbers of those aged 65 years and over were Germany (72.5%), Greece (66.6%), Malta (65.9%), Italy (65.0%), Netherlands (61.6%), Croatia (56.7%),

South Eastern Europe (not further defined, 48.3%), Poland (44.5%) and The Former Yugoslav Republic of Macedonia (37.7%).

## Regional comparisons

The City of Brimbank had a very high proportion of this population group when compared with other LGAs in Greater Melbourne in 2016, with only Greater Dandenong (40.5%), in the south-east of Greater Melbourne, having a higher proportion (Figure 8).

**Figure 8: People born in NES countries (and resident for five years or more), by LGA in Greater Melbourne, 2016**



## Correlations

As is to be expected, there was a very strong correlation at the PHA level in Greater Melbourne between this indicator and areas having high proportions of the population born overseas reporting poor proficiency in English. Strong correlations were also found with the level of youth unemployment, people working as labourers, humanitarian migrants and people living in overcrowded dwellings.

A strong inverse correlation was found with people who participated in voluntary work.

In the area of health and wellbeing, there were strong correlations between this indicator and the estimated prevalence of diabetes type 2 and of people reporting their health as fair or poor.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

## References

1. Ethnic Communities' Council of Victoria (ECCV). Submission to the Inquiry into opportunities for participation of Victorian seniors to the Family and Community Development Committee. Carlton, Victoria: ECCV, 2011.

## People born overseas and reporting poor proficiency in English

*For migrants born in predominantly non-English speaking countries, the rate at which they adapt to live in the host country is directly related to the rate at which they achieve proficiency in English. Their proficiency in English has profound implications for the ease with which they access labour markets, develop social networks, become aware of and utilise services, and participate in many aspects of Australian society. Those people who are not proficient in spoken English are less likely to be in full-time employment and more likely not to be in the labour force.<sup>1</sup>*

*In 2016, almost two thirds (62.3%) of longer-standing migrants and 80.5% of recent arrivals living in Victoria spoke a language other than English at home.<sup>2</sup> This probably reflects the main countries of birth for these two groups and also the amount of time spent in Australia. However, this does not provide an indication of their ability to speak English. Half (50.9%) of longer-standing migrants reported speaking English very well or well, while 10.9% reported not speaking English well, or at all. For recent arrivals, 63.1% reported speaking English very well or well, and the proportion who reported not speaking English well, or at all was 16.9%.<sup>2</sup>*

**Indicator definition:** Comprises people born overseas who reported speaking English ‘not well’ or ‘not at all’, expressed as a proportion of the population aged five years and over.

### Key points

- Brimbank has a high proportion of its population who reported at the 2016 Census that they spoke English ‘not well’ or ‘not at all’ – it is the fifth ranked LGA for this indicator across Australia and the second-ranked in Greater Melbourne.
- The data suggest a range of services is likely to be required to meet the particular needs of these communities.

### Geographic variation

Just over one in ten people living in Brimbank who had been born overseas reported speaking English ‘not well’ or ‘not at all’ at the 2016 Census (Table 14). This was a substantially larger proportion of the population (aged five years and over) than in Australia overall (11.8% in Brimbank, almost four times the 3.0% in Australia). The proportion of people reporting poor proficiency in English has remained relatively consistent with the level in 2006.

**Table 14: People born overseas reporting poor proficiency in English, Brimbank and comparators, 2006 and 2016**

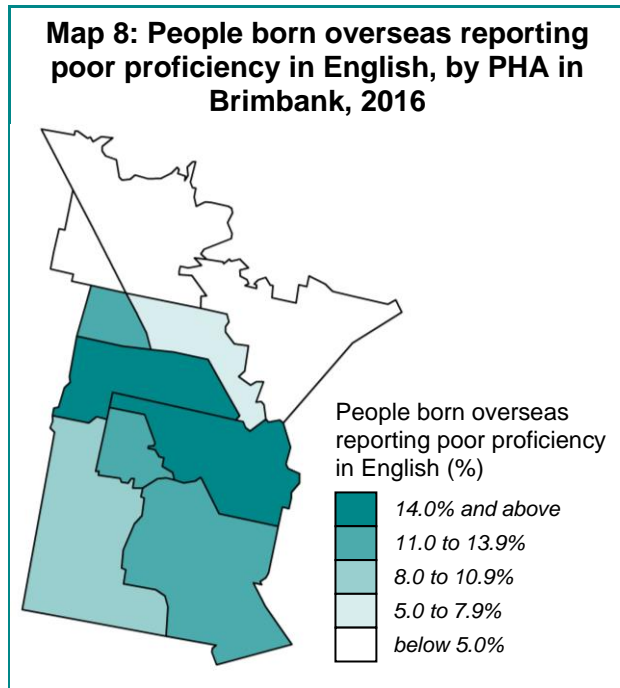
Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>17,405</b>	<b>11.1</b>	<b>4.63</b>
Melbourne SD	144,020	4.3	1.79
Victoria	151,470	3.3	1.38
Australia	<b>443,188</b>	<b>2.4</b>	<b>1.00</b>
<b>2016</b>			
<b>Brimbank</b>	<b>21,379</b>	<b>11.8</b>	<b>3.99</b>
Greater Melbourne	202,613	4.8	1.63
Victoria	213,584	3.8	1.30
Australia	<b>684,470</b>	<b>3.0</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Greater Melbourne has a larger proportion of its population in this group, at 4.8%, than in Australia overall (and more than the Victorian average, of 3.8%). However, the proportion in Brimbank is almost two and a half times that in Greater Melbourne and is indicative of the need for a range of services to meet the particular needs of these communities.

As is to be expected, the areas within Brimbank with the highest proportions of their populations reporting poor proficiency in English are generally those noted in the previous two indicators, relating to people born overseas in predominantly non-English speaking countries. The highest proportions, both of which are substantially above the Brimbank average, are in St Albans - South/Sunshine North (20.3%) and St Albans - North/Kings Park (15.8%), with proportions of 13.6% and 12.9% in Ardeer - Albion/Sunshine/Sunshine West and Cairnlea, respectively (Map 8 and Table 15).

Keilor, Sydenham and Taylors Lakes had the lowest proportions, of 2.8%, 3.74% and 4.9%, respectively.



**Table 15: People born overseas reporting poor proficiency in English, by PHA in Brimbank, 2016**

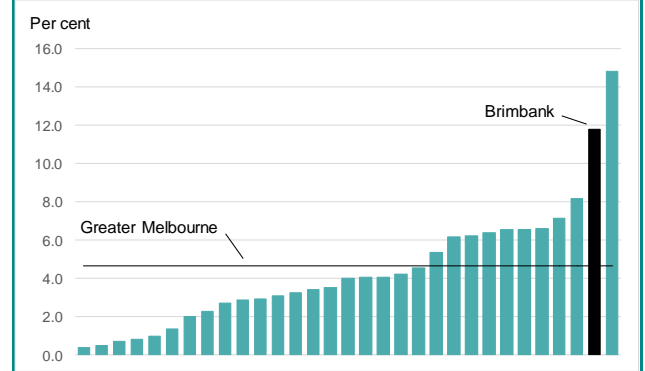
PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	4,592	13.6	1.16
Cairnlea	1,162	12.9	1.10
Deer Park - Derrimut	2,315	9.8	0.83
Delahey	873	11.1	0.94
Keilor	225	2.8	0.24
Keilor Downs	966	7.8	0.66
St Albans - North/ Kings Park	5,017	15.8	1.34
St Albans - South/ Sunshine North	5,483	20.3	1.72
Sydenham	553	4.9	0.42
Taylors Lakes	614	3.7	0.31
<b>Brimbank</b>	<b>21,379</b>	<b>11.8</b>	<b>3.99</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

As was the case for people born in countries for which English is not the predominant language, and who arrived in Australia before 2007, the proportion of people reporting poor proficiency in English for Brimbank was among the top two Greater Melbourne LGAs. Again, Brimbank, with 11.8% of its population in this group, had the second highest proportion, after Greater Dandenong (14.8%) (Figure 9).

**Figure 9: People born overseas reporting poor proficiency in English, by LGA in Greater Melbourne, 2016**



### Correlations

There are very strong correlations at the PHA level in Greater Melbourne between high proportions of the population born overseas reporting poor proficiency in English and high proportions of longer-term residents born in NES countries, as well as with high levels of overcrowding. Strong correlations were also present for this indicator and the estimated prevalence of diabetes type 2 and people reporting their health as fair or poor.

A strong correlation between this indicator and that for children assessed as being developmentally vulnerable on one or more AEDC domains highlights that children in these areas in their first year of school face a number of challenges. However, many children from these backgrounds do well after their first years in school.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Australian Bureau of Statistics (ABS). Perspectives on migrants, 2007. (ABS Cat. no. 3416.0). Canberra: ABS, 2008.
2. Australian Bureau of Statistics (ABS). 2016 Community Profile [http://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/community\\_profile/?opendocument](http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/community_profile/?opendocument) (accessed January 2019).

## Humanitarian Program arrivals

Australia has two formal programs in place to facilitate the arrival of permanent migrants – the Migration Program for skilled and family entrants and the Humanitarian Program for refugees and those in refugee-like situations.<sup>1</sup> Of the 601,756 permanent migrants who have arrived in Australia since 2000 and were recorded in the 2016 Australian Census and Migrants Integrated Dataset as resident in Victoria, 11.5% had migrated under the permanent Humanitarian visa stream, with 57.1% under the Skilled and 31.4% under the Family visa stream.<sup>2</sup>

Results from the Building a New Life in Australia (BNLA) longitudinal study of humanitarian migrants show that overall 15% of respondents reported that their health had been 'very poor' or 'poor'.<sup>3</sup> Proportions were higher among females than males, but lower among those aged 15 to 19 years than older age groups.<sup>3</sup> Further, the proportion of BNLA participants reporting poor or very poor health is higher than the general Australian population in 2007-08 (3%).<sup>4</sup> Poor or very poor self-rated health was associated with a greater number of financial hardships and not feeling welcomed in Australia, after adjusting for age, sex, marital status, education, country of origin, visa subclass, time in Australia and experience of traumatic events.<sup>5</sup>

**Indicator definition:** Comprises the estimated number of people born overseas who migrated to Australia under the Permanent Humanitarian visa stream between 1 January 2000 and 9 August 2016.

### Key points

- Brimbank has a relatively high proportion of its population born overseas who arrived in Australia under the Permanent Humanitarian visa stream between 2000 and 2016.
- The data suggest a range of services is likely to be required to meet the particular needs of these communities.

## Geographic variation

There were 5,997 people living in Brimbank who had arrived in Australia between 2000 and 2016 under the Humanitarian visa stream (Table 16). A further 11,825 residents had come under the Family and 9,889 under the Skill visa streams. The proportion of humanitarian migrants in Brimbank (2.9%) was more than three and a half times the Australia rate (0.8%), and more than twice the level in Greater Melbourne (1.2%).

**Table 16: Permanent humanitarian migrants, Brimbank and comparators\***

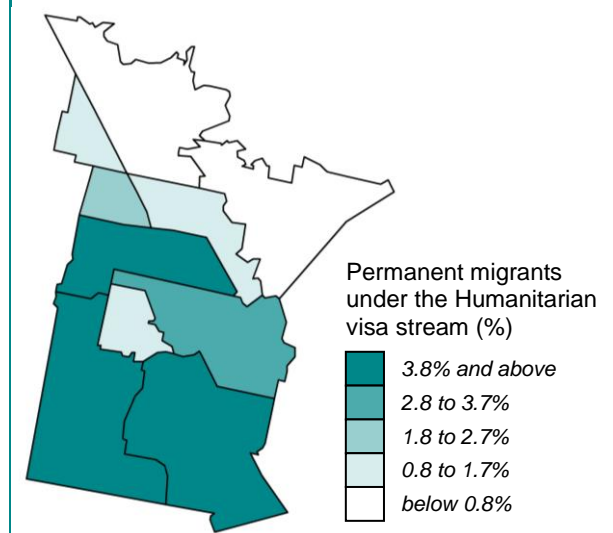
Region	No.	%	RR#
<b>Brimbank</b>	<b>5,997</b>	<b>2.9</b>	<b>3.63</b>
Greater Melbourne	58,231	1.2	1.50
Victoria	63,823	1.0	1.25
Australia	197,574	0.8	1.00

\*Includes people who arrived between 1 January 2000 and 9 August 2016

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

The main countries of birth of people living in Brimbank in 2016 who arrived in Australia under the Humanitarian visa stream were Myanmar (1,365), Sudan (719), Bosnia and Herzegovina (342), Iraq (322), Ethiopia (307), South Sudan (284), Afghanistan (277), Pakistan (251), Iran (211), Eritrea (203), Liberia (202), Sri Lanka (155), Egypt (154), Malaysia (147) and Timor-Leste (107).

**Map 9: Permanent humanitarian migrants, by PHA in Brimbank\***



\*Includes people who arrived in Australia between 1 January 2000 and 9 August 2016

The areas in Brimbank where most humanitarian migrants have settled since 2000 are Ardeer - Albion/ Sunshine/ Sunshine West (1,773 people, 4.6%), Deer Park - Derrimut (1,114, 3.9%), St Albans - North/ Kings Park (1,354, 3.8%) and St Albans - South/ Sunshine North (1,111, 3.6%) (Map 9 and Table 17). This population group has increased in size since 2000 in Ardeer - Albion/ Sunshine/ Sunshine West (the number has doubled) and St Albans - South/ Sunshine North (up by 20%); however,



numbers have declined in St Albans - North/ Kings Park (by 60%) and Deer Park - Derrimut (by 44%).

**Table 17: Permanent humanitarian migrants, by PHA in Brimbank\***

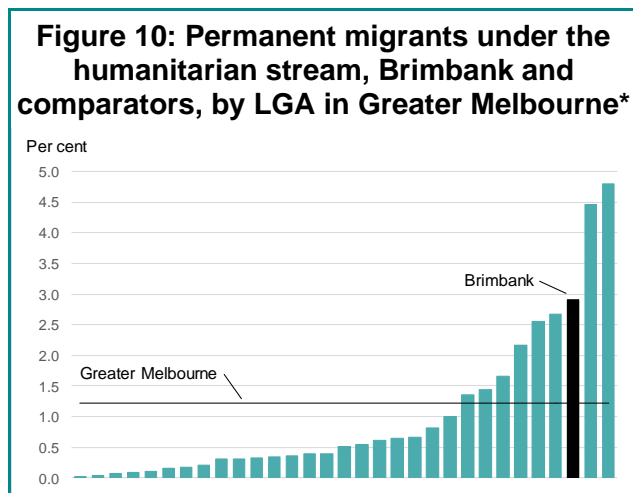
PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	1,773	4.6	1.59
Cairnlea	159	1.5	0.52
Deer Park - Derrimut	1,114	3.9	1.34
Delahey	169	1.9	0.66
Keilor	4	0.0	0.00
Keilor Downs	126	0.9	0.31
St Albans - North/ Kings Park	1,354	3.8	1.31
St Albans - South/ Sunshine North	1,111	3.6	1.24
Sydenham	128	1.0	0.34
Taylors Lakes	60	0.3	0.10
<b>Brimbank</b>	<b>5,997</b>	<b>2.9</b>	<b>1.00</b>

\*Includes people who arrived between 1 January 2000 and 9 August 2016

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

## Regional comparisons

Humanitarian migrants who arrived in Australia between 1 January 2000 and 9 August made up a relatively high proportion of the population in Brimbank in 2016; this figure, of 2.9%, was the third highest at the LGA level in Greater Melbourne, after Greater Dandenong (4.8%) and Hume (4.5%) (Figure 9).



\*Includes people who arrived between 1 January 2000 and 9 August 2016

## Correlations

There are very strong correlations at the PHA level in Greater Melbourne between high proportions in the population of Humanitarian migrants and high levels of unemployment, as well as with high proportions of children in families where the mother has low educational attainment. Strong correlations were also present for this indicator and high proportions

of children living in jobless families, people living in overcrowded dwellings, people working as labourers and people living in households where no one accessed the Internet.

A strong correlation between this indicator and that for children assessed as being developmentally vulnerable on one or more AEDC domains highlights that children in these areas in their first year of school face a number of challenges. Further, there was a strong inverse correlation between this indicator and children assessed as being developmentally on track in the language and cognitive skills domain of the AEDC. However, as noted above, many children from these backgrounds do well after their first years in school.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Phillips J, Karlsen E. Migration and humanitarian programs. Budget Review 2014–15 Index
2. Australian Bureau of Statistics (ABS). 34170DO001\_2016 Understanding Migrant Outcomes - Insights from the Australian Census and Migrants Integrated Dataset, Victoria, 2016.
3. Edwards E, Smart D, De Maoi J, Silbert M, Jenkinson R. Cohort Profile: Building a New Life in Australia (BNLA): the longitudinal study of humanitarian migrants. *International Journal of Epidemiology*, Volume 47, Issue 1, 1 February 2018
4. Australian Bureau of Statistics (ABS). National Health Survey: Summary of Results, 2007-2008. (ABS Cat. no. 4364.0). Canberra: ABS, 2009.
5. Chen W, Ling L, Renzaho AMN. Building a new life in Australia: an analysis of the first wave of the longitudinal study of humanitarian migrants in Australia to assess the association between social integration and self-rated health. *BMJ Open* 2017;7:e014313

## Aboriginal and Torres Strait Islander people

In 2016, the estimated resident Aboriginal and Torres Strait Islander population in Victoria was 57,767 (or 0.9% of the total Victorian population).<sup>1</sup> The Aboriginal and Torres Strait Islander population is considerably younger than the non-Indigenous population. In 2016, the median age for this population in Victoria was 22.8 years, 14.3 years less than the median age for the non-Indigenous population, of 37.1 years.<sup>1</sup> More than one in three (34.5%) Aboriginal people and Torres Strait Islanders in Victoria were aged less than 15 years, while just 4.6% were aged 65 years and over.<sup>1</sup> As a group, Aboriginal and Torres Strait Islander people are disadvantaged across all domains under wellbeing compared to their non-Indigenous counterparts.<sup>2</sup>

**Indicator definition:** The populations presented below are the estimates of Aboriginal and Torres Strait Islander Australians at 7 June 2016.<sup>1</sup>

### Key points

- There are relatively few Aboriginal and Torres Strait Islander people in Brimbank; the number is estimated to be less than 1,000 people, comprising 0.5% of the population.
- There is some variation in the distribution of Aboriginal and Torres Strait Islander people across the PHAs in Brimbank, with greater concentrations in more disadvantaged areas.

### Geographic variation

The Aboriginal and Torres Strait Islander population (referred to as 'Aboriginal' in the following text) in Brimbank is relatively small (0.5%), being less than one fifth of the proportion in Australia (3.3%) (Table 18). However, it is consistent with the proportion in Greater Melbourne, of 0.6%, but lower than the Victorian average, of 0.9%.

The proportion of Aboriginal people in Brimbank has increased since 2006 (from 0.4% to 0.5%), with a larger increase recorded in Australia as a whole (from 2.5% in 2006 to 3.3% in 2016).

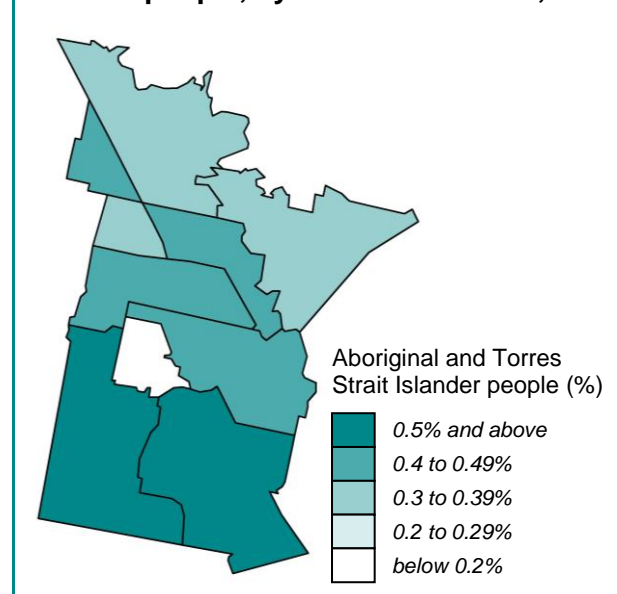
**Table 18: Aboriginal and Torres Strait Islander people, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>639</b>	<b>0.4</b>	<b>0.16</b>
Melbourne SD	15,925	0.4	0.16
Victoria	33,517	0.7	0.28
Australia	517,043	2.5	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>994</b>	<b>0.5</b>	<b>0.15</b>
Greater Melbourne	29,515	0.6	0.19
Victoria	57,767	0.9	0.28
Australia	798,365	3.3	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

The largest numbers of Aboriginal people in Brimbank are in the PHAs of Ardeer - Albion/ Sunshine/ Sunshine West (228 Aboriginal people), Deer Park - Derrimut and St Albans - North/ Kings Park (168 and 166, respectively) and St Albans - South/ Sunshine North (142), with a further 77 in Keilor Downs (Map 10 and Table 19).

**Map 10: Aboriginal and Torres Strait Islander people, by PHA in Brimbank, 2016**



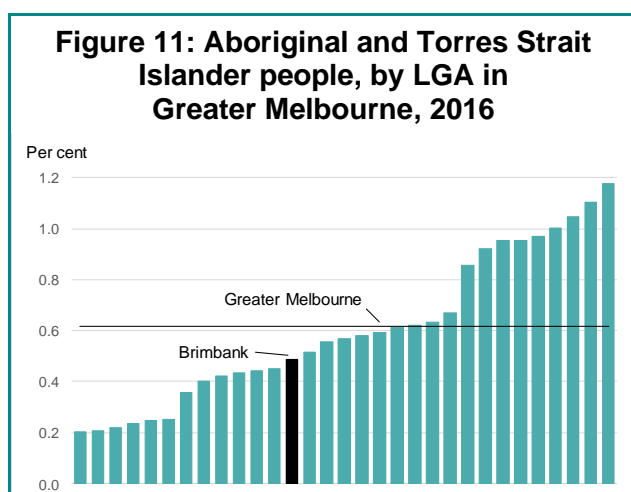
**Table 19: Aboriginal and Torres Strait Islander people, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	228	0.6	1.2
Cairnlea	14	0.1	0.3
Deer Park - Derrimut	168	0.6	1.3
Delahey	38	0.4	0.9
Keilor	35	0.4	0.8
Keilor Downs	77	0.5	1.1
St Albans - North/ Kings Park	166	0.5	1.0
St Albans - South/ Sunshine North	142	0.5	1.0
Sydenham	61	0.5	1.0
Taylors Lakes	65	0.4	0.7
<b>Brimbank</b>	<b>994</b>	<b>0.5</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

## Regional comparisons

Brimbank had a relatively low proportion of Aboriginal people in their populations in 2016 when compared with other LGAs in Greater Melbourne (Figure 11).



## Correlations

There is a strong correlation at the PHA level in Greater Melbourne between higher proportions of Aboriginal people in the population and the indicator for children living with disability. A strong inverse correlation was also found with young people learning or earning, indicating that there were relatively fewer people with these characteristics.

Strong correlations were found with the education and child development indicators of people who left school early (i.e., people who completed Year 10 or below or did not go to school) and people with a highest level of education of advanced diploma, diploma or certificate; similarly, relatively fewer people

had a highest level of education of bachelor's degree, or higher.

In the health and wellbeing area, very strong correlations were found for this indicator and adult smokers and obesity.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Australian Bureau of Statistics (ABS). Estimates of Aboriginal and Torres Strait Islander Australians, June 2016 (ABS Cat. no. 3238055001DO001\_201608). <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3238.0.55.001June%202016?OpenDocument> (Accessed January 2019).
2. Australian Institute of Health and Welfare (AIHW). The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples: an overview, 2011. (AIHW Cat. no. IHW 42). Canberra: AIHW, 2011

## Unemployment

*Those people who do not have access to secure and satisfying work are less likely to have an adequate income; and unemployment and underemployment are generally associated with reduced life opportunities and poorer health and wellbeing. Although the relationship between unemployment and health and wellbeing is complex and varies for different population groups, there is consistent evidence from research that unemployment is associated with adverse health outcomes; and unemployment has a direct effect on physical and mental health over and above the effects of socioeconomic status, poverty, risk factors, or prior ill-health.<sup>1,2</sup>*

**Indicator definition:** Comprises the number of people aged 15 years and over who reported in the 2016 Census of Population and Housing that they were unemployed, expressed as a proportion of the labour force. The Census data differ from those produced from the monthly Labour Force Survey, which are not available for the areas mapped in this atlas. See the box on page 39 for further information.

### Key points

- Unemployment is at a substantially higher level in Brimbank when compared to the level in Australia, or for Greater Melbourne.
- High unemployment rates occur throughout much of Brimbank, being below the Australian rate in only two PHAs.

### Geographic variation

The level of unemployment in Brimbank under this measure (10.0%) is substantially higher than in Australia overall (5.9%), as shown by the rate ratio of 1.70 (Table 20). It is also substantially higher than the rate in Greater Melbourne and Victoria (both at 5.9%).

Unemployment rates have increased since 2006 in all jurisdictions; however, the increase was higher in Brimbank (19.0%) than in Greater Melbourne (15.7%).

**Table 20: Unemployment, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>7,434</b>	<b>8.4</b>	<b>1.65</b>
Melbourne SD	96,593	5.0	0.98
Victoria	140,371	5.3	1.04
Australia	679,847	5.1	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>10,408</b>	<b>10.0</b>	<b>1.70</b>
Greater Melbourne	145,847	5.9	1.01
Victoria	187,979	5.9	1.01
Australia	741,007	5.9	1.00

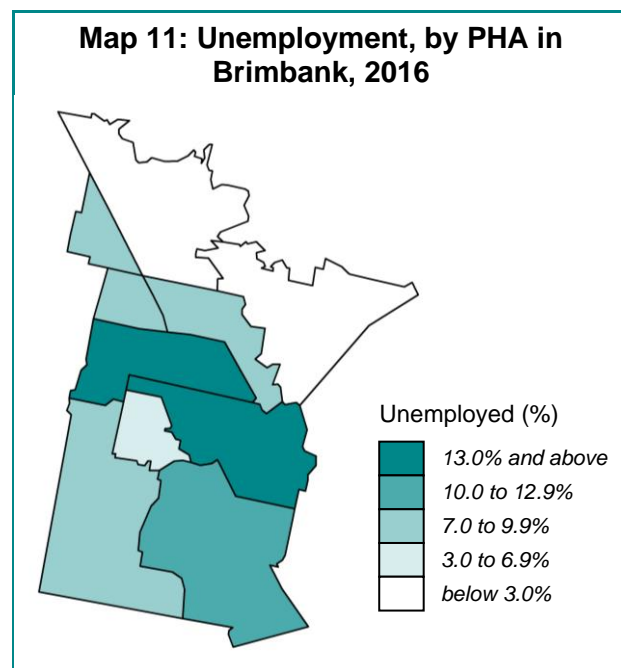
#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

However, data from the ABS Labour Force Survey (see Table 22, below) show lower unemployment rates for Greater Melbourne, Victoria and Australia than reported in the Census (the Labour Force Survey is able to apply a more restrictive definition to determine the level of unemployment than achieved with the self-reported data in the Census: see the box on page 79 for further details).

In addition, rates in these areas decreased over the period from August-October 2016 to February-March 2019. The Labour Force Survey data are not available at the LGA level.

Unemployment rates are relatively high across the PHAs in Brimbank, and are above the Australian and Greater Melbourne rates in all but Keilor (3.3%) and Taylors Lakes (3.8%) (Map 11 and Table 21).

Very high unemployment rates were recorded in St Albans - South/ Sunshine North (15.5%), St Albans - North/ Kings Park (13.9%), Ardeer - Albion/ Sunshine/ Sunshine West (12.5%), Delahey (9.5%), Deer Park - Derrimut (8.9%) and Keilor Downs (8.1%).



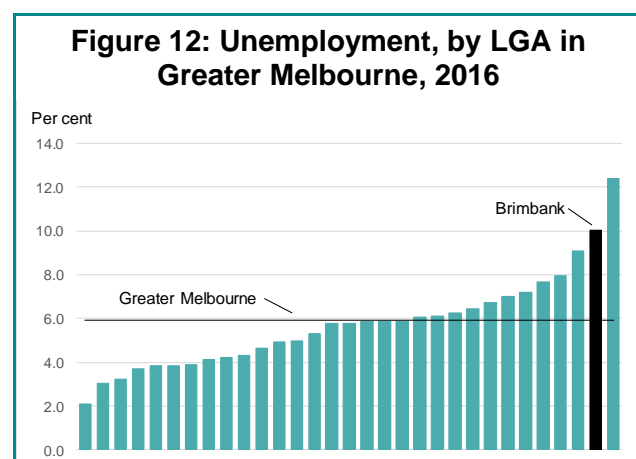
**Table 21: Unemployment, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	2,268	12.5	1.25
Cairnlea	397	6.8	0.68
Deer Park - Derrimut	1,280	8.9	0.89
Delahey	458	9.5	0.95
Keilor	152	3.3	0.33
Keilor Downs	623	8.1	0.81
St Albans - North/ Kings Park	2,225	13.9	1.39
St Albans - South/ Sunshine North	2,041	15.5	1.55
Sydenham	522	7.0	1.25
Taylors Lakes	443	3.8	0.68
<b>Brimbank</b>	<b>10,408</b>	<b>10.0</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

The Brimbank LGA had the second highest unemployment rate in Greater Melbourne in 2016, with only Greater Dandenong (12.4%) recording a higher rate (Figure 12).



### Correlations

There are very strong correlations at the PHA level in Greater Melbourne between high levels of unemployment and a number of indicators of socioeconomic disadvantage: these are children living in jobless families, children

living in families where the mother has low educational attainment, people living in households where no one accessed the Internet, humanitarian migrants, people working as labourers and people living in overcrowded dwellings.

A strong inverse correlation was found with relatively low levels of the population having a level of education of a bachelor's degree, or higher. Relatively few children were developmentally on track in the language and cognitive skills domains under the AEDC; and relatively more children in these areas were developmentally vulnerable on one or more domains under the AEDC.

A very strong correlation was apparent for this indicator and for people reporting their health as fair or poor, the prevalence of diabetes type 2 and for people with high or very high psychological distress (the estimates for these indicators are modelled estimates). Strong correlations were also found between unemployment and high rates of hospitalisation of adults for ambulatory care-sensitive conditions, indicating relatively poorer access to adequate and timely primary health care.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Mathers CD, Schofield DJ. The health consequences of unemployment: the evidence. *Medical Journal of Australia* 1998; 168(4): 178-182.
2. Dollard MF, Winefield AH. Mental health: overemployment, underemployment, unemployment and healthy jobs. *Australian e-Journal for the Advancement of Mental Health* 2002: 1(3).

**Table 22: Unemployment rate comparisons and updates**

Area	ABS Census	DoE: SALM*			ABS: LFS**		
	Aug 2016	2016 June	2018 June	2019 March	2016 Aug-Oct	2018 Aug-Oct	2019 Feb-Apr
Brimbank	10.4	10.2	11.2	8.6	..	..	..
Greater Melbourne	6.8	..	..	..	5.7	4.5	5.2
Victoria	6.6	..	..	..	5.6	4.5	5.0
Australia	6.9	..	..	..	5.5	5.0	5.3

\*Small Area Labour Market estimates produced by Department of Employment: Accessed 27 May 2019 at <https://www.jobs.gov.au/small-area-labour-markets-publication>

\*\*ABS Labour Force Survey, Australia, Detailed - Electronic Delivery, Apr 2019: Accessed 27 May 2019 at <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6291.0.55.001Apr%202019?OpenDocument>

## Unemployed youth

*Unemployment and its accompanying health effects are not distributed evenly through the population. Unemployment rates in Victoria are highest among young people, with the rate for people aged 15 to 19 years in January 2019 of 16.9% being four and a half times that for those aged 25 years and over; in the 20 to 24 year age group the rate of 8.5% was over twice (2.26 times) the rate for the older age group (3.8%).<sup>1</sup> The experience of unemployment harms a young person's financial and psychological wellbeing, and these effects are felt more severely by those who experience long-term unemployment.<sup>2</sup> Furthermore, those who experience unemployment while young are more likely to be unemployed, have poor health and have lower educational attainment when they are older, than those who are not affected by unemployment while young.<sup>2</sup>*

**Indicator definition:** Comprises the number of people aged 15 to 24 years who reported in the 2016 Census of Population and Housing that they were unemployed, as a proportion of the labour force of that age. The Census data differ from those produced from the monthly Labour Force Survey, which are not available for the areas mapped in this atlas. See the box (opposite) for further information.

### Key points

- Youth unemployment in Brimbank is high and is markedly above the national average rate.
- High rates are evident across much of Brimbank, with rates below the national figure in all but two PHAs.

## Geographic variation

In 2016, the youth unemployment rate in Brimbank, as calculated from Census data, was 29% above the rate in Australia (a rate ratio of 1.29), and similarly above the rate in Greater Melbourne (Table 23).

Since 2006, youth unemployment rates in Brimbank have increased by almost 40%, from 13.8% in 2006 to 19.2% in 2016.

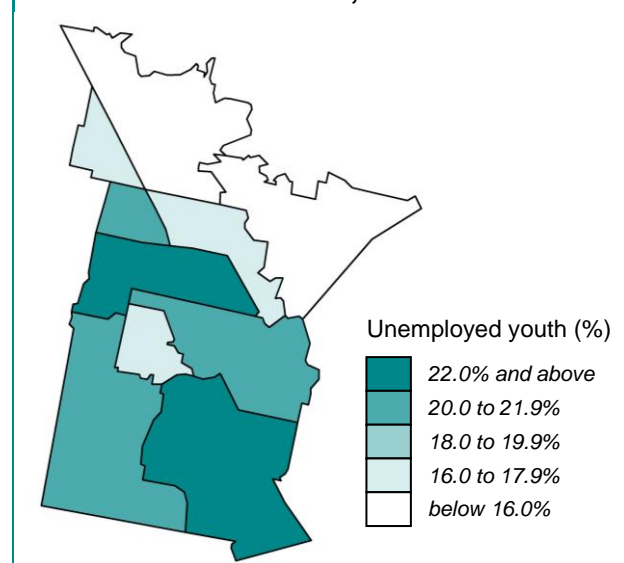
Only Keilor and Taylors Lake have youth unemployment rates below the Australian or Greater Melbourne averages. The PHAs of Ardeer - Albion/ Sunshine/ Sunshine West and St Albans - North/ Kings Park (both at 22.1%), Deer Park - Derrimut (20.8%) and St Albans - South/ Sunshine North (20.6%) have the highest rates, with slightly lower rates in Delahey (20.0%), Cairnlea (17.3%) and Sydenham (17.3%) (Map 12 and Table 24).

**Table 23: Youth unemployment, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>1,969</b>	<b>13.8</b>	<b>1.35</b>
Melbourne SD	32,826	10.8	1.06
Victoria	44,642	11.0	1.08
Australia	<b>172,470</b>	<b>10.2</b>	<b>1.00</b>
<b>2016</b>			
<b>Brimbank</b>	<b>2,906</b>	<b>19.2</b>	<b>1.29</b>
Greater Melbourne	54,831	15.9	1.07
Victoria	68,102	15.2	1.02
Australia	<b>268,906</b>	<b>14.9</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

**Map 12: Youth unemployment, by PHA in Brimbank, 2016**



**Table 24: Youth unemployment, by PHA in Brimbank, 2016**

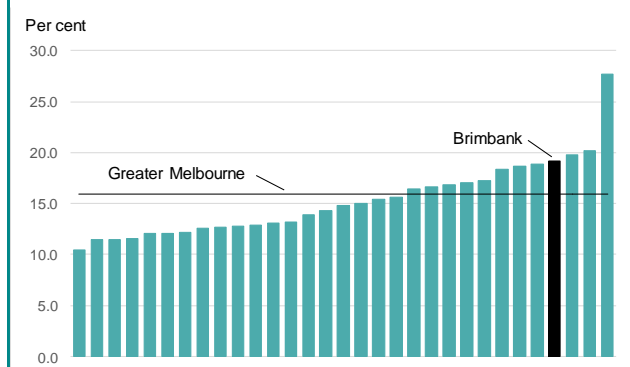
PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	568	22.1	1.15
Cairnlea	134	17.3	0.90
Deer Park - Derrimut	351	20.8	1.08
Delahey	161	20.0	1.04
Keilor	82	12.7	0.66
Keilor Downs	177	16.3	0.85
St Albans - North/ Kings Park	521	22.1	1.15
St Albans - South/ Sunshine North	469	20.6	1.07
Sydenham	184	17.3	0.90
Taylors Lakes	245	12.9	0.67
<b>Brimbank</b>	<b>2,906</b>	<b>19.2</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

There is a wide variation in youth unemployment rates at the LGA level in Greater Melbourne, with the rate in Brimbank (19.2%) among the highest, as was the case for unemployment at all ages (Figure 13).

**Figure 13: Youth unemployment, by LGA in Greater Melbourne, 2016**



### Correlations

There are very strong correlations at the PHA level in Greater Melbourne between this indicator and the indicator for recent arrivals from NES countries and people living in overcrowded dwellings.

A strong inverse correlation was found with the indicator describing low levels of participation of young people aged 16 years in full-time secondary school education. Similarly, relatively more children in these areas were assessed as being developmentally vulnerable on one or more AEDC domains.

In the health and wellbeing area, strong correlations were present between high levels of youth unemployment and the estimated

prevalence of diabetes type 2 and of people reporting their health as fair or poor.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Australian Bureau of Statistics (ABS). Labour Force, Australia, detailed. (ABS Cat. no. 6291.0.55.001 – LM1). Electronic Delivery, January 2019.
2. Brotherhood of St Laurence (BSL). On the treadmill: young and long-term unemployed in Australia. Greater Melbourne: BSL, 2014.

### Comparison of estimates of unemployment, and updates

As noted above, estimates of unemployment from the Census differ from those produced from Australia's official measure of unemployment, the monthly labour force statistics. Each quarter, the Department of Employment produces estimates of the labour force at the SA2 and LGA level. As can be seen from Table 22, the estimated unemployment rate for June 2016 was almost the same as the ABS Census figure. Later estimates, for June 2018, put the unemployment rate in Brimbank at 11.2% (up from 10.2% in 2016).

ABS estimates at the regional level from the Labour Force Survey are somewhat variable from month to month, but the three-month averages shown in Table 22 suggest that the unemployment rate in Greater Melbourne has decreased.

## Female labour force participation

*Female participation in paid work in Victoria, especially in part-time work, has been one of the most significant trends in Australian society over past decades, with participation increasing to March 2018 by over one fifth (21.1%) since March 1988, and by over one third (36.1%) since March 1978.<sup>1</sup> Male participation has declined by 5.4% since 1988 and by 9.8% since 1978.<sup>1</sup> Women are both remaining in the work force longer (partly by delaying childbirth), and re-entering the workforce after childbirth, because of increased economic pressures on families and changes in social perceptions of the role of women. Labour force participation by women with infants and young children is also dependent upon them being able to access appropriate, affordable child care arrangements.<sup>2</sup>*

**Indicator definition:** Comprises the number of females who reported in the 2016 Census of Population and Housing that they were employed, or unemployed and looking for work, expressed as a proportion of the labour force. As note for the estimates of unemployment (above), the Census data differ from those produced from Australia's official measure of employment participation, from the monthly Labour Force Survey, which are not available for the small areas mapped in this atlas.

### Key points

- Female labour force participation is below the national average in Brimbank.
- Participation rates vary widely within Brimbank, from 42% to 61%.

### Geographic variation

Participation of females living in Brimbank in the labour force is 11% below the Australian rate (a rate ratio of 0.89) (Table 25). It is also below the rates in Greater Melbourne and Victoria.

Female labour force participation rates in Brimbank increased from 48.2% in 2006 to 50.0% in 2016, with a similar increase in Greater Melbourne and Victoria.

**Table 25: Female labour force participation, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>32,704</b>	<b>48.2</b>	<b>0.89</b>
Melbourne SD	823,926	54.9	1.01
Victoria	1,109,399	54.1	0.99
Australia	<b>4,427,168</b>	<b>54.4</b>	<b>1.00</b>
<b>2016</b>			
<b>Brimbank</b>	<b>39,735</b>	<b>50.0</b>	<b>0.89</b>
Greater Melbourne	1,072,949	56.9	1.02
Victoria	1,388,405	55.7	1.00
Australia	<b>5,441,572</b>	<b>55.9</b>	<b>1.00</b>

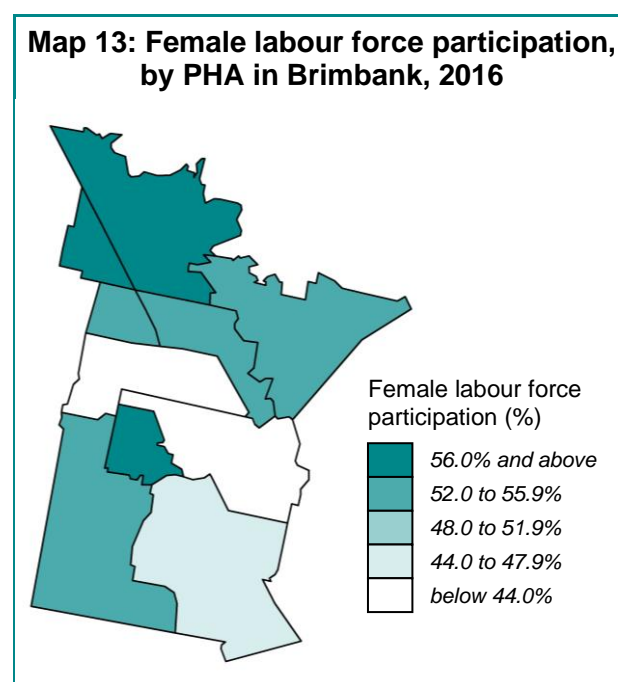
#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

There are substantial differences in female labour force participation rates at the PHA level within Brimbank, again reflecting the varying socioeconomic make-up at the community level (Map 13 and Table 26).

The highest rate is in Taylors Lakes, with almost two thirds (61.1%) of the female population aged 15 years and over in the labour force. Other areas with participation

rates of 50% or higher, were Cairnlea (58.1%), Sydenham (57.1%), Keilor (53.8%), Deer Park - Derrimut (53.3%), Keilor Downs (52.5%) and Delahey (52.3%).

**Map 13: Female labour force participation, by PHA in Brimbank, 2016**



The lowest female labour force participation rates were recorded in St Albans - North/ Kings Park (42.2%), St Albans - South/ Sunshine North (43.8%) and Ardeer - Albion/ Sunshine/ Sunshine West (47.5%).



**Table 26: Female labour force participation, by PHA in Brimbank, 2016**

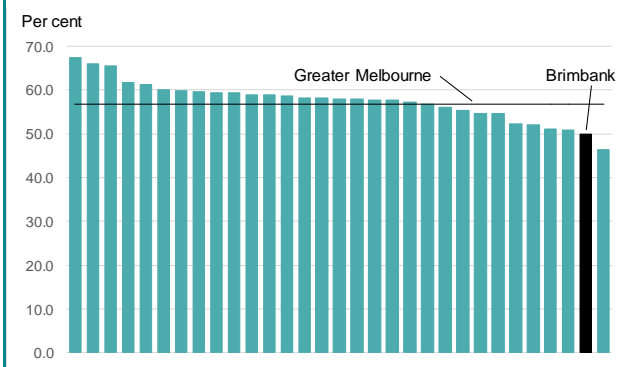
PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	6,935	47.5	0.95
Cairnlea	2,210	58.1	1.16
Deer Park - Derrimut	5,409	53.3	1.07
Delahey	1,877	52.3	1.05
Keilor	1,946	53.8	1.08
Keilor Downs	2,917	52.5	1.05
St Albans - North/ Kings Park	5,898	42.2	0.84
St Albans - South/ Sunshine North	5,249	43.8	0.88
Sydenham	2,832	57.1	1.14
Taylors Lakes	4,467	61.1	1.22
<b>Brimbank</b>	<b>39,735</b>	<b>50.0</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

The very low female labour force participation rate in Brimbank was second only to that in Greater Dandenong, with a rate of 46.4% (Figure 14).

**Figure 14: Female labour force participation, by LGA in Greater Melbourne, 2016**



### Correlations

There are very strong inverse correlations at the PHA level in Greater Melbourne between this indicator and children living in jobless families (indicating that there are few of these households in areas of high female labour force participation), and of people aged 15 years and over living with disability. Strong inverse correlations were also found with children living in families where the mother has low educational attainment, unemployment, people working as labourers, people living in crowded dwellings and households where no one accessed the Internet.

A strong correlation was found between female labour force participation and children assessed as being developmentally on track in the language and cognitive skills domain of the

AEDC; conversely, there were relatively fewer children who were assessed as being developmentally vulnerable on one or more domains (a strong inverse correlation).

With respect to health and wellbeing, there were strong inverse correlations between female labour force participation and the estimated prevalence of diabetes type 2 and of people reporting their health as fair or poor.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

### References

1. Australian Bureau of Statistics (ABS). Labour Force, Australia (ABS Cat. no. 6202.0), Table 5. Labour force status by Sex, Victoria - Trend, Seasonally adjusted and Original 2018.
2. Department of Treasury and Finance, Victorian Government (DTF). Addressing impacts of population ageing on labour force participation. Greater Melbourne: DTF, 2005.

## People working as managers or professionals

Occupation remains an important determinant of wealth, social standing and wellbeing for most people in Australian society. The occupations described here include, among others, chief executives, and hospitality, retail, service and farm managers (including farmers); and professionals, including in the arts, education, health, welfare and business and legal occupations.<sup>1</sup> Their prevalence in a community, therefore, forms a useful general indicator of high socioeconomic status.

**Indicator definition:** Comprises people whose reported occupation in the 2016 Census of Population and Housing was classified as being a Manager or a Professional under the ABS Standard Classification of Occupations, expressed as a proportion of employed persons aged 15 years and over.<sup>1</sup>

### Key points

- Relatively few people in Brimbank (when compared with Australia or Greater Melbourne) have the occupations of managers or professionals.
- Only one of the PHAs had a proportion above the national figure, and some were half that level.

### Geographic variation

Just under one fifth of employed people in Brimbank were classified as managers or as professionals, at the 2016 Census (Table 27).

The population in these occupations has increased at a greater rate in Brimbank (from 19.5% in 2006 to 22.8% in 2016, an increase of 17%) than in Australia overall (from 34.2% to 35.2%, an increase of 3%). As a result, the proportion of the employed population in Brimbank in these occupations has increased, from over half the level in Australia in 2006, to just under two thirds of that level in 2016.

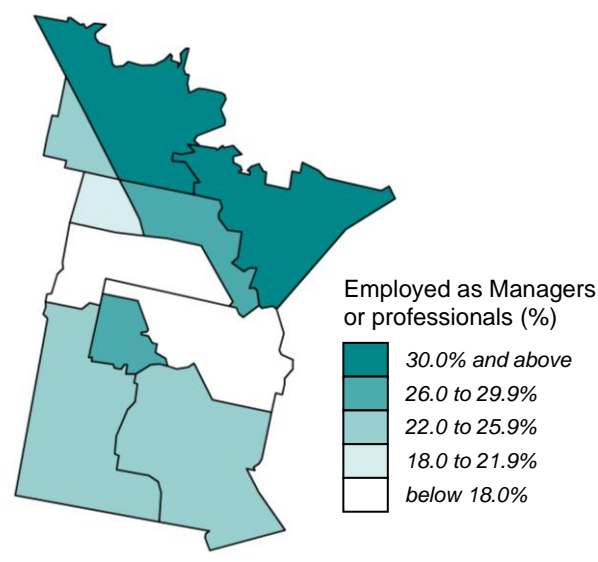
**Table 27: People working as managers or professionals, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>13,259</b>	<b>19.5</b>	<b>0.57</b>
Melbourne SD	590,953	35.1	1.03
Victoria	778,615	34.2	1.00
Australia	<b>3,008,279</b>	<b>34.2</b>	<b>1.00</b>
<b>2016</b>			
<b>Brimbank</b>	<b>18,249</b>	<b>22.8</b>	<b>0.65</b>
Greater Melbourne	807,862	38.2	1.09
Victoria	1,006,141	36.8	1.05
Australia	<b>3,761,013</b>	<b>35.2</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Within Brimbank, the highest proportion of the workforce employed as a manager or as a professional was in Keilor (35.5%); this was just above the average proportion for Australia (Map 14 and Table 28). The next highest proportions were in Taylors Lakes (30.6%), Cairnlea (27.0%) and Keilor Downs (26.1%). Relatively fewer people in St Albans - North/ Kings Park and St Albans - South/ Sunshine North had these occupations (15.9% and 17.6%, respectively).

**Map 14: People working as managers or professionals, by PHA in Brimbank, 2016**



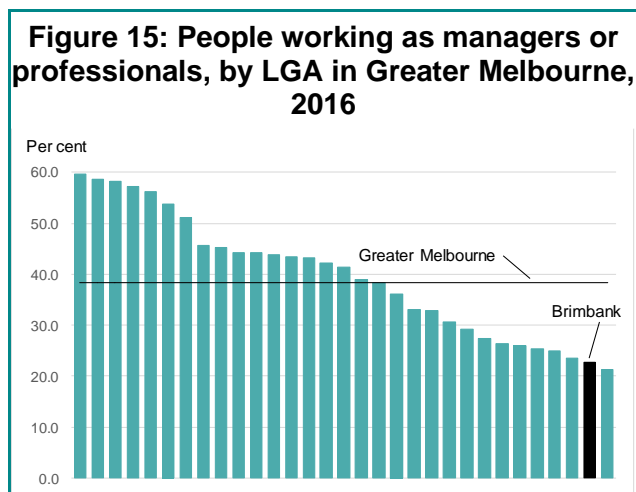
**Table 28: People working as managers or professionals, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	3,280	23.3	1.01
Cairnlea	1,169	27.0	1.17
Deer Park - Derrimut	2,464	23.0	0.99
Delahey	642	18.1	0.78
Keilor	1,385	35.5	1.54
Keilor Downs	1,510	26.1	1.13
St Albans - North/ Kings Park	1,867	15.9	0.69
St Albans - South/ Sunshine North	1,815	17.6	0.76
Sydenham	1,354	24.3	1.05
Taylors Lakes	2,763	30.6	1.32
<b>Brimbank</b>	<b>18,249</b>	<b>22.8</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

## Regional comparisons

Relatively few people in Brimbank were employed as managers or as professionals at the 2016 Census, when compared with other LGAs in Greater Melbourne. In Brimbank (where 22.8% of employed people were managers or professionals) the proportion was well below the Greater Melbourne average (of 38.2%) and second only to that in Greater Dandenong (21.2%) (Figure 15).



## Correlations

There was a very strong correlation at the PHA level between people working as managers or professionals and higher proportions of the population having a level of education of a bachelor's degree, or higher. Strong correlations were also found with the indicators of education and child development describing a greater proportion of children assessed as being developmentally on track in the language and cognitive skills domain of the AEDC.

As would be expected for areas with more people who have the resources that come with positions of socioeconomic advantage, there was a very strong inverse correlation with early school leavers at the PHA level in Greater Melbourne, and strong inverse correlations with the indicators for children in families where the mother has low educational attainment, people working as labourers, children assessed as being developmentally vulnerable on one or more domains under the AEDC and with the proportion of the population whose highest level of education was an Advanced Diploma, Diploma or Certificate.

There were also very strong inverse correlations with many of the health and wellbeing indicators, with relatively fewer adult smokers, adults who are obese, people with diabetes type 2 and a lower level of high or very high psychological distress (the estimates for these indicators are modelled estimates). These associations also demonstrate the likely health benefits of higher education levels, and more resources to support health promoting behaviours and access to primary health care services.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

## References

1. Australian Bureau of Statistics (ABS). ANZSCO - Australian and New Zealand Standard Classification of Occupations, Version 1.2. (ABS Cat. no. 1220.0). Canberra: ABS, 2013.

## People working as labourers

Occupation remains an important determinant of wealth, social standing and wellbeing for most people in Australian society. The occupations described here as labourers encompass lower paid and less skilled work, and include, among others, cleaners, factory process workers, kitchen hands and garden workers.<sup>1</sup> Their prevalence in a community therefore forms a useful general indicator of low socioeconomic status.

**Indicator definition:** Comprises people whose reported occupation in the 2016 Census of Population and Housing was classified as being a Labourer under the ABS Standard Classification of Occupations, expressed as a proportion of employed persons aged 15 years and over.<sup>1</sup>

### Key points

- Of people who reported in the 2016 Census that they were working, 14.8% gave their occupation as being a labourer: this was almost 50% above the level in Australia and was 83% above the level in Greater Melbourne, of 8.1%.
- People living in Brimbank who work as labourers were located across much of the City, with only two PHAs having proportions in this occupation which were below the national average.

## Geographic variation

The proportion of the workforce in Brimbank classified as labourers (14.8%) is more than 50% above the level in Australia (and is 83% above the level in Greater Melbourne) (Table 29).

However, the proportion of the population in Brimbank employed as labourers has decreased since 2006.

**Table 29: People working as labourers, Brimbank and comparators, 2006 and 2016**

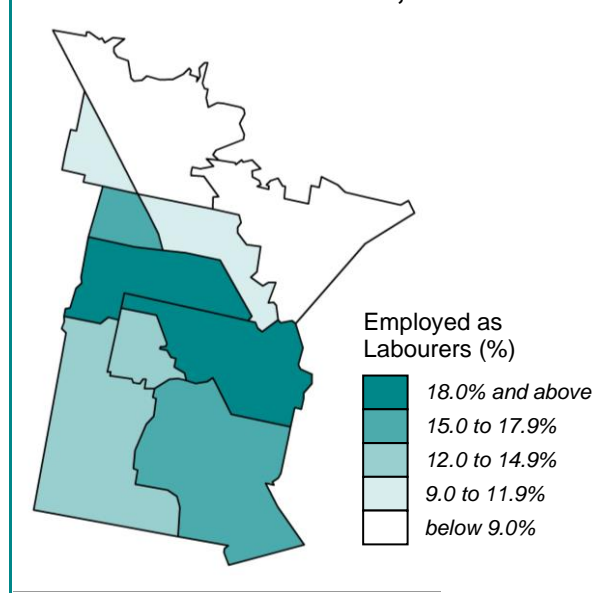
Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>10,394</b>	<b>15.3</b>	<b>1.46</b>
Melbourne SD	147,281	8.7	0.83
Victoria	224,545	9.9	0.94
Australia	<b>952,523</b>	<b>10.5</b>	<b>1.00</b>
<b>2016</b>			
<b>Brimbank</b>	<b>11,286</b>	<b>14.8</b>	<b>1.56</b>
Greater Melbourne	170,451	8.1	0.85
Victoria	247,428	9.0	0.95
Australia	<b>1,011,520</b>	<b>9.5</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Labourers comprised the highest proportions of the workforce in St Albans - South/ Sunshine North (20.8%), St Albans - North/ Kings Park (20.1%), Ardeer - Albion/ Sunshine/ Sunshine West (16.7%) and Delahey (16.5%) (Map 15 and Table 30).

Relatively fewer people in Keilor (6.8%) and Taylors Lakes (8.2%) were working as labourers.

**Map 15: People working as labourers, by PHA in Brimbank, 2016**



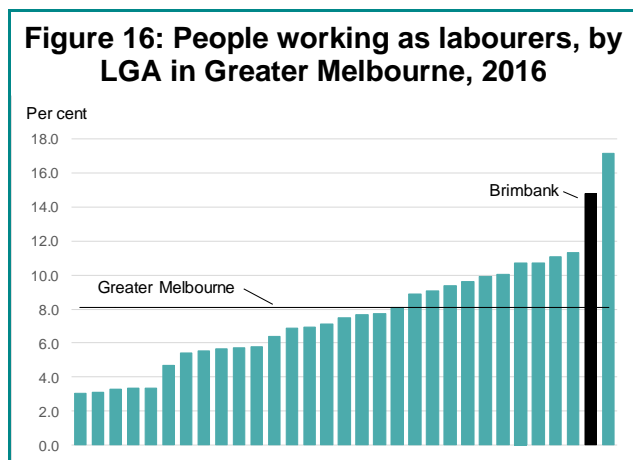
**Table 30: People working as labourers, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	2,359	16.7	1.12
Cairnlea	603	14.0	0.93
Deer Park - Derrimut	1,485	13.8	0.92
Delahey	585	16.5	1.10
Keilor	266	6.8	0.46
Keilor Downs	643	11.1	0.74
St Albans - North/ Kings Park	2,355	20.1	1.34
St Albans - South/ Sunshine North	2,144	20.8	1.39
Sydenham	641	11.5	0.77
Taylors Lakes	745	8.2	0.55
<b>Brimbank</b>	<b>11,826</b>	<b>14.8</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

## Regional comparisons

Of all the LGAs in Greater Melbourne, Brimbank had the second highest proportion of their workforce employed as labourers, after Greater Dandenong (17.2%) (Figure 16).



## Correlations

At the PHA level in Greater Melbourne, the indicators for children in families where the mother has low educational achievement, unemployment, children living in jobless families and households where no one accessed the Internet, were all strongly correlated with high proportions of labourers; not surprisingly, there was a very strong inverse correlation with people working as managers or professionals.

Strong correlations were also found with the indicators of education and child development, with relatively more children assessed as being developmentally vulnerable on one or more domains under the AEDC and more people having left school early (i.e., who completed Year 10 or below, or did not go to school). However, very strong inverse correlations indicated that relatively fewer children were on track in the language and cognitive skills domain of the AEDC and that fewer people had a highest level of education of a bachelor's degree or higher.

Very strong correlations with the indicator for people working as labourers were also apparent with a number of the health and wellbeing indicators, with higher rates of people reporting their health as fair or poor, female smokers, diabetes type 2 and people with high or very high psychological distress (the estimates for these indicators are modelled estimates). Strong correlations were found with

hospitalisations of adults for ambulatory care-sensitive conditions and premature mortality.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Australian Bureau of Statistics (ABS). ANZSCO - Australian and New Zealand Standard Classification of Occupations, Version 1.2. (ABS Cat. no. 1220.0). Canberra: ABS, 2013.

## Social housing

*The availability of affordable, sustainable and appropriate housing underpins good health and the social, educational and economic participation of individuals.<sup>1</sup> Social housing provides secure and affordable housing not available in the private market through a range of organisations, and its distribution remains an indicator of socioeconomic disadvantage as tenants are increasingly welfare-dependent. Victoria trails the rest of Australia in the provision of social housing, with about 3.5 per cent of occupied units in Victoria classified as social housing, lower than the national average of 4.5 per cent. In March 2018, there were 36,742 applicants (representing 57,877 adults and 24,622 children) for public housing in Victoria, up from 33,916 in December 2013, with many more in need.<sup>2,3</sup>*

**Indicator definition:** Comprises occupied private dwellings rented from government housing authorities (HousingVic), housing cooperatives and community or church groups, expressed as a proportion of all occupied private dwellings.

### Key points

- Greater Melbourne has a relatively small stock of social housing, when compared with Australia overall, with a lower level within Brimbank: this is surprising, given the relatively disadvantaged nature of the population in the City.
- Only Delahey has a proportion above the national average.

## Geographic variation

Social housing comprises a relatively small proportion of the housing stock in Greater Melbourne (2.7%) when compared with the level in Australia (4.2%) (Table 31). The level in Brimbank is lower again, at 2.5%.

There has been a small increase since 2006 in the level of housing stock available for rent as social housing in Brimbank, in both the proportion and number of these dwellings; this contrasts with a decrease in proportions in each of Greater Melbourne, Victoria and Australia. In the case of Victoria and Australia, the number of these dwellings has also decreased.

**Table 31: Social housing, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>1,372</b>	<b>2.4</b>	<b>0.51</b>
Melbourne SD	41,204	3.0	0.64
Victoria	62,602	3.3	0.70
Australia	357,865	4.7	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>1,514</b>	<b>2.5</b>	<b>0.58</b>
Greater Melbourne	42,403	2.7	0.64
Victoria	61,565	2.9	0.69
Australia	351,017	4.2	1.00

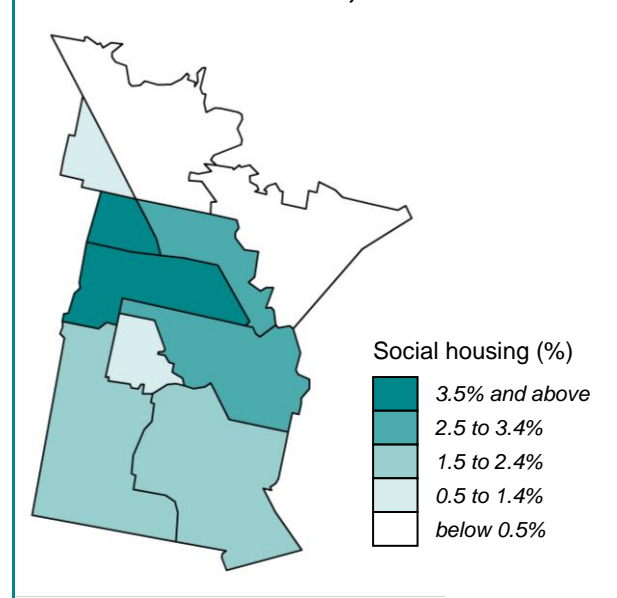
#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Despite the low overall proportion, there is considerable variation in the availability of social housing at the PHA level within Brimbank, with highest proportions of this housing type in Delahey (4.5%), St Albans - North/ Kings Park (4.0%), and the PHA with

the largest number of these dwellings), Keilor Downs (3.3%) and St Albans - South/ Sunshine North (3.2%) (Map 16 and Table 32).

The lowest proportions are in Taylors Lakes (0.3%), Keilor (0.3%), Sydenham (0.5%) and Cairnlea (0.7%).

**Map 16: Social housing, by PHA in Brimbank, 2016**



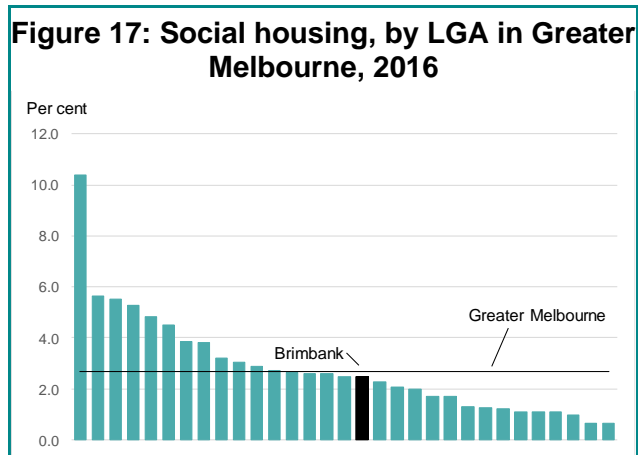
**Table 32: Social housing, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	296	2.4	0.99
Cairnlea	18	0.7	0.29
Deer Park - Derrimut	166	2.1	0.86
Delahey	118	4.5	1.82
Keilor	8	0.3	0.11
Keilor Downs	144	3.3	1.34
St Albans - North/ Kings Park	436	4.0	1.61
St Albans - South/ Sunshine North	290	3.2	1.32
Sydenham	18	0.5	0.20
Taylors Lakes	14	0.3	0.11
<b>Brimbank</b>	<b>1,514</b>	<b>2.5</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

Given the relatively high level of socioeconomic disadvantage in Brimbank, there was comparatively little social housing available in 2016, when compared with other LGAs in Greater Melbourne (Figure 17).



### Correlations

High rates of social housing at the PHA level in Greater Melbourne were strongly correlated with households without a motor vehicle and children living in jobless families. However, there were no other strong correlations between social housing and indicators of socioeconomic disadvantage, health and wellbeing or education and child development.

This lack of correlation with the indicators of socioeconomic disadvantage is likely to reflect the relatively low rate of provision of this type of housing in many LGAs in Greater Melbourne, and its particular location, mainly in inner-suburban and city, high rises, often adjacent to higher socioeconomic status areas.

### References

1. Australian Institute of Health and Welfare (AIHW). Australia's welfare, 2011. (AIHW Cat. no. AUS 142). Canberra: AIHW, 2011.
2. Parliament of Victoria, Legal and Social Issues Committee, Inquiry into the Public Housing Renewal Program, June 2018 [https://www.parliament.vic.gov.au/images/stories/committees/SCLSI/Public\\_Housing\\_Renewal\\_Program/LSIC\\_58-11\\_PHRP\\_Text\\_WEB.pdf](https://www.parliament.vic.gov.au/images/stories/committees/SCLSI/Public_Housing_Renewal_Program/LSIC_58-11_PHRP_Text_WEB.pdf) (accessed 7 February 2019)
3. Community Housing Federation of Victoria et al. Making social housing work: better homes for low-income Victorians. Greater Melbourne, Victoria: Victorian Council of Social Services, 2014.

## Low income households under financial stress from rent or mortgage

A family or individual is considered to be in housing stress if they are in a low-income bracket and pay more than 30% of their income on rent or mortgage repayments. Many families experience housing stress, and are at increasing risk of homelessness.<sup>1</sup> Housing stress is rising due to low investment in public housing, demographic shifts and increases in the number of households experiencing family breakdown; and a tendency for affluent people to want to live in near-city locations, which increases rents and forces low-income earners out of even relatively low-standard, un-renovated housing.<sup>2</sup>

Low-income single person households face the most difficulties in accessing affordable rental housing across Greater Melbourne, with just 0.4 per cent of one-bedroom dwellings let in the September quarter affordable to this group; for a single parent with one child on Centrelink income, 1.5 per cent of two-bedroom dwellings were affordable, and a couple on Newstart with two dependent children could afford 6.8 per cent of three-bedroom new lettings.<sup>3</sup> For larger families, the supply of affordable three and four-bedroom dwellings is better and reflects the predominantly outer suburban location of this size of dwelling, although living in these areas is associated with higher costs of transport and difficulties accessing specialist health, education and welfare services.<sup>3</sup>

**Indicator definition:** Comprises households in the bottom 40% of the income distribution (those with less than 80% of median income), spending more than 30% of their income on rent, or on mortgage repayments, as a proportion of all private dwellings.

### Key points

- Over one quarter of low-income households in Brimbank were estimated to be under financial stress from their rental or mortgage commitments at the 2016 Census.
- The extent of financial stress from these housing costs was estimated at between one fifth and one third of low-income households in a majority of PHAs.

### Geographic variation

Despite the low level of provision of social housing in Brimbank relative to the national level, the proportion of low-income households under financial stress from their rental or mortgage commitments is lower than both the Greater Melbourne and national figures (Table 33).

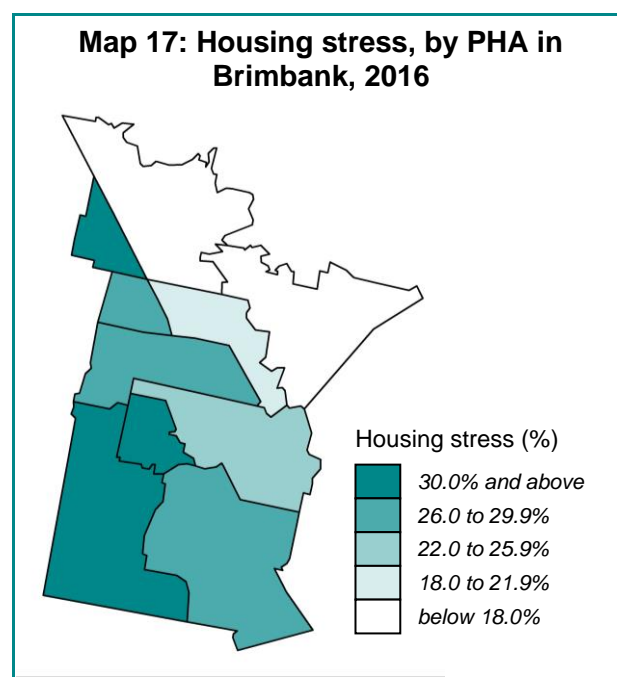
The proportion of low-income households in Brimbank under financial stress from housing costs has increased since 2006 (by 15%, from 23.0% to 26.5%); however, in Greater Melbourne, Victoria and Australia the proportions have increased more substantially.

**Table 33: Housing stress, Brimbank and comparators, 2011 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>8,006</b>	<b>23.0</b>	<b>1.33</b>
Melbourne SD	163,453	17.2	0.99
Victoria	212,177	17.3	1.00
Australia	879,377	17.3	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>8,419</b>	<b>26.5</b>	<b>0.93</b>
Greater Melbourne	182,914	30.6	1.08
Victoria	239,793	27.8	0.98
Australia	954,802	28.4	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

This financial pressure is most evident, at the PHA level, in Sydenham (33.9% of households), Cairnlea (33.2%), Deer Park – Derrimut (32.4%) and Delahey (28.3%) (Map 17 and Table 34). Although much less evident in Keilor (16.4% of households) and Taylors Lakes (16.7%), these lower proportions still represent hundreds of households.





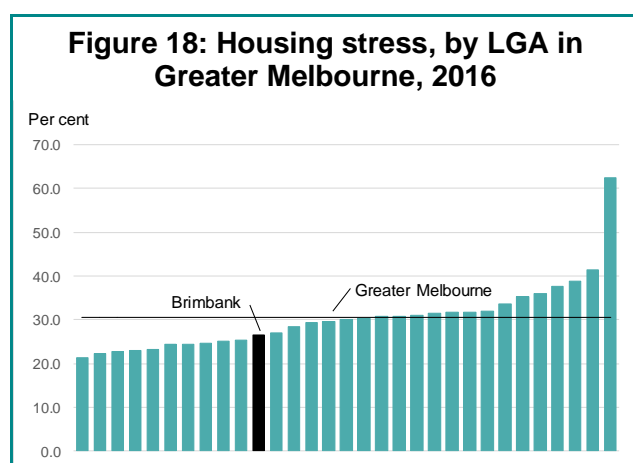
**Table 34: Housing stress, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	1,775	26.9	1.02
Cairnlea	358	33.2	1.25
Deer Park - Derrimut	1,200	32.4	1.22
Delahey	382	28.3	1.07
Keilor	198	16.4	0.62
Keilor Downs	438	21.4	0.81
St Albans - North/ Kings Park	1,834	26.7	1.01
St Albans - South/ Sunshine North	1,399	25.4	0.96
Sydenham	502	33.9	1.28
Taylors Lakes	321	16.7	0.63
<b>Brimbank</b>	<b>8,419</b>	<b>26.5</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

Brimbank has a relatively low ranking in relation to other LGAs in Greater Melbourne under this indicator of low-income households under financial stress from their rental or mortgage commitments, with the eleventh lowest proportion (Figure 18). The City of Melbourne, with 62.5% of low-income households assessed to be under financial stress, had the highest proportion.



### Correlations

There is a strong correlation at the PHA level in Greater Melbourne between this indicator and several indicators of socioeconomic disadvantage: correlations with the individual indicators of socioeconomic disadvantage were strongest with dwellings with no motor vehicle and youth unemployment.

Strong inverse correlations were found between this indicator and the education indicators of young people participating in full-time secondary education and having achieved an Advanced Diploma, Diploma or Certificate.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Yates J, Gabriel M. Housing affordability in Australia. Sydney: Australian Housing and Urban Research Institute (AHURI), 2006.
2. St Vincent de Paul Society (SVdPS). Don't dream, it's over: housing stress in Australia's private rental market. Canberra: SVdPS, 2007.
3. Department of Human Services, Victoria. Rental Report September Quarter 2018. Greater Melbourne: Victorian Government, 2018.

## Crowding

*Adequate and affordable housing is an important determinant of health. An aspect of housing suitability now measured in Australia provides an indication of crowding. Household crowding is defined according to the Canadian National Occupancy Standard, a widely used guideline for assessing whether a household has a sufficient number of bedrooms for household members. Census data show that 6.8% of people were staying in a crowded dwelling on Census night, with wide disparities evident across demographic groups (e.g., in particular recent migrants and Aboriginal people) and geographic areas; these people were living in 3.6% of Victoria's dwellings.*

**Indicator definition:** The criteria used to derive this variable are based on the Canadian National Occupancy Standard for housing appropriateness and are sensitive to both household size and composition (see Appendix A for further details).

### Key points

- Substantially more people in Brimbank were living in crowded dwellings at the 2016 Census, at over twice the level in Australia overall.
- There was a wide variation in the level of over-crowding at the PHA level, with only Keilor and Taylors Lakes having relatively fewer crowded dwellings than in Australia.

## Geographic variation

At the 2016 Census, 26,954 people in Brimbank were assessed as living in crowded dwellings (Table 35). This means that the 4,887 dwellings these people were living in needed extra bedrooms for their occupants. The proportion of the population living in crowded dwellings in Brimbank was more than twice the Australian average, as shown by the rate ratio of 2.06; it is also substantially above the level for Greater Melbourne overall.

Further, 1,023 people in Brimbank and 9,115 in Victoria were living in severely crowded dwellings (see Appendix A); the majority of the Victorian number was accounted for by people in Greater Melbourne (8,205).

**Table 35: People living in crowded dwellings, Brimbank and comparators, 2016**

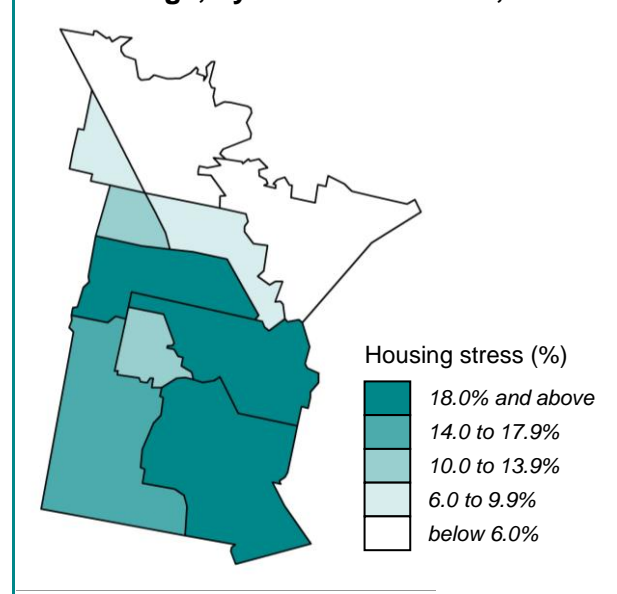
Region	No.	%	RR#
<b>Brimbank</b>	<b>26,954</b>	<b>14.6</b>	<b>2.06</b>
Greater Melbourne	322,203	7.7	1.08
Victoria	374,950	6.8	0.96
Australia	1,518,175	7.1	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

There was a wide variation in the level of crowding at the PHA level, with proportions ranging from 21.7% in St Albans - South/ Sunshine North to a low 3.4% in Keilor. Rates above the Brimbank average were also recorded in Ardeer - Albion/ Sunshine/ Sunshine West (18.7%) and St Albans - North/ Kings Park (18.0%) (Map 18 and Table 36).

In addition to Keilor, Taylors Lake (4.7%), Keilor Downs (8.6%), Sydenham (9.8%), Cairnlea (11.6%), Delahey (13.3%) and Deer Park - Derrimut (14.2%) all had fewer people living in crowded dwellings than Brimbank as a whole. However, the numbers of people living in these circumstances are still sizeable.

**Map 18: People living in crowded dwellings, by PHA in Brimbank, 2016**



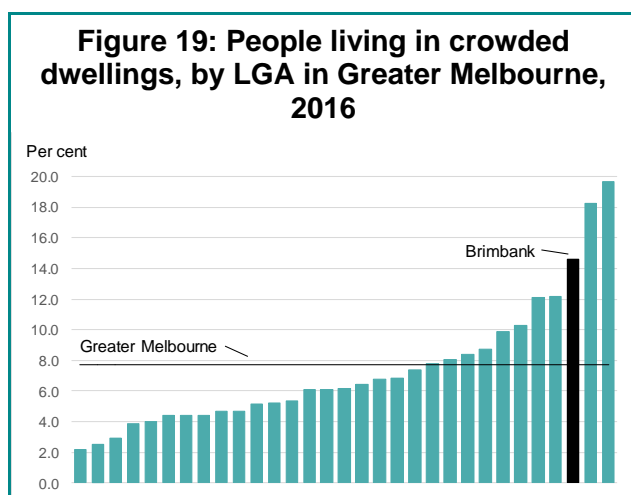
**Table 36: People living in crowded dwellings, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	6,345	18.7	1.28
Cairnlea	1,091	11.6	0.79
Deer Park - Derrimut	3,542	14.2	0.97
Delahey	1,052	13.3	0.91
Keilor	279	3.4	0.23
Keilor Downs	1,089	8.6	0.59
St Albans - North/ Kings Park	5,775	18.0	1.23
St Albans - South/ Sunshine North	5,911	21.7	1.49
Sydenham	1,090	9.8	0.67
Taylors Lakes	780	4.7	0.32
<b>Brimbank</b>	<b>26,954</b>	<b>14.6</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the PHA to the percentage for Brimbank

### Regional comparisons

The proportion of the population living in crowded dwellings in Brimbank is considerably above the average for Greater Melbourne, with Brimbank ranked third highest amongst the Greater Melbourne LGAs, after Greater Dandenong (19.7%) and Melbourne (18.2%) (Figure 18).



### Correlations

There is a very strong correlation at the PHA level in Greater Melbourne between this indicator and many indicators of socioeconomic disadvantage: correlations with the individual indicators of socioeconomic disadvantage were strongest with children living in jobless families, households where no one accessed the Internet and unemployment (both at all ages and for young people).

Correlations with the indicators of health and wellbeing are very strong and strong for people reporting their health as fair or poor and high or very high psychological distress,

respectively (the estimates for these indicators are modelled estimates).

A strong correlation was found between this indicator and the child development indicator of children assessed as being developmentally vulnerable on one or more domains under the AEDC. However, there were relatively low levels of young people participating in full-time secondary education, and relatively few children developmentally on track in the language and cognitive skills domain of the AEDC in these households (all with strong inverse correlations).

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## No motor vehicle

Ready access to transport provides a link with educational, social and work-related activities. In the 2016 Census, 166,061 householders reported having no motor vehicle at the dwelling (5.1% of dwellings in Victoria). While some of these may be more affluent households living in inner- and near-city areas, the majority are more likely to be disadvantaged households. While public transport can adequately provide this link for some households, for others, this access is achieved through owning a car. People living in households without a car face many disadvantages in gaining access to jobs, services and recreation, especially if they are in low-density outer suburbia, or in rural or remote areas, or in a country town. The ability to afford to run and maintain a vehicle in reliable condition to meet their transport needs, and the costs of registering and insuring a vehicle are other important factors.

**Indicator definition:** Comprises people with no motor vehicle garaged or parked at their dwelling on Census night: the data have been age-standardised to remove expected differences between areas in the level of vehicle ownership related to the age of the population.

### Key points

- The proportion of the population in Brimbank without access to a motor vehicle at their dwelling on Census night was below that in Greater Melbourne overall.
- Despite adjusting these data to allow for lower vehicle ownership by older residents, the lack of direct access to a motor vehicle at the PHA level varied between 1.3% and 6.3% of the population.

## Geographic variation

The majority of the population in Australia reported having a motor vehicle garaged or parked at their dwelling on Census night, with just 4.6% not having such access (Table 37). The proportion of the population in Brimbank without such access (4.3%) was lower than in Australia, Greater Melbourne, or Victoria

There is substantial variation in access to a vehicle across Brimbank (Map 19 and Table 38). In Taylors Lakes, only 1.3% of the population did not have access to a motor vehicle garaged or parked at their dwelling on Census night, with similarly low rates in Cairnlea (1.6%) and Keilor (2.0%).

**Table 37: No motor vehicle, Brimbank and comparators, 2006 and 2016**

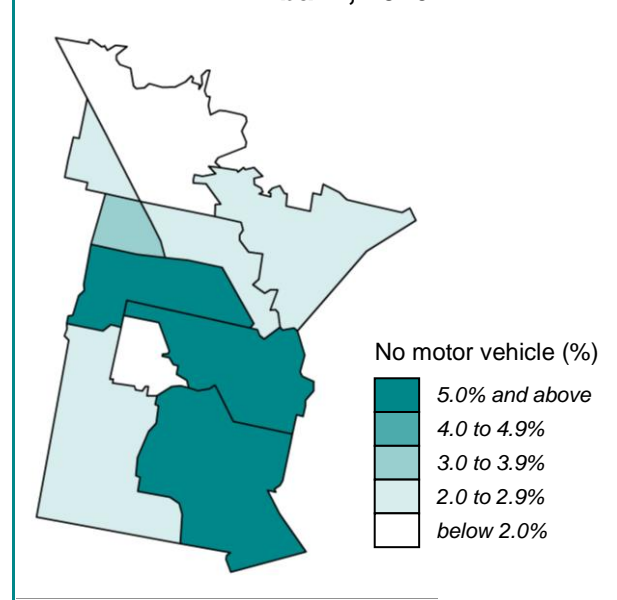
Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>4,804</b>	<b>8.9</b>	<b>0.94</b>
Melbourne SD	124,702	9.7	1.02
Victoria	159,693	9.0	0.95
Australia	676,295	9.5	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>8,232</b>	<b>4.3</b>	<b>0.93</b>
Greater Melbourne	239,265	5.3	1.14
Victoria	283,263	4.7	0.66
Australia	1,097,267	4.6	1.00

\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Access to a motor vehicle in Brimbank was substantially lower in 2016 than in 2006, as were the rates in Greater Melbourne and Victoria.

**Map 19: No motor vehicle, by PHA in Brimbank, 2016**



However, rates were substantially above the Brimbank average in Ardeer - Albion/ Sunshine/ Sunshine West (6.3%, and 47% above the Brimbank rate), St Albans - South/ Sunshine North (5.9%, and 37% above) and St Albans - North/ Kings Park (5.8%, and 34% above).

**Table 38: No motor vehicle, by PHA in Brimbank, 2016**

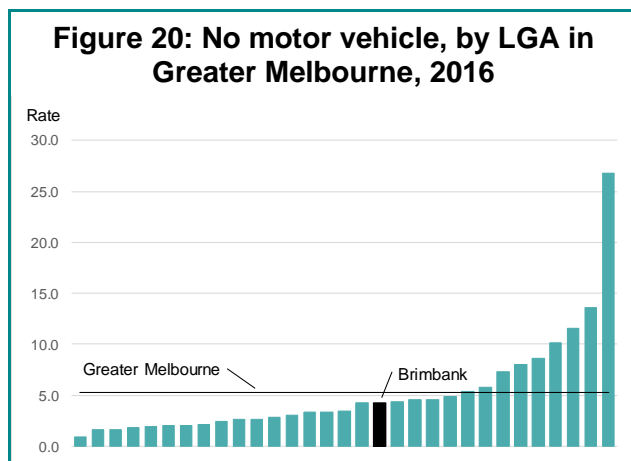
PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	2,391	6.3	1.47
Cairnlea	135	1.6	0.36
Deer Park - Derrimut	713	2.9	0.68
Delahey	239	3.0	0.69
Keilor	167	2.0	0.46
Keilor Downs	341	2.6	0.61
St Albans - North/ Kings Park	1,948	5.8	1.34
St Albans - South/ Sunshine North	1,816	5.9	1.37
Sydenham	276	2.3	0.54
Taylors Lakes	206	1.3	0.29
<b>Brimbank</b>	<b>8,232</b>	<b>4.3</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

## Regional comparisons

In 2016, the Brimbank LGA had a proportion slightly lower than the Greater Melbourne average, with 4.3% of the population not having access to a motor vehicle (Figure 20).



\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

## Correlations

There were very strong correlations at the PHA level in Greater Melbourne between this indicator and recent arrivals from NES countries and low-income households under financial stress from rent or mortgage payments. Strong correlations were also found

with high rates of social housing and people living in crowded dwellings.

Of the health and wellbeing indicators, there was a strong correlation with high prevalence of mental health disorders estimated for males; and a strong inverse correlation between this indicator and children fully immunised at five years of age.

There were strong inverse correlations between this indicator and people with their highest level of education as an Advanced Diploma, Diploma or Certificate and young people participating in full-time secondary education.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

## Internet not accessed at home

*A household can be considered to be disadvantaged if it lacks the resources to participate fully in society.<sup>1</sup> Access to the outside world through the Internet provides a means of communicating with friends and family, as well as services, employers and schools, thereby increasing educational, employment and other opportunities, including social interaction.<sup>2</sup> Socioeconomic characteristics of households continue to influence the rate of Internet connectivity across Australia. Households which do not have children aged less than 15 years and those that are located in non-metropolitan or regional areas of Australia and/or have lower household incomes are less likely to have access to the Internet.<sup>2</sup> These socioeconomic factors also influence the take-up rate of access via a high-speed connection, in addition to the technical issues regarding service availability in certain locations.*

*At the 2016 Census of Population and Housing, 83.7% of Victorian households had at least one person access the Internet from the dwelling. This could have been through a desktop/laptop computer, mobile or smart phone, tablet, or any other device.*

**Indicator definition:** Comprises people living in dwellings where no one accessed the Internet: the data have been age-standardised to remove expected differences between areas in the level of Internet use related to the age of the population.

Note: This definition is different from that applying to the data for 2011, which were for 'no Internet access at home'. Although the proportion under the new question is lower, this does not necessarily reflect an adequate or appropriate level of access. For example, access may only be available via a smart phone or tablet, which may not be adequate for the needs of a student.

### Key points

- More than one in ten people in Brimbank in 2016 was living in a household where no one accessed the Internet, the highest level recorded for any LGA in Greater Melbourne.
- More than half of the PHAs had a greater proportion of the population in households where no one accessed the Internet than was the case for Australia as a whole.

## Geographic variation

More than one in ten (11.4%) people in Brimbank reported in the 2016 Census that no one in the household accessed the Internet; this was 30% above the Australian level (Table 39). The proportion in Greater Melbourne was markedly lower (7.3%). The overall level in Brimbank has decreased by over one third since 2011, although the change in the Census question noted above has no doubt been in part responsible for this movement.

**Table 39: Internet not accessed at home, Brimbank and comparators, 2011 and 2016**

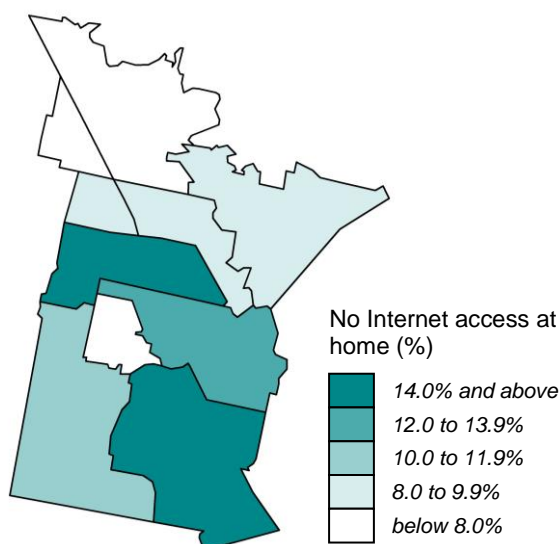
Region	No.	Rate*	RR#
<b>2011</b>			
<b>Brimbank</b>	<b>30,408</b>	<b>17.9</b>	<b>1.39</b>
Melbourne SD	443,275	11.4	0.89
Victoria	670,655	12.6	0.98
Australia	2,789,109	12.9	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>20,904</b>	<b>11.4</b>	<b>1.30</b>
Greater Melbourne	316,334	7.3	0.83
Victoria	483,213	8.2	0.93
Australia	2,055,962	8.8	1.00

\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

Only St Albans - North/ Kings Park, Ardeer - Albion/ Sunshine/ Sunshine West and St Albans - South/ Sunshine North had relatively more households where no one accessed the Internet, when compared with the Brimbank figure, with rates 14.6%, 14.0% and 13.3%, respectively (Map 20 and Table 40).

**Map 20: Internet not accessed at home, by PHA in Brimbank, 2016**



People in Cairnlea (5.0%), Taylors Lakes (7.0%), Sydenham (7.2%) and Keilor (8.4%) had the highest proportion of households where someone accessed the Internet from home.

**Table 40: Internet not accessed at home, by PHA in Brimbank, 2016**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	4,997	14.0	1.23
Cairnlea	371	5.0	0.44
Deer Park - Derrimut	2,251	10.4	0.91
Delahey	667	9.0	0.79
Keilor	811	8.4	0.74
Keilor Downs	1,246	9.5	0.83
St Albans - North/ Kings Park	4,836	14.6	1.28
St Albans - South/ Sunshine North	3,846	13.3	1.17
Sydenham	767	7.2	0.63
Taylors Lakes	1,111	7.0	0.61
<b>Brimbank</b>	<b>20,904</b>	<b>11.4</b>	<b>1.00</b>

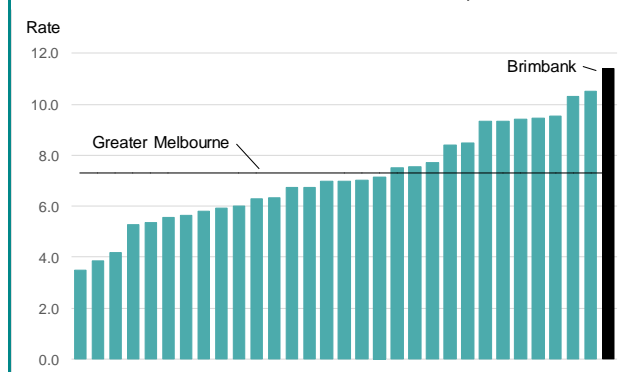
\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

### Regional comparisons

More than one in ten people in Brimbank lived in households where no one accessed the Internet (11.4%); this was the highest proportion of any LGA in Greater Melbourne (Figure 21).

**Figure 21: Internet not accessed at home, by LGA in Greater Melbourne, 2016**



\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

### Correlations

This indicator was very strongly correlated at the PHA level in Greater Melbourne with a number of other indicators of socioeconomic disadvantage: children living in jobless families, unemployment, people living in overcrowded dwellings and people aged 15 years and over living with disability. There was also a very strong inverse correlation between this indicator and young people learning or earning.

Strong correlations were found with the education and child development indicators of children assessed as developmentally vulnerable on one or more domains under the AEDC and more people having left school early (i.e., completed Year 10 or below, or did not go to school). There were inverse correlations with the indicators for people with their highest level of education being a bachelor's degree or higher, and children assessed as developmentally on track in the physical health and wellbeing, and the language and cognitive skills domains under the AEDC.

There was a very strong correlation between this indicator and estimates for people reporting their health as fair or poor, people with high or very high psychological distress, and female smokers (the estimates for these indicators are modelled estimates). A strong correlation was also evident for people (aged 15 years and over) hospitalised with ambulatory care-sensitive conditions, indicating relatively poorer access to effective primary health care.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Townsend P. Deprivation. *Journal of Social Policy* 1987; 16: 125-146.
2. Australian Bureau of Statistics (ABS). Household use of information technology, Australia, 2010-11. (ABS Cat. no. 8146.0). Canberra: ABS, 2011.

## Electronic gaming machines: player losses

*For sociological and psychological reasons, certain groups within the population may be at greater risk of developing gambling problems. A further proportion may experience impaired control over their behaviour, leading to severe personal and family distress including depression, suicide, unemployment and family and relationship breakdown.*

*Variation in the number of electronic gaming machines in an area is frequently cited as the most significant factor affecting gambling losses from these machines.*

**Indicator definition:** Expenditure (i.e., amount of money lost by gaming patrons, or, as referred to here, player losses) at gaming venues on electronic gaming machines (EGMs), expressed as a rate per head of the population aged 18 years and over.

Note: The data mapped are of player losses in the area in which the machines are located, and do not relate solely to people who live in the area. EGMs at casinos are excluded from these data.

### Key points

- In 2017-18, losses from gaming machines located in Brimbank represented a loss per head of population that was more than 50% above the level in Greater Melbourne; at the LGA level, these losses were second only to those estimated for machines in Greater Dandenong.
- Over a 10-year period, gaming losses have decreased in Brimbank, from \$948 (2007-08) to \$851 (2017-18) per head of population. However, the burden on the population of these losses remains high.

### Geographic variation

In Brimbank, the rate of losses per person from electronic gambling machines in 2017-18 was \$851 per head of population, or 34% above the Australian rate (Table 41). In contrast, the rates in Greater Melbourne (\$551 per head) and in Victoria overall (\$533) were below the Australian rate, by 13% and 16%, respectively.

The overall player losses per head in Brimbank have decreased since 2007-08, when they were \$948 per head, and some 50% above the Australian rate.

**Table 41: Player losses on electronic gaming machines (EGMs); losses by location of EGMs, 2007-08 and 2017-18**

Region	Losses (\$m)	Rate (\$)*	RR#
<b>2007-08</b>			
<b>Brimbank</b>	<b>127.9</b>	<b>948</b>	<b>1.50</b>
Greater Melbourne	2,053.6	680	1.07
Victoria	2,611.5	638	1.01
Australia	10,184.2	634	1.00
<b>2017-18</b>			
<b>Brimbank</b>	<b>139.5</b>	<b>851</b>	<b>1.34</b>
Greater Melbourne	2,112.5	551	0.87
Victoria	2,695.3	533	0.84
Australia (2017-18)	12,136.2	636	1.00

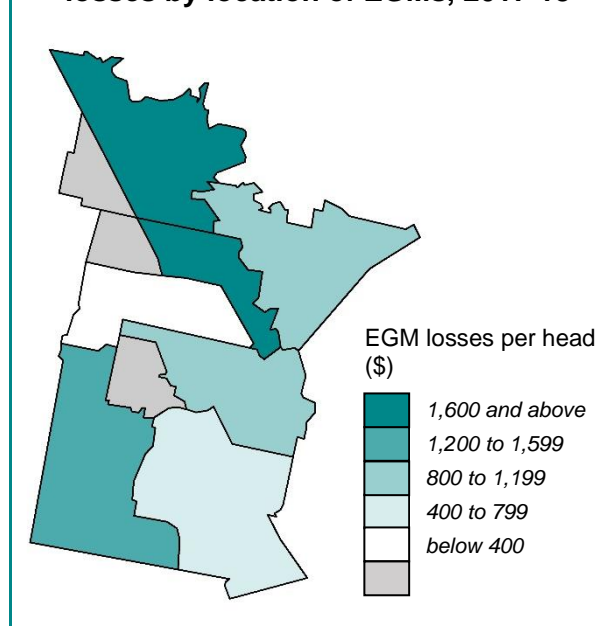
\*Rate is the loss per head of population aged 18 years and over

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

The highest rates of player losses per head were for electronic gambling machines in Keilor Downs and Taylors Lakes (\$2,096 and

\$2,093 respectively), both more than twice the Australian rate (Map 21 and Table 42). Deer Park - Derrimut (\$1,292) and St. Albans South/Sunshine North (\$1,100) also had rates that were above the Australian rate, while in Keilor (\$806), Ardeer - Albion/ Sunshine/ Sunshine West (\$690) and St Albans - North/ Kings Park (\$183), player losses were below the national rate.

**Map 21: Player losses on electronic gaming machines (EGMs) in Brimbank; losses by location of EGMs, 2017-18**



There were no electronic gambling machines in Sydenham, Delahey and Cairnlea.



**Table 42: Player losses on electronic gaming machines (EGMs) in Brimbank; losses by location of EGMs, 2017-18**

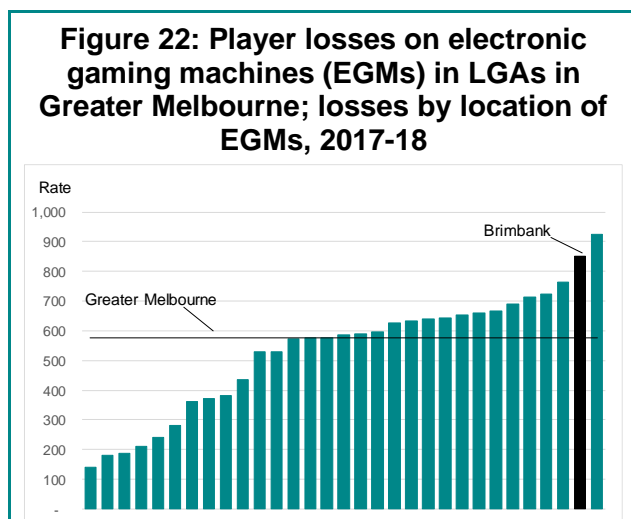
PHA	Losses		
	(\$m)	Rate (\$)*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	21.2	690	0.81
Cairnlea		No EGMs	
Deer Park - Derrimut	26.5	1,292	1.52
Delahey		No EGMs	
Keilor	5.8	806	0.95
Keilor Downs	23.3	2,096	2.46
St Albans - North/ Kings Park	5.2	183	0.22
St Albans - South/ Sunshine North	26.8	1,100	1.29
Sydenham		No EGMs	
Taylors Lakes	30.8	2,093	2.46
<b>Brimbank</b>	<b>139.5</b>	<b>851</b>	<b>1.34</b>

\*Rate is the loss per head of population aged 18 years and over

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

### Regional comparisons

In 2017-18, of all LGAs in Greater Melbourne, the second-highest rate of losses per head from electronic gambling machines was for losses in machines located in Brimbank: Greater Dandenong had a higher rate of losses (Figure 22).



\* Rate is the loss per head of population aged 18 years and over

### Correlations

At the PHA level in Greater Melbourne, this indicator was moderately correlated with other indicators including longer term residents born in non-English speaking countries, people born overseas reporting poor proficiency in English, no Internet access at home, people aged 15 years and over living with a disability, self-assessed health status reported as 'fair' or 'poor' and children developmentally

vulnerable on one or more domains. There were moderate inverse correlations with socioeconomic disadvantage and voluntary work through an organisation. Strong correlations were not evident for this indicator at the PHA level.

However, at the LGA level, strong correlations were more evident with social indicators including high rates of children living in jobless families, children in families where mother has a low educational attainment, longer term residents born in NES countries, people born overseas reporting poor proficiency in English, unemployment, people working at labourers, no Internet access at home, early school leavers and children developmentally vulnerable on one or more domains under the AEDC, as well as for a number of health-related indicators

There were also strong inverse correlations with the IRSD, high rates of female labour force, people working as managers or professionals, voluntary work through an organisation and the highest level of education being a bachelor's degree or higher.

## Voluntary work

*Volunteering can improve the health and wellbeing of individual volunteers by enhancing support networks, self-esteem and quality of life and has substantial social benefits.*

*Almost one fifth (19.0%) of the Australian population reported undertaking voluntary work through an organisation or a group in the year before the 2016 Census. These data are useful in the planning of local facilities and services, and in understanding the way individuals and families balance paid work and other important aspects of their lives with such community commitments.*

**Indicator definition:** Comprises people aged 15 years and over who participated in voluntary work for an organisation or group in the twelve months before the 2016 Census, expressed as a proportion of the population aged 15 years and over.

### Key points

- The number of people in Brimbank aged 15 years and over who reported that they participated in voluntary work was just over half the level in Australian overall.
- All of the PHAs had participation rates well below the Greater Melbourne average.

## Geographic variation

Just over half the number of people in Brimbank reported that they participated in voluntary work (10.9% of the population aged 15 years and over) when compared with the Australian average (19.0%) (Table 43). This rate is also substantially lower than in Greater Melbourne (17.6%).

It is of note that the rate of participation in Greater Melbourne (17.6%) is also below the Australian and Victorian averages (of 19.0% and 19.2%, respectively).

However, the proportion of the population reported being involved in voluntary work for an organisation or group in Brimbank has increased over time, rising from 8.8% in 2006 to 10.9% in 2016.

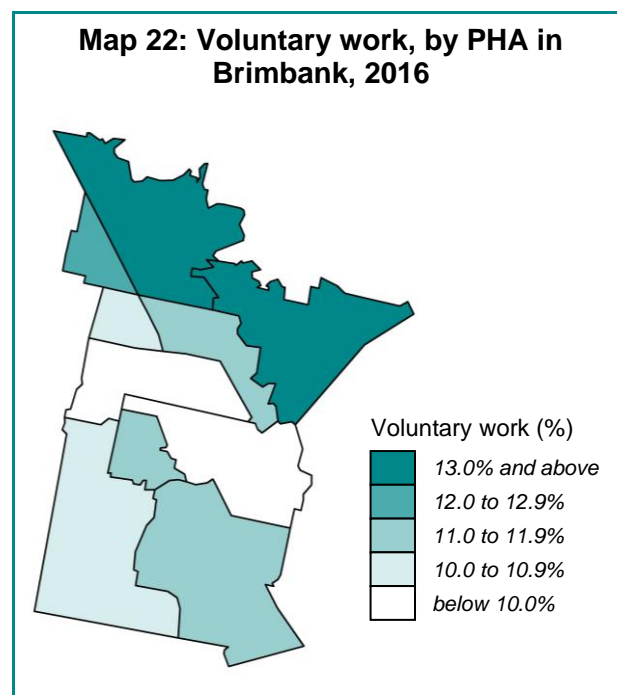
None of the rates of participation in voluntary work at the PHA level in Brimbank were above the Greater Melbourne average, with only Keilor (15.8%), Taylors Lakes (13.1%) and Sydenham (12.0%) having twelve per cent or more of their populations engaged in this way (Map 22 and Table 44). Participation in the remaining areas varied from 9.0% to 11.6%.

**Table 43: Voluntary work, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>11,702</b>	<b>8.8</b>	<b>0.49</b>
Melbourne SD	454,670	15.6	0.87
Victoria	712,232	17.9	1.00
Australia	2,850,995	17.9	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>17,350</b>	<b>10.9</b>	<b>0.58</b>
Greater Melbourne	645,439	17.6	0.93
Victoria	931,456	19.2	1.01
Australia	3,620,726	19.0	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

**Map 22: Voluntary work, by PHA in Brimbank, 2016**



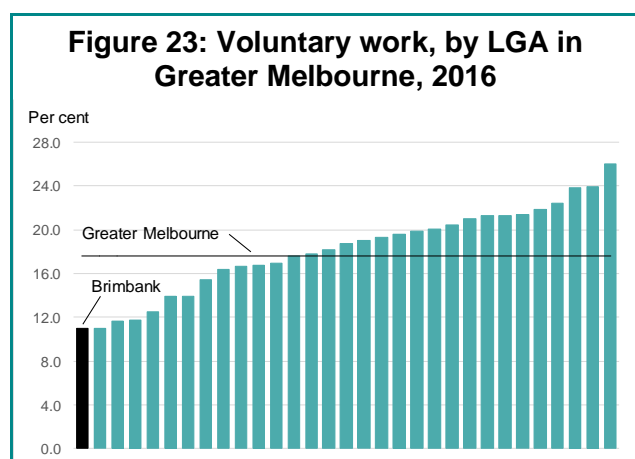
**Table 44: Voluntary work, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	3,486	11.6	1.06
Cairnlea	850	11.4	1.04
Deer Park - Derrimut	2,081	10.4	0.95
Delahey	715	10.4	0.95
Keilor	1,117	15.8	1.44
Keilor Downs	1,243	11.3	1.03
St Albans - North/ Kings Park	2,494	9.0	0.82
St Albans - South/ Sunshine North	2,292	9.6	0.87
Sydenham	1,159	12.0	1.09
Taylors Lakes	1,915	13.1	1.20
<b>Brimbank</b>	<b>17,350</b>	<b>10.9</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Regional comparisons

As noted above, the population of Brimbank aged 15 years and over reported a low level of participation in voluntary work, with the rate in Brimbank (10.9%) being the lowest recorded of all LGAs in Greater Melbourne (Figure 23).



### Correlations

There was a very strong correlation at the PHA level in Greater Melbourne between this indicator and many indicators of socioeconomic disadvantage.

Strong correlations were found with most of the indicators of education and child development, in particular with more people with their highest level of education being a bachelor's degree or higher, and relatively more children being developmentally on track in the language and cognitive skills domains under the AEDC.

As expected, given the results described above, relatively fewer children were assessed as being developmentally vulnerable on one or

more domains under the AEDC, and there were fewer early school leavers in these areas.

For the health and wellbeing indicators, there were very strong inverse correlations between this indicator and people reporting fair or poor health, and the estimated prevalence of high or very high psychological distress and diabetes type 2.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

## People living with disability

It is estimated that almost one-fifth (18.3%) of the Australian population has a disability (a limitation, restriction or impairment of six months duration that restricts everyday activities).<sup>1</sup>

Participating in community activities and interacting with other people contribute to a person's sense of wellbeing. This is particularly important for people with disability, especially those who are not employed, as such interactions help build social support networks. In 2015, most people (77.4%) with disability (living in households) participated in physical activities, visited public places and engaged with friends and family, although rates of social participation for people with disability declined with age. However, rates of social participation for people with a disability were lower than for those without such limitations; and for those with profound or severe limitation were lower than for those with moderate or mild limitation.<sup>2</sup>

**Indicator definition:** Comprises people living in the community who reported in the 2016 Census a need for assistance which resulted in them being designated as having a profound or severe disability: these data exclude people living in long-term residential accommodation. The results from the Census, presented below, differ from those from the Survey of Disability, Ageing and Carers quoted above (see Appendix A for further details).

### Key points

- Almost 800 children in Brimbank aged 0 to 14 years were living with disability, a relatively lower proportion than in Australia overall.
- Brimbank has a markedly higher proportion of its population aged 15 years and over living with disability, when compared with the Australian average, and the second highest of all LGAs.

## Geographic variation

### 0 to 14 years of age

Children aged 0 to 14 years and living with disability comprised 2.3% of all children aged 0 to 14 years in Brimbank at the 2016 Census (Table 45). This proportion is lower than both the Greater Melbourne and Australian averages (2.4% and 2.7%, respectively).

As a result, almost 800 children in Brimbank aged 0 to 14 years were estimated to be living with disability at the 2016 Census. The proportion of children at these ages living with disability has increased in all jurisdictions since the 2011 Census, although this increase is less marked in Brimbank.

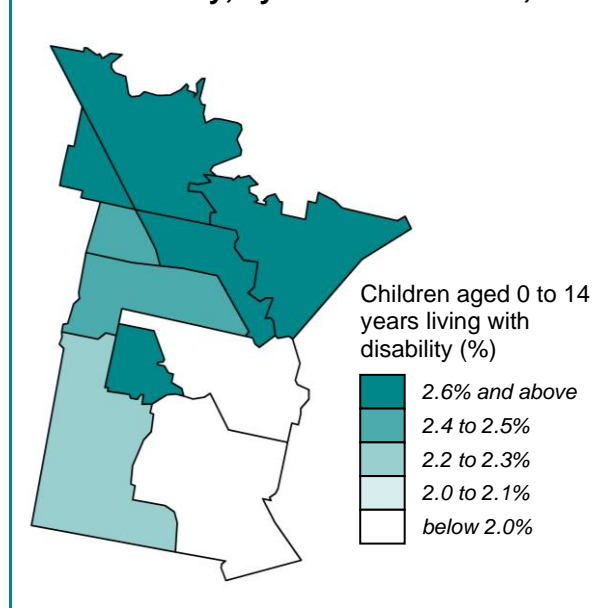
**Table 45: Children aged 0 to 14 years living with disability, Brimbank and comparators, 2011 and 2016**

Region	No.	%	RR#
<b>2011</b>			
<b>Brimbank</b>	<b>728</b>	<b>2.1</b>	<b>1.05</b>
Melbourne SD	14,146	1.9	0.96
Victoria	20,577	2.1	1.03
Australia	83,154	2.0	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>783</b>	<b>2.3</b>	<b>0.85</b>
Greater Melbourne	19,167	2.4	0.89
Victoria	27,039	2.6	0.96
Australia	110,927	2.7	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Higher proportions of children aged from 0 to 14 years living with disability were recorded in the PHAs of Keilor Downs (3.0%) and Keilor (2.7%), followed by Cairnlea, Sydenham and Taylors Lakes (all with 2.6%). In contrast, lower proportions were recorded in St Albans - South/ Sunshine North (1.7%) and Ardeer - Albion/ Sunshine/ Sunshine West (1.8%) (Map 23 and Table 46).

**Map 23: Children aged 0 to 14 years living with disability, by PHA in Brimbank, 2016**



**Table 46: Children aged 0 to 14 years living with disability, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	107	1.8	0.78
Cairnlea	55	2.6	1.13
Deer Park - Derrimut	138	2.3	1.00
Delahey	34	2.4	1.04
Keilor	37	2.7	1.17
Keilor Downs	63	3.0	1.30
St Albans - North/ Kings Park	143	2.5	1.09
St Albans - South/ Sunshine North	78	1.7	0.74
Sydenham	58	2.6	1.13
Taylors Lakes	70	2.6	1.13
<b>Brimbank</b>	<b>783</b>	<b>2.3</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### 15 years of age and over

People aged 15 years and over living with disability comprised 7.0% of the Brimbank population (aged 15 years and over) at the 2016 Census (Table 47). This is markedly above the Australian average as shown by the rate ratio of 1.35; it is also markedly above the Greater Melbourne average.

As a result, more than 10,000 people aged 15 years and over in Brimbank were estimated to be living with disability at the 2016 Census.

There has been an increase of almost 15% in the estimated rate of people living with a disability in Brimbank since 2011, rising from 6.1% to 7.0%, although the increase for Australia overall was greater, at 18.2%. The data for the earlier period are available at <https://tinyurl.com/yyy4race>.

**Table 47: People aged 15 years and over living with disability, Brimbank and comparators, 2011 and 2016**

Region	No.	%	RR#
<b>2011</b>			
<b>Brimbank</b>	<b>8,944</b>	<b>6.1</b>	<b>1.40</b>
Melbourne SD	135,711	4.2	0.97
Victoria	190,789	4.4	1.01
Australia	755,054	4.4	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>10,636</b>	<b>7.0</b>	<b>1.35</b>
Greater Melbourne	167,914	4.8	0.92
Victoria	232,903	5.1	0.98
Australia	927,742	5.2	1.00

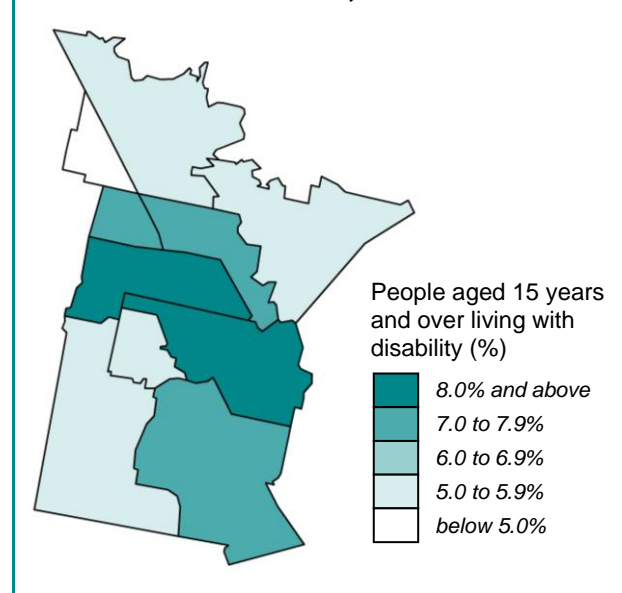
#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Within Brimbank, higher proportions of the population aged 15 years and over living with disability were recorded in the PHAs of St Albans - North/ Kings Park (8.9%),

St Albans - South/ Sunshine North (8.1%), Keilor Downs (7.8%) and Ardeer - Albion/ Sunshine/ Sunshine West (7.6%).

In contrast, markedly lower proportions were recorded in Sydenham (4.7%), Cairnlea (5.0%), Taylors Lake (5.1%), Deer Park - Derrimut (5.7%) and Keilor (5.9%) (Map 24 and Table 48).

**Map 24: People aged 15 years and over living with disability, by PHA in Brimbank, 2016**



**Table 48: People aged 15 years and over living with disability, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	2,145	7.6	1.09
Cairnlea	362	5.0	0.71
Deer Park - Derrimut	1,075	5.7	0.81
Delahey	466	7.0	1.00
Keilor	402	5.9	0.84
Keilor Downs	834	7.8	1.11
St Albans - North/ Kings Park	2,353	8.9	1.27
St Albans - South/ Sunshine North	1,837	8.1	1.16
Sydenham	438	4.7	0.67
Taylors Lakes	724	5.1	0.73
<b>Brimbank</b>	<b>10,636</b>	<b>7.0</b>	<b>1.00</b>

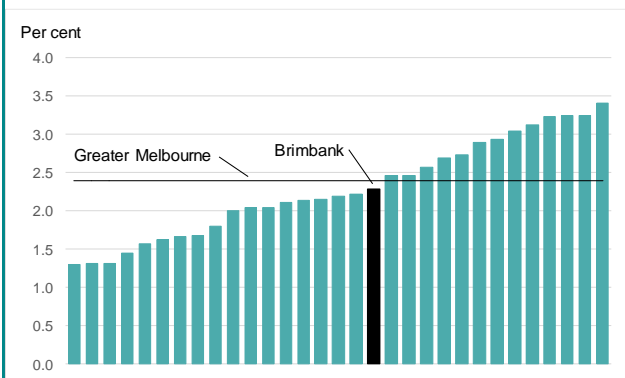
#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

## Regional comparisons

### 0 to 14 years of age

The proportion of children in Brimbank living with disability (2.3%) was slightly below the Greater Melbourne average (of 2.4%) (Figure 24).

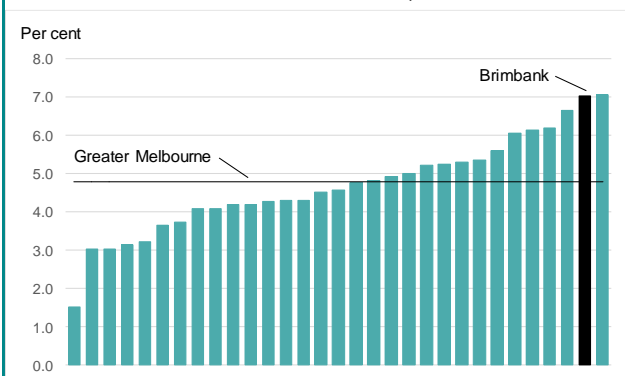
**Figure 24: Children aged 0 to 14 years living with disability, by LGA in Greater Melbourne, 2016**



### 15 years of age and over

In contrast to the younger aged population, for those aged 15 years and over, Brimbank was ranked second highest (7.0%) of the 31 LGAs in Greater Melbourne, after Hume (7.1%) (Figure 25).

**Figure 25: People aged 15 years and over living with disability, by LGA in Greater Melbourne, 2016**



## Correlations

### 0 to 14 years of age

There was a strong correlation at the PHA level in Greater Melbourne between children living with disability and children in families where the mother has low educational achievement. There was a strong inverse correlation with high proportions of people working as managers or professionals.

For the health and wellbeing indicators, there were very strong correlations with this indicator and women smoking during pregnancy, adult smokers, and obese adults.

There were very strong correlations between this indicator and the education indicators for early school leavers (i.e., people who had completed Year 10 or below, or did not go to school) and for people with a highest level of

education of an Advanced Diploma, Diploma or Certificate; however, relatively fewer people had a bachelor's degree or higher.

Proportions for these indicators in the Brimbank PHAs are similarly elevated.

### 15 years of age and over

There was a very strong correlation at the PHA level in Greater Melbourne between this indicator and many indicators of socioeconomic disadvantage; and there was a strong correlation with households where no one accessed the Internet.

In the area of health and wellbeing, there were very strong correlations with this indicator and the indicators for people reporting fair or poor health and current female smokers. Strong correlations were also evident for hospitalisations for ambulatory care-sensitive conditions, the prevalence of diabetes type 2, high or very high psychological distress, male smoking, and adult obesity.

Very strong and strong correlations were found between this indicator and the education and child development indicators for children assessed as developmentally vulnerable on one or more domains under the AEDC, and people having left school early (i.e., completed Year 10 or below, or did not go to school). In keeping with this finding of the AEDC, relatively fewer children in these areas were assessed as being developmentally on track in the language and cognitive skills domain of the AEDC and in the physical health and wellbeing domain of the AEDC.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Australian Bureau of Statistics (ABS). 2015 Disability, Ageing and Carers, Australia: Summary of Findings, 2015. (ABS Cat. no. 4430DO020). Canberra: ABS, 2017.
2. Australian Bureau of Statistics (ABS). - Disability, Ageing and Carers, Australia: Summary of Findings, 2015 (ABS Cat. no. 4430.0). Canberra: ABS, 2016.  
<http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/4430.0Main%20Features202015>

## Health and wellbeing, and education and child development indicators at the Population Health Area level

### Health and wellbeing

#### Mothers and babies

Low birth weight babies	64
Women smoking during pregnancy	66
Admissions to hospital for ambulatory care-sensitive conditions, by age	68
Self-assessed health status reported as 'fair' or 'poor'	72
Prevalence of diabetes type 2	74
Prevalence of circulatory system diseases	76
High or very high psychological distress	78
Smoking	80
Obesity	84

### Education and child development

Participation in preschool	88
Young people aged 16 years participating in full-time secondary school education	90
Early school leavers	92
Highest level of education, by type of qualification	94
Australian Early Development Census:	
Children who are developmentally on track in the Physical health and wellbeing and in the language and cognitive skills (school-based) domain	98
Children who are developmentally vulnerable on one or more domains	102
Reading and numeracy outcomes	104

## Low birth weight babies

The weight of a baby at delivery (birth weight) is widely accepted as a key indicator of infant health and can be affected by a number of factors, including the age, size, health and nutritional status of the mother, pre-term birth, and tobacco smoking during pregnancy.<sup>1</sup> A baby is defined as having a low birth weight if they are born weighing less than 2,500 grams. Low birth weight is generally associated with poorer health outcomes, including increased risk of illness and death, longer periods of hospitalisation after birth, and increased risk of developing significant disabilities.<sup>2</sup> The country of birth of the mother may also be an important risk factor for outcomes such as low birth weight and perinatal mortality.<sup>3</sup>

**Indicator definition:** Comprises babies (both live born and stillborn) weighing less than 2500 grams at birth, expressed as a proportion of all births.

### Key points

- There were 618 low birth weight babies born to women living in Brimbank over the period 2012–14, some 18% above the average for Australia.
- Brimbank was ranked equal highest (with Hume) among the LGAs in Greater Melbourne for the proportion of babies born with a low birth weight.

## Geographic variation

For the period 2004–06, the proportion of babies born with low birth weight in Brimbank was 8% above the Australian rate, and consistent with the proportion in Greater Melbourne (Table 49). Although the proportion in 2012–14 (7.2%) had declined only marginally, there was a greater decline nationally, resulting in Brimbank having 18% more low birth weight babies in 2012–14 than in Australia. It was also 14% above the Greater Melbourne figure.

**Table 49: Low birth weight babies, Brimbank and comparators, 2004–06 and 2012–14**

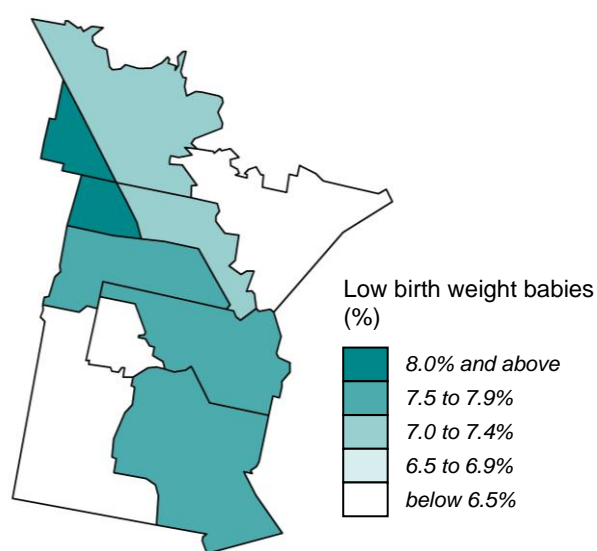
Region	No.	%	RR#
<b>2004–06</b>			
<b>Brimbank</b>	<b>584</b>	<b>7.3</b>	<b>1.08</b>
Melbourne SD	10,056	6.9	1.01
Victoria	14,196	7.1	1.05
Australia	43,156	6.8	1.00
<b>2012–14</b>			
<b>Brimbank</b>	<b>618</b>	<b>7.2</b>	<b>1.18</b>
Greater Melbourne	11,182	6.3	1.03
Victoria	14,451	6.3	1.04
Australia	55,403	6.1	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

At the PHA level, Delahey and Sydenham had the highest proportions, both with 8.0% of babies born at a low birth weight (Map 25 and Table 50). The lowest proportion, of 4.1% in Keilor, was some two thirds of the level in Australia overall.

Although numbers over both three-year periods are small, the proportion of 7.2% in Keilor Downs, indicates a major improvement over the earlier period when the proportion was 10.1%. There was also a notable improvement in St Albans - North/ Kings Park, from 8.8% in the earlier period to 7.6% more in 2012–14. The data for the earlier period are available at <https://tinyurl.com/yy4race>.

**Map 25: Low birth weight babies, by PHA in Brimbank, 2012–14**





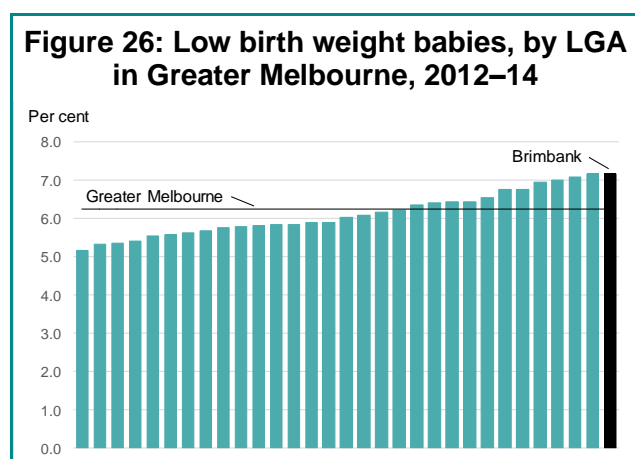
**Table 50: Low birth weight babies, by PHA in Brimbank, 2012–14**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	132	7.6	1.07
Cairnlea	33	6.3	0.88
Deer Park - Derrimut	87	6.2	0.86
Delahey	33	8.0	1.11
Keilor	10	4.1	0.58
Keilor Downs	30	7.2	1.01
St Albans - North/ Kings Park	116	7.6	1.05
St Albans - South/ Sunshine North	98	7.5	1.05
Sydenham	45	8.0	1.11
Taylors Lakes	33	7.0	0.98
<b>Brimbank</b>	<b>617</b>	<b>7.2</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Regional comparisons

Of the LGAs in Greater Melbourne, Brimbank had the equal highest level of babies born with a low birth weight in 2012-14 (Figure 26). Hume had the same rate, of 7.2%.



### Correlations

There was a strong correlation at the PHA level in Greater Melbourne between this indicator and high proportions of children living in jobless families.

Moderate correlations were found with some of the indicators of education and child development, with, for example, relatively low levels of young people participating in full-time secondary education.

In the area of health and wellbeing, there were moderate correlations between this indicator and people reporting fair or poor health, the estimated prevalence of high or very high psychological distress and diabetes type 2.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

### References

1. Laws PJ, Grayson N, Sullivan EA. Australia's mothers and babies, 2004. (AIHW Cat. no. PER 34). Sydney: Australian Institute of Health and Welfare (AIHW), 2006.
2. Australian Institute of Health and Welfare (AIHW). A picture of Australia's children, 2012. Canberra: AIHW, 2012.
3. Li Z, McNally L, Hilder L, Sullivan EA. Australia's mothers and babies 2009. (Perinatal statistics series no. 25, AIHW Cat. no. PER 52). Sydney: Australian Institute of Health and Welfare (AIHW), 2011.

## Women smoking during pregnancy

*Maternal smoking during pregnancy is a major risk factor that can adversely affect infant health, increasing the likelihood of low birth weight, pre-term birth, fetal and neonatal death, and SIDS.<sup>1</sup> In 2012–14 in Australia, one in eight women (12.3%) smoked during pregnancy, with rates nearly four times as high among Aboriginal and Torres Strait Islander women (47.3%) and those living in remote areas (32.1% in Very Remote, compared with 8.3% for those living in Major Cities) and nearly five times as high for those living in socioeconomically disadvantaged areas (15.6% in the most disadvantaged areas, compared with 3.3% in the least disadvantaged areas).*

**Indicator definition:** Comprises women who reported that they smoked at any time during their pregnancy, expressed as a proportion of the number of pregnant women.

### Key points

- The extent of smoking by women in Brimbank during pregnancy increased at a time when the national rate decreased; despite this, the proportion smoking during pregnancy remained below the national rate.
- Only Taylors Lakes and Keilor Downs had a rate of women smoking during pregnancy which was above the Australian average.

### Geographic variation

The proportion of women living in Brimbank who reported that they smoked at any time during their pregnancy over the period 2010–12 was markedly (34%) below the Australian rate, and slightly lower than the rate for Greater Melbourne (Table 51).

By 2012–14, the proportion in Brimbank had increased to 10.5%, at a time when the national rate was declining (down by 11%, from 13.7% to 12.3%). The increase, and which population group is driving it, would be worthy of further investigation.

Despite the increase, the rate of smoking in pregnancy in Brimbank has remained below the national average rate, by 15%.

**Table 51: Women smoking during pregnancy, Brimbank and comparators, 2010–12\* and 2012–14**

Region	No.	%	RR#
<b>2010–12</b>			
<b>Brimbank</b>	<b>780</b>	<b>9.0</b>	<b>0.66</b>
Melbourne SD	15,679	9.4	0.69
Victoria	24,231	11.2	0.82
Australia	119,868	13.7	1.00
<b>2012–14</b>			
<b>Brimbank</b>	<b>895</b>	<b>10.5</b>	<b>0.85</b>
Greater Melbourne	19,868	11.2	0.91
Victoria	34,152	15.0	1.22
Australia	110,865	12.3	1.00

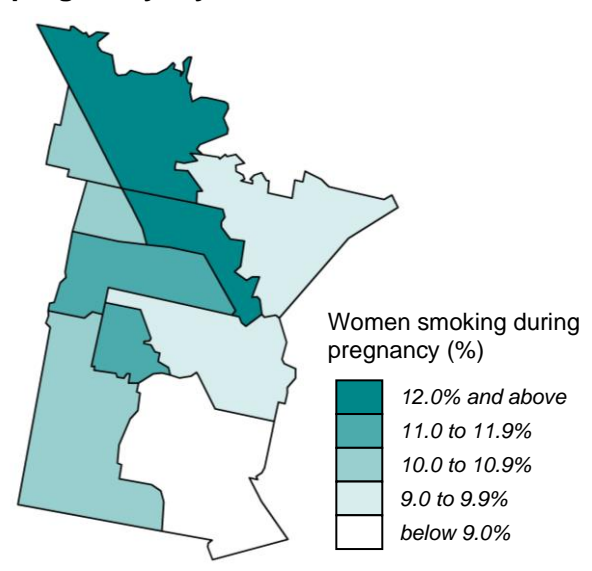
\* These data were not available for Victoria before 2010–12

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

The highest proportions at the PHA level, of 13.9% in Taylors Lakes and 13.0% in Keilor Downs, were both above the national figure of 12.3% (Map 26 and Table 52).

The most substantial increase in smoking during pregnancy between the two periods, was in Taylors Lakes, where the rate more than doubled (increased 2.4 times), from 5.8% in 2010–12 to 13.9% in 2012–14. Other marked increases were evident in Sydenham (up by 84%, from 5.7% to 10.5%), St Albans - South/Sunshine North (up by 38%, from 7.1% to 9.8%), Cairnlea (up by 33%, from 8.4% to 11.2%) and St Albans - North/ Kings Park (up by 31%, from 8.8% to 11.5%). The data for the earlier period are available at <https://tinyurl.com/yyy4race>.

**Map 26: Women smoking during pregnancy, by PHA in Brimbank, 2012–14**



The lowest proportions were in Ardeer - Albion/ Sunshine/ Sunshine West (8.5%, or 19% below the Brimbank rate) and in Keilor and St Albans - South/ Sunshine North (both 9.8%, or 7% below).

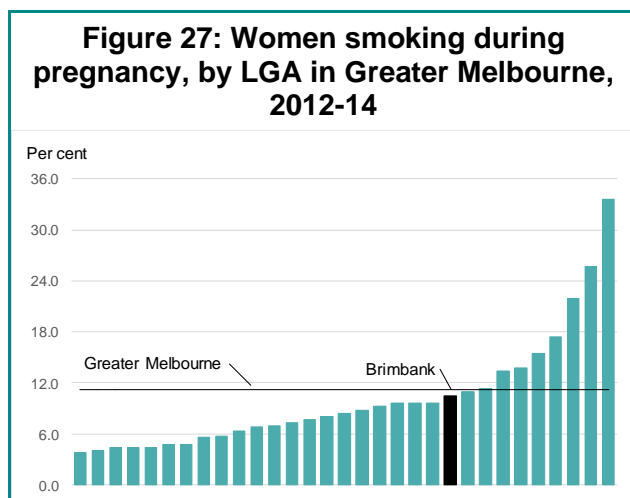
**Table 52: Women smoking during pregnancy, by PHA in Brimbank, 2012–14**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	146	8.5	0.81
Cairnlea	59	11.2	1.07
Deer Park - Derrimut	146	10.6	1.01
Delahey	43	10.5	1.00
Keilor	23	9.8	0.93
Keilor Downs	54	13.0	1.24
St Albans - North/ Kings Park	174	11.5	1.09
St Albans - South/ Sunshine North	127	9.8	0.93
Sydenham	58	10.5	1.00
Taylors Lakes	64	13.9	1.32
<b>Brimbank</b>	<b>894</b>	<b>10.5</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Regional comparisons

The rate for women living in Brimbank, who reported smoked during pregnancy (10.5%), was just below the average rate for Greater Melbourne’s 31 LGAs (11.2%) (Figure 27).



### Correlations

There was a strong correlation at the PHA level in Greater Melbourne between this indicator and the indicators for children living in families where the mother has low educational attainment and children aged 0 to 14 years living with disability.

Strong correlations were found with some of the indicators of education and child development, in particular in areas with relatively higher levels of early school leavers; and people with their highest level of

education being an advance diploma, diploma or certificate. Strong inverse correlations were apparent for people with their highest level of education being a bachelor’s degree or higher, and people working as managers or professionals.

In the area of health and wellbeing, there were strong correlations between this indicator and male and female smokers, and obese males and females (the estimates for these indicators are modelled estimates).

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

### References

1. Laws PJ, Grayson N, Sullivan EA. Smoking and pregnancy. (AIHW Cat. no. PER 33). Sydney: Australian Institute of Health and Welfare (AIHW), 2006.

## 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 access to timely and effective primary care.<sup>1</sup> Variations in hospitalisations from these conditions can be used as an indicator to assess the adequacy, efficiency and quality of primary health care within the broader health system, as such preventive care and early disease management usually is usually delivered in a primary care setting, for example by a general medical practitioner, or at a community health centre. High rates of hospital admissions for ACSCs may provide indirect evidence of problems with patient access to primary health care, inadequate skills and resources, or disconnection with specialist services.<sup>1</sup>*

**Indicator definition:** Hospital admissions resulting from ambulatory care-sensitive conditions per 1,000 population (see Appendix A for details of conditions covered).

### Key points

- The rate of hospitalisations for ACSCs of children aged from 0 to 14 years living in Brimbank is relatively low in comparison with the Australian rate. At the PHA level, high rates are found in areas of both high and low socioeconomic status.
- Among the population aged 15 years and over, the rate of hospitalisations for these conditions is relatively consistent across the comparators, and high rates are more evident in more socioeconomically disadvantaged areas.

## Geographic variation

### 0 to 14 years of age

The rate of hospitalisation of children aged 0 to 14 years for ambulatory care-sensitive conditions (ACSCs) in Brimbank, of 17.4 admissions per 1,000 population, is markedly below the rate in Australia, but closer to the rates in Greater Melbourne and Victoria (Table 53). The number and rate have decreased markedly since 2011/12, from 24.1 admissions per 1,000 population to 17.4 admissions per 1,000 population.

**Table 53: ACSCs for people aged 0 to 14 years, Brimbank and comparators, 2011/12 and 2016/17**

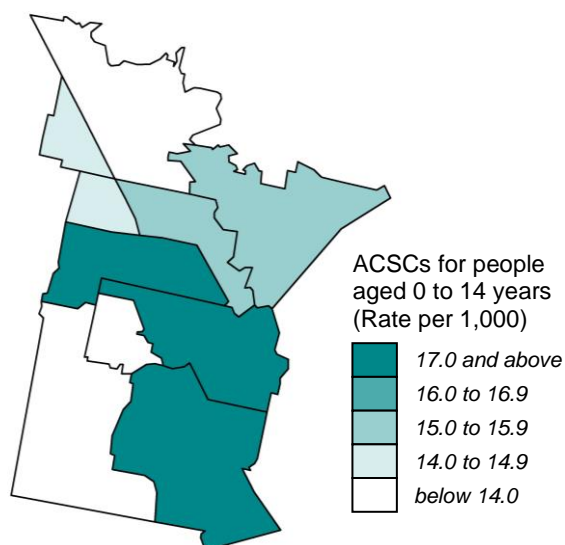
Region	No.	Rate*	RR#
<b>2011/12</b>			
<b>Brimbank</b>	<b>857</b>	<b>24.1</b>	<b>1.19</b>
Melbourne SD	14,103	18.6	0.92
Victoria	20,578	20.3	1.00
Australia	..	..	..
<b>2016/17</b>			
<b>Brimbank</b>	<b>673</b>	<b>17.4</b>	<b>0.84</b>
Greater Melbourne	14,686	16.7	0.81
Victoria	19,701	17.2	0.83
Australia	94,037	20.6	1.00

\*Indirectly age-standardised rate per 1,000 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Victoria (as the Australian data were not available to the project in 2011/12)

Rates of hospitalisation for these conditions vary widely across Brimbank (Map 27 and Table 54). St Albans - South/ Sunshine North (22.7 admissions per 1,000 population) and Ardeer - Albion/ Sunshine/ Sunshine West (22.1) have rates of over 25% above the city-wide rate, with a relatively high rate also in St Albans - North/ Kings Park (18.1). Other data available for this atlas show that children in these PHAs had very high hospitalisation rates for ACSCs from both asthma and dental conditions.

**Map 27: ACSCs for people aged 0 to 14 years, by PHA in Brimbank, 2016/17**



Cairnlea (13.2), Deer Park - Derrimut (13.5) and Taylors Lakes (13.8%) had the lowest rates of hospitalisation of children for these ACSCs.

**Table 54: ACSCs for people aged 0 to 14 years, by PHA in Brimbank, 2016/17**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	153	22.1	1.27
Cairnlea	30	13.2	0.76
Deer Park - Derrimut	96	13.5	0.78
Delahey	22	14.6	0.84
Keilor	23	15.5	0.89
Keilor Downs	36	15.4	0.89
St Albans - North/ Kings Park	119	18.1	1.04
St Albans - South/ Sunshine North	122	22.7	1.30
Sydenham	35	14.5	0.83
Taylors Lakes	37	13.8	0.79
<b>Brimbank</b>	<b>673</b>	<b>17.4</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 1,000 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

### 15 years of age and over

Hospitalisation rates for ACSCs of people aged 15 years and over were substantially higher than those for the 0 to 14 age group and are markedly different between the time periods. While rates in the 0 to 14 age group have decreased markedly, there has been a small increase for those aged 15 years and over (Table 55). The rate in Brimbank is comparable with that in Australia and the other comparators.

**Table 55: ACSCs for people aged 15 years and over, Brimbank and comparators, 2011/12 and 2016/17**

Region	No.	Rate*	RR#
<b>2011/12</b>			
<b>Brimbank</b>	<b>5,086</b>	<b>30.3</b>	<b>1.08</b>
Melbourne SD	111,327	27.8	0.99
Victoria	155,829	28.1	1.00
Australia	..	..	..
<b>2016/17</b>			
<b>Brimbank</b>	<b>4,992</b>	<b>32.2</b>	<b>1.00</b>
Greater Melbourne	117,855	32.2	1.00
Victoria	156,845	31.3	0.98
Australia	629,339	32.1	1.00

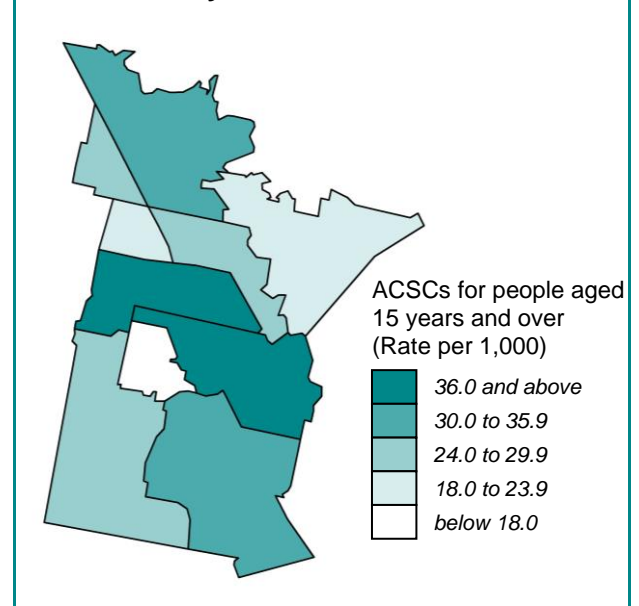
\*Indirectly age-standardised rate per 1,000 population

#RR is the ratio of the rate in the area to the rate for Victoria (as the Australian data were not available to the project in 2011/12)

The distribution at the PHA level is similar to that seen for the 0 to 14 age group, with the highest rates in St Albans - South/ Sunshine North (40.0 admissions per 1,000 population, and 24% above the Brimbank rate), St Albans - North/ Kings Park (36.8, and 14% above) and Ardeer - Albion/ Sunshine/ Sunshine West (34.4, 7% above) (Map 28 and Table 56). Cairnlea, Keilor and Delahey all had rates that were less than three quarters of the Brimbank rate.

The conditions driving these high rates of hospitalisation in Brimbank are also the conditions that are the most prevalent in Australia overall, namely diabetes type 2, chronic obstructive pulmonary disease and angina.

**Map 28: ACSCs for people aged 15 years and over, by PHA in Brimbank, 2016/17**



**Table 56: ACSCs for people aged 15 years and over, by PHA in Brimbank, 2016/17**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	1,043	34.4	1.07
Cairnlea	93	16.1	0.50
Deer Park - Derrimut	471	27.9	0.87
Delahey	141	23.0	0.71
Keilor	195	22.7	0.70
Keilor Downs	337	29.5	0.92
St Albans - North/ Kings Park	1,038	36.8	1.14
St Albans - South/ Sunshine North	1,001	40.0	1.24
Sydenham	259	29.5	0.92
Taylors Lakes	414	30.2	0.94
<b>Brimbank</b>	<b>4,992</b>	<b>32.2</b>	<b>1.00</b>

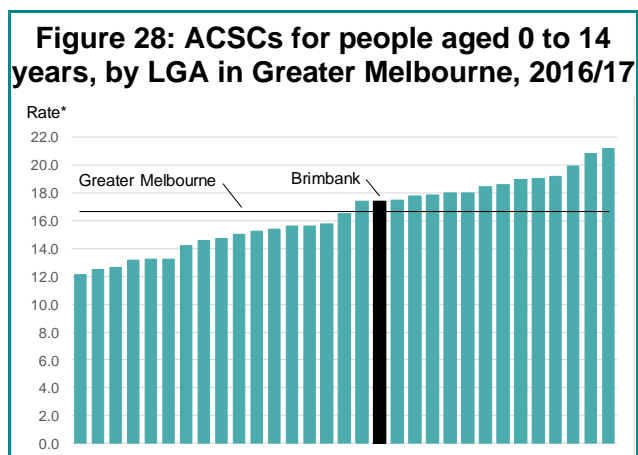
\*Indirectly age-standardised rate per 1,000 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

## Regional comparisons

### 0 to 14 years of age

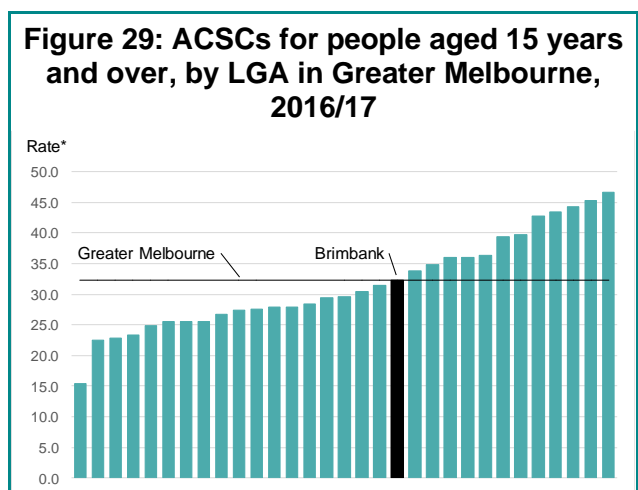
Brimbank had an admission rate for children 0 to 14 years hospitalised for ACSCs in 2016/17 that was just above the Greater Melbourne average (Figure 28).



\*Indirectly age-standardised rate per 1,000 population

### 15 years of age and over

The hospitalisation rate for the 15 year and over age group in Brimbank was the same as the Greater Melbourne rate (Figure 29).



\*Indirectly age-standardised rate per 1,000 population

## Correlations

### 0 to 14 years of age

There are moderate correlations at the PHA level in Greater Melbourne between this indicator and relatively high levels of unemployment (at all ages and for young people), children living in jobless families, children in families where the mother had low educational attainment, and people living in overcrowded dwellings.

### 15 years of age and over

There was a strong correlation at the PHA level in Greater Melbourne between this indicator and other indicators of socioeconomic disadvantage. These were most evident for children living in jobless families and those where the mother had low educational attainment, humanitarian migrants, unemployment and people working as labourers. Strong inverse correlations were also found between this indicator and young adults learning or earning, people working as managers or professionals and people who had participated in voluntary work.

Strong correlations were also found with the education indicator for people having left school early (i.e., completed Year 10 or below, or did not go to school). There were also relatively few children on track in the language and cognitive skills domain of the AEDC (a strong inverse correlation).

In the area of health and wellbeing, there were strong correlations between this indicator and people reporting their health as fair or poor; high or very high psychological distress; estimated prevalence of diabetes type 2; male and female smokers; and obese males and females (the estimates for these indicators are modelled estimates).

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Victorian Department of Health (VDH). Victorian Ambulatory Care Sensitive Conditions study. [Website]. At <http://www.health.vic.gov.au/healthstatus/admin/acsc/> (accessed 17 April 2014).

## Modelled estimates

The following pages show the estimated prevalence of a number of important indicators of the population's health at the PHA level in Brimbank. These estimates, produced from the Australian Health Survey 2014–15, are for self-assessed health status (reported as 'fair' or 'poor'), psychological distress (reported as 'high' or 'very high'), diabetes type 2, circulatory system diseases, and the health risk factors of smoking and obesity.

These data are not available at the PHA or other small area level from any administrative data source. In order to provide people working at the local and community level with credible estimates of the likely level of a condition or risk factor in their area, PHIDU contracted the Australian Bureau of Statistics to produce the estimates. Further details of the estimates, their production, limitations and the additional work undertaken by PHIDU to publish them in the form below, are available at <http://phidu.torrens.edu.au/notes-on-the-data/health-status-disability-deaths/modelled-estimates>

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

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.

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

*Self-assessed health status is commonly used as a proxy measure of actual health status; and how people rate their health is strongly related to their experience of illness and disability.<sup>1,2</sup> This measure is therefore an important indicator of key aspects of quality of life.<sup>3</sup>*

*Australians generally consider themselves to be healthy. In 2017–18, over half (56.4%) of Australians aged 15 years and over rated their health as 'very good' or 'excellent', while only 3.7% rated it as 'poor'.<sup>4</sup> Older Australians generally rated themselves as having poorer health than younger people, with persons aged 75–84 years and 85 years and over recording the highest proportions of fair or poor health, at 30.9% and 35.8% respectively.<sup>4</sup> There was little difference in the way men and women assessed their overall health, with men slightly more likely to report their health as fair or poor other than at ages 85 years and over, where almost one third more women than men reported poorer health.<sup>4</sup>*

**Indicator definition:** Estimated number of people aged 15 years and over who reported their health as 'fair' or as 'poor' (rather than as 'good', 'very good', or 'excellent'); expressed as an indirectly age-standardised rate per 100 population (aged 15 years and over). These data are modelled estimates.

### Key points

- The estimated number of people aged 15 years and over living in Brimbank reporting fair or poor health is relatively high when compared with the level in Australia; it is also the highest of any LGA in Greater Melbourne.
- All of the PHAs other than Keilor had rates which were above the Australian average.

### Geographic variation

In 2014–15, more than one in five (an estimated 21.2%) of the Brimbank population aged 15 years and over reported their health as being fair or poor, 43% above the Australian rate (Table 57). This represents a substantially greater disparity with the national rate than found in the earlier period.

**Table 57: Self-assessed health status reported as 'fair', or 'poor', Brimbank and comparators, 2007–08 and 2014–15**

Region	No.	Rate*	RR#
<b>2007–08</b>			
<b>Brimbank</b>	<b>24,855</b>	<b>18.2</b>	<b>1.24</b>
Melbourne SD	412,535	13.5	0.91
Victoria	579,040	13.5	0.92
Australia	2,508,879	14.7	1.00
<b>2014–15</b>			
<b>Brimbank</b>	<b>32,864</b>	<b>21.2</b>	<b>1.43</b>
Greater Melbourne	530,630	15.1	1.02
Victoria	730,022	15.6	1.05
Australia	2,753,437	14.8	1.00

\*Indirectly age-standardised rate per 100 population  
#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

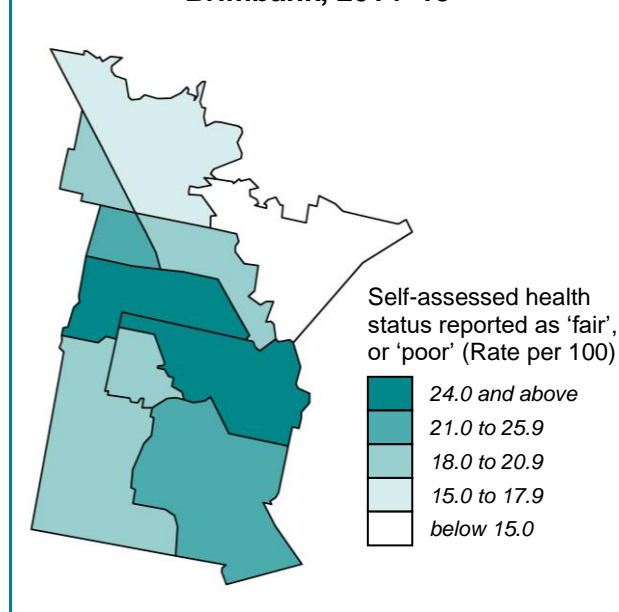
Those most likely to report their health as fair or poor, rather than as 'good', 'very good', or 'excellent', were living in St Albans - North/ Kings Park (25.1 people per 100 population) and St Albans - South/ Sunshine North (24.0 people per 100 population). Rates above the Australian rate were also estimated for

Delahey (22.5 people per 100 population) and Ardeer - Albion/ Sunshine/ Sunshine West (22.2 people per 100 population).

Only in Keilor, with 13.6 people per 100 population reporting poorer health, was the rate estimated to be below the national or Greater Melbourne averages.

That these rates are so much higher than the national rate indicates that the health of people living in these areas should be of concern.

**Map 29: Self-assessed health status reported as 'fair', or 'poor', by PHA in Brimbank, 2014–15**





The populations of Keilor (13.6 people per 100 population) and Taylors Lakes (15.2 people per 100 population) had the lowest rates at the PHA level, of 36% and 28%, respectively below the Brimbank average.

**Table 58: Self-assessed health status reported as 'fair', or 'poor', by PHA in Brimbank, 2014–15**

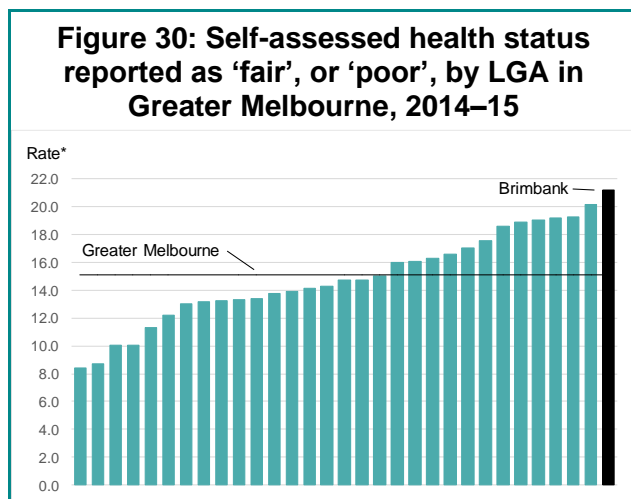
PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	6,438	22.2	1.05
Cairnlea	1,353	19.4	0.92
Deer Park - Derrimut	3,767	20.7	0.98
Delahey	1,480	22.5	1.06
Keilor	1,111	13.6	0.64
Keilor Downs	2,305	20.1	0.95
St Albans - North/ Kings Park	7,056	25.1	1.19
St Albans - South/ Sunshine North	5,570	24.0	1.13
Sydenham	1,465	18.1	0.85
Taylors Lakes	2,319	15.2	0.72
<b>Brimbank</b>	<b>32,864</b>	<b>21.2</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

## Regional comparisons

The estimated rate of fair or poor health for residents of Brimbank aged 15 years and over was ranked highest among Greater Melbourne's LGAs (Figure 30).



## Correlations

There was a very strong correlation at the PHA level in Greater Melbourne between this indicator and many indicators of socioeconomic disadvantage: for children living in jobless families, and in families where the mother has low educational attainment, people working as labourers, adult unemployment, people aged 15 years and over

living with disability, households where no one accessed the Internet, and people living in overcrowded dwellings. A very strong inverse correlations was evident for voluntary work.

Strong correlations were also found with a number of the indicators of education and child development, in particular with children being developmentally on track in the physical health and wellbeing and language and cognitive skills domains under the AEDC. A strong correlation was therefore apparent for children developmentally vulnerable in one or more domains under the AEDC. A very strong inverse correlation was evident for young people earning or learning.

For the health and wellbeing indicators, there were very strong correlations between this indicator and high or very high psychological distress, female smokers, and the estimated prevalence of diabetes type 2 (the estimates for these indicators are modelled estimates). Strong correlations were apparent for rates of hospitalisations for ambulatory care-sensitive conditions for people aged 15 years and over, indicating relatively poorer access to adequate and timely primary health care.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

## References

1. Australian Bureau of Statistics (ABS). – Profiles of health, Australia, 2011-13. (ABS Cat. no. 4338.0). Canberra: ABS, 2013.
2. Doiron D, Fiebig DG, Johar M, Suziedelyte A. Does self-assessed health measure health? Sydney, NSW: UTS, 2014.
3. McCallum J, Shadbolt B, Wang D. Self-rated health and survival: a seven-year follow-up study of Australian elderly. *Am J Public Health* 1994; 84(7): 1100-1105.
4. Australian Bureau of Statistics (ABS). - National Health Survey: First Results, 2017-18. (ABS Cat. no. 4364.0.55.00). Canberra: ABS, 2018.

## Prevalence of diabetes type 2

*Diabetes is a serious complex condition which can affect the entire body. Diabetes requires daily self care and, if complications develop, can have a significant impact on quality of life and can reduce life expectancy. The three main types of diabetes are type 1, type 2 and gestational diabetes: type 2 diabetes, as described below, is one of the major consequences of the obesity epidemic. The combination of massive changes to diet and the food supply, combined with massive changes to physical activity with more sedentary work and less activity, means most populations are seeing more type 2 diabetes.<sup>1</sup>*

*Aboriginal and Torres Strait Islander people and others who are socioeconomically disadvantaged are at higher risk of developing diabetes type 2 and have much greater hospitalisation and death rates from diabetes than other Australians.<sup>2</sup>*

**Indicator definition:** Estimated number of people who reported having diabetes type 2, and who confirmed that a doctor, nurse or other health professional had told them they had the condition; expressed as an indirectly age-standardised rate per 100 population aged two years and over. These data are modelled estimates.

Note: Data for 2014–15 include cases irrespective of whether the person considered their diabetes to be current or long-term; for 2007–08, persons who had reported having diabetes, but that it was not current, were not included.

### Key points

- Relatively more people in Brimbank aged 18 years and over were estimated to have diabetes type 2, when compared with Australia overall; Brimbank also had the fourth highest rate of all LGAs in Greater Melbourne.
- The distribution at the PHA level of the adult population in Brimbank estimated to have high rates of type 2 diabetes closely resembles the pattern of socioeconomic disadvantage, as shown above by the IRSD and other indicators.

## Geographic variation

The estimated prevalence of diabetes type 2 among the population of Brimbank in 2014–15 was markedly higher than in Australia overall, with a rate of 5.9 per 100 people, or 36% above the national rate (Table 59). The comparator shown below for 2007–08 is from an earlier survey where this condition was self-reported, albeit under a more limited definition (see Note, above) which is likely to have impacted on the number of people shown as having diabetes.

**Table 59: Prevalence of diabetes type 2, Brimbank and comparators, 2007–08 and 2014–15**

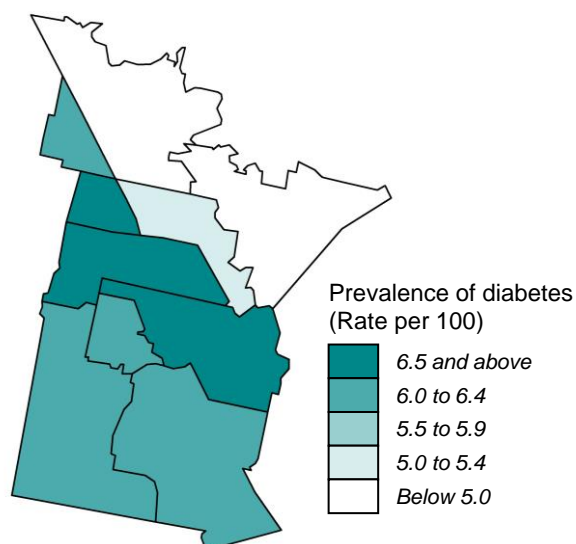
Region	No.	Rate*	RR#
<b>2007–08</b>			
<b>Brimbank</b>	<b>6,125</b>	<b>3.8</b>	<b>1.10</b>
Melbourne SD	124,447	3.4	0.99
Victoria	180,243	3.4	1.00
Australia	721,276	3.4	1.00
<b>2014–15</b>			
<b>Brimbank</b>	<b>10,921</b>	<b>5.9</b>	<b>1.36</b>
Greater Melbourne	190,872	4.6	1.06
Victoria	265,117	4.6	1.06
Australia	1,002,371	4.4	1.00

\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

The rate in Brimbank, and the difference from the national rate are, however, smaller than shown in the first edition (for 2011–12, when the rate in Brimbank was estimated to be 63% above the national rate), for which estimates were based on blood samples. The data for the earlier period are available at <https://tinyurl.com/yyy4race>.

**Map 30: Prevalence of diabetes type 2, by PHA in Brimbank, 2014–15**



St Albans - North/ Kings Park (with 6.7 people per 100 population estimated to have diabetes type 2) had the highest rate when compared with the rate in Brimbank overall. Elevated rates were estimated for people in a number of other PHAs, the highest being in Delahey and St Albans - South/ Sunshine North (both 6.5%) (Map 30 and Table 60).

Only Keilor had a rate below the national average, while people in Taylors Lakes were estimated to be at the national average for the prevalence of diabetes type 2.

**Table 60: Prevalence of diabetes type 2, by PHA in Brimbank, 2014–15**

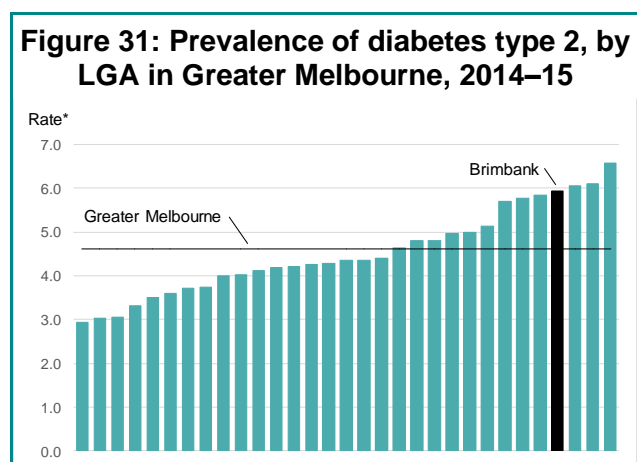
PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	2,133	6.2	1.04
Cairnlea	435	6.1	1.03
Deer Park - Derrimut	1,222	6.4	1.08
Delahey	489	6.5	1.10
Keilor	426	3.7	0.63
Keilor Downs	754	5.2	0.87
St Albans - North/ Kings Park	2,340	6.7	1.12
St Albans - South/ Sunshine North	1,841	6.5	1.09
Sydenham	477	6.0	1.02
Taylors Lakes	804	4.4	0.74
<b>Brimbank</b>	<b>10,921</b>	<b>5.9</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

## Regional comparisons

The estimated rate of diabetes type 2 for residents aged 18 years and over in Brimbank is considerably above the average for Greater Melbourne, with Brimbank ranked fourth highest among Greater Melbourne’s LGAs, after Greater Dandenong (6.6%) and Hume and Melton (both 6.1%) (Figure 31).



## Correlations

There are very strong correlations at the PHA level in Greater Melbourne between this indicator and many other indicators of socioeconomic disadvantage. These were most evident with high proportions of children living in jobless families, and in families where the mother has low educational attainment, adult unemployment and people working as labourers. Strong correlations were found for long term residents born in NES countries, people born overseas reporting poor proficiency in English, humanitarian migrants, youth unemployment and households where no one accessed the Internet. Very strong inverse correlations were also found with high proportions of the population involved in learning or earning, voluntary work and people working as managers or professionals.

Very strong inverse correlations were also found with people having a bachelor’s degree or higher, and children who were developmentally on track in the language and cognitive skills domains under the AEDC. Not surprisingly, given these findings, relatively more children were developmentally vulnerable on one or more domains under the AEDC and more people left school at an early age (Year 10 or below, or did not go to school).

With respect to health and wellbeing indicators, there were very strong correlations with people reporting their health as fair or poor, high or very high psychological distress; and obesity (the estimates for these indicators are modelled estimates). A strong correlation was recorded with hospitalisations for ambulatory care-sensitive conditions for people aged 15 years and over, indicating relatively poorer access to adequate and timely primary health care.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Diabetes Australia, 2018, What is diabetes?, <<https://www.diabetesaustralia.com.au/what-is-diabetes>>; Accessed 4 March 2019.
2. Australian Bureau of Statistics (ABS). Profiles of health, Australia, 2011-13. (ABS Cat. no. 4338.0). Canberra: ABS, 2013.

## Prevalence of circulatory system diseases

The heart, blood and blood vessels make up the circulatory system. The leading conditions contributing to circulatory system disease burden and mortality are hypertension (high blood pressure), stroke, and ischaemic heart disease (coronary heart disease). These diseases are mainly caused by a damaged blood supply to the heart, brain and/or limbs, and share a number of risk factors. Behavioural risk factors, such as poor diet and tobacco smoking, contribute significantly to the likelihood of developing a circulatory system disease. Circulatory system diseases are also largely age-related.

In 2017–18, 16.6% of Australians (or just over 4 million people) reported having a disease of the circulatory system.<sup>1</sup> Indigenous Australians, people of lower socioeconomic status, males over the age of 45 years, and males living in rural and remote areas are at increased risk for developing and dying from circulatory system diseases.<sup>2</sup> Hypertension accounted for almost two thirds (63.6%) of these conditions; and heart, stroke and vascular diseases for a further 28.8%.<sup>1</sup>

**Indicator definition:** Estimated number of people aged two years and over who reported that they had heart or circulatory conditions, and who confirmed that a doctor, nurse or other health professional had told them they had the condition; expressed as an indirectly age-standardised rate per 100 population aged two years and over. These data are modelled estimates.

### Key points

- The prevalence of circulatory system diseases for people living in Brimbank was estimated to be at a similar level to that in Australia overall.
- There is little variation in the prevalence of circulatory system diseases at the PHA level in the City, other than for the higher rates estimated for Deer Park - Derrimut and Cairnlea.

## Geographic variation

The estimated prevalence of circulatory system diseases in 2014–15 for people aged two years and over living in Brimbank, a rate of 18.6 per 100 population, is slightly above the national rate and the rate for Greater Melbourne (Table 61).

**Table 61: Prevalence of circulatory system diseases, Brimbank and comparators, 2007–08 and 2014–15**

Region	No.	Rate*	RR#
<b>2007–08</b>			
<b>Brimbank</b>	<b>29,459</b>	<b>17.9</b>	<b>1.11</b>
Melbourne SD	635,105	17.0	1.06
Victoria	915,371	17.3	1.08
Australia	3,383,308	16.0	1.00
<b>2014–15</b>			
<b>Brimbank</b>	<b>34,614</b>	<b>18.6</b>	<b>1.02</b>
Greater Melbourne	769,206	18.2	1.00
Victoria	1,068,498	18.6	1.02
Australia	4,196,970	18.3	1.00

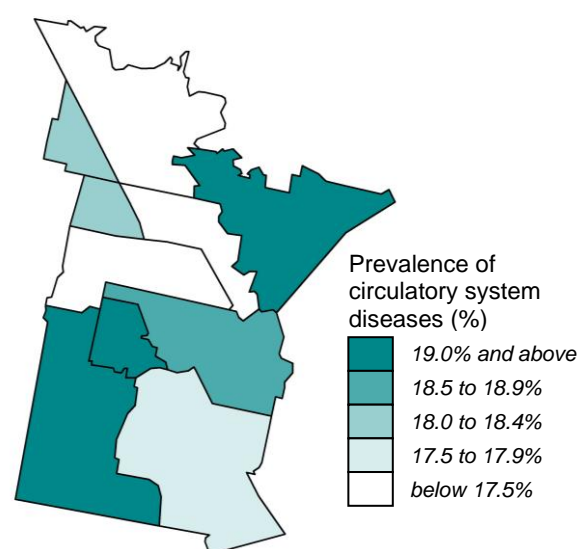
\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

There is little variation in the prevalence of circulatory system diseases at the PHA level in Brimbank, other than for the markedly higher rates in Deer Park - Derrimut (23 people per 100 population, 23% above the Brimbank average) and Cairnlea (22.4 per 100 population, 20% above) (and Table 62).

None of the rates was below the Brimbank average by more than 8%.

**Map 31: Prevalence of circulatory system diseases, by PHA in Brimbank, 2014–15**



**Table 62: Prevalence of circulatory system diseases, by PHA in Brimbank, 2014–15**

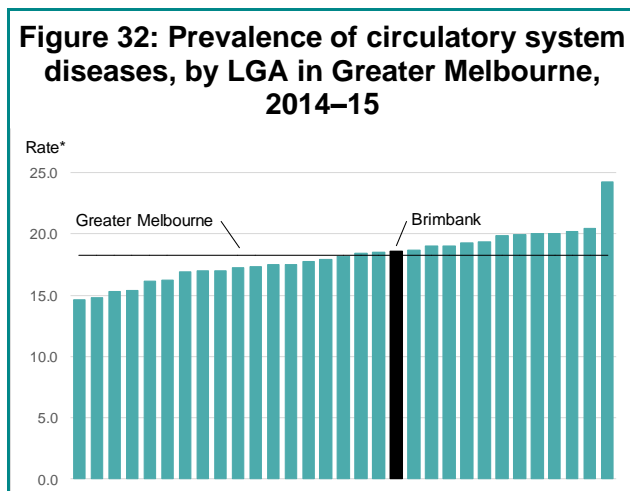
PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	6,137	17.5	0.94
Cairnlea	1,703	22.4	1.20
Deer Park - Derrimut	4,675	23.0	1.23
Delahey	1,396	18.3	0.98
Keilor	2,116	19.3	1.04
Keilor Downs	2,451	17.2	0.93
St Albans - North/ Kings Park	6,052	17.4	0.93
St Albans - South/ Sunshine North	5,394	18.9	1.02
Sydenham	1,558	18.1	0.97
Taylors Lakes	3,132	17.1	0.92
<b>Brimbank</b>	<b>34,614</b>	<b>18.6</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

## Regional comparisons

For people aged two years and over, the estimated rate of circulatory system diseases in Brimbank is just above the average for Greater Melbourne’s LGAs (Figure 32).



## Correlations

There are strong and moderate correlations at the PHA level in Greater Melbourne between this indicator and other indicators of socioeconomic disadvantage.

These were most evident with the indicators for high rates of children living in families with mothers with low educational attainment, people working as labourers, and people aged 15 years and over living with disability. A strong inverse correlation was present for people working as managers or professionals.

With respect to indicators of education and child development, there was a moderate correlation for early school leavers.

Conversely, a strong inverse correlation was found with the highest level of education being a bachelor’s degree or higher.

With respect to health and wellbeing indicators, there was a strong correlation with adult obesity, and moderate correlations with women smoking in pregnancy, high or very high psychological distress, estimates of diabetes type 2 and male and female smokers (the estimates for these indicators, other than for women smoking in pregnancy, are modelled estimates). A moderate correlation with hospitalisations for ambulatory care-sensitive conditions for people aged 15 years and over is likely to indicate relatively poorer access to adequate and timely primary health care.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Australian Bureau of Statistics (ABS). Australian Health Survey: Health service usage and health related actions, 2017-18. (ABS Cat. no. 4364055001DO003). Canberra: ABS, 2018.
2. Australian Institute of Health and Welfare (AIHW). Socioeconomic inequalities in cardiovascular disease in Australia: current picture and trends since 1992. (AIHW Cat. no. AUS 74.) Canberra: AIHW, 2006.

## Psychological distress

*Mental health is fundamental to the wellbeing of individuals, their families and the population as a whole. One indication of the mental health and wellbeing of a population is provided by measuring levels of psychological distress using the Kessler Psychological Distress Scale-10 items (K10). The K10 questionnaire is a scale of non-specific psychological distress based on ten questions about negative emotional states in the four weeks prior to interview, asked of respondents 18 years and over.<sup>1</sup> Based on previous research, a very high K10 score may indicate a need for professional help.<sup>2</sup>*

*In 2017-18, 60.8% of Australians aged 18 years and over experienced a low level of psychological distress according to the K10: this was down from 70.1% in 2011-12. Around one in eight (13.0%) experienced 'high' or 'very high' levels of psychological distress, up from 12.0% in 2007-08 and 12.6% in 2001.<sup>3</sup> Proportionally more females than males experienced 'high' or 'very high' psychological distress in 2017-18 (14.5% and 11.3% respectively).<sup>3</sup>*

**Indicator definition:** Estimated number of people aged 18 years and over who were assessed as having 'high' or 'very high' levels of psychological distress, based on their responses to the Kessler Psychological Distress Scale-10 items (K10) questionnaire; expressed as an indirectly age-standardised rate per 100 population aged 18 years and over. These data are modelled estimates.

### Key points

- The estimated rate of people aged 18 years and over living in Brimbank reporting high or very high psychological distress was markedly above the Australian rate.
- The majority of the PHAs in Brimbank were also estimated to have rates of high or very high psychological distress that were above the national rate of 11.7%, with a number that were substantially above.

## Geographic variation

Almost one in every six people in Brimbank was estimated to experience high or very high psychological distress, 36% above the Australian rate; the rate in Greater Melbourne overall was lower (Table 63).

**Table 63: High or very high psychological distress, Brimbank and comparators, 2011-12 and 2014-15**

Region	No.	Rate*	RR#
<b>2011-12</b>			
<b>Brimbank</b>	<b>20,180</b>	<b>13.3</b>	<b>1.23</b>
Melbourne SD	368,249	11.2	1.04
Victoria	493,410	11.4	1.06
Australia	1,833,807	10.8	1.00
<b>2014-15</b>			
<b>Brimbank</b>	<b>24,567</b>	<b>15.9</b>	<b>1.36</b>
Greater Melbourne	429,127	12.3	1.05
Victoria	564,408	12.5	1.07
Australia	2,073,829	11.7	1.00

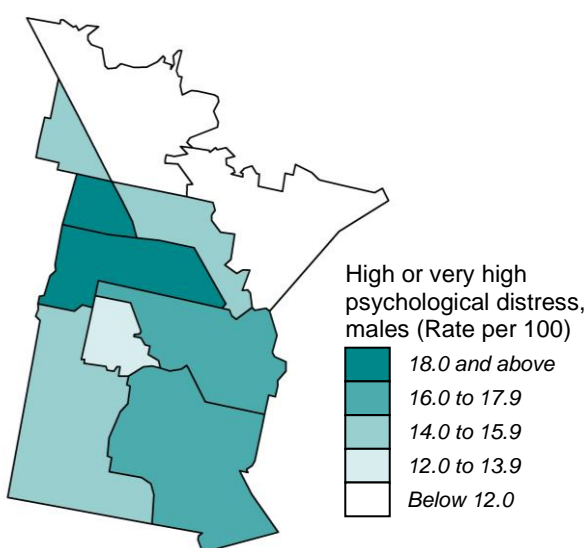
\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

Rates of high or very high psychological distress markedly above the Brimbank rate are those living in the PHAs of St Albans - North/ Kings Park (19.2 people per 100 population) and Delahey (18.2) (Map 32 and Table 64).

Rates in St Albans - South/ Sunshine North (17.7 people per 100 population) and Ardeer - Albion/ Sunshine/ Sunshine West (16.3) were also above the Brimbank rate.

**Map 32: High or very high psychological distress, by PHA in Brimbank, 2014-15**



Of the areas with relatively low rates, the lowest are in Keilor (10.2 people per 100 population), Taylors Lakes (11.4 people per 100 population), and Cairnlea (13.6 people per 100 population), each of which have rates of 14% or more below the Brimbank average.

**Table 64: High or very high psychological distress, by PHA in Brimbank, 2014–15**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	4,644	16.3	1.03
Cairnlea	1,048	13.6	0.86
Deer Park - Derrimut	3,141	15.9	1.00
Delahey	1,244	18.2	1.14
Keilor	707	10.2	0.64
Keilor Downs	1,532	14.0	0.88
St Albans - North/ Kings Park	5,103	19.2	1.21
St Albans - South/ Sunshine North	3,931	17.7	1.11
Sydenham	1,465	15.6	0.98
Taylors Lakes	1,752	11.4	0.72
<b>Brimbank</b>	<b>24,567</b>	<b>15.9</b>	<b>1.00</b>

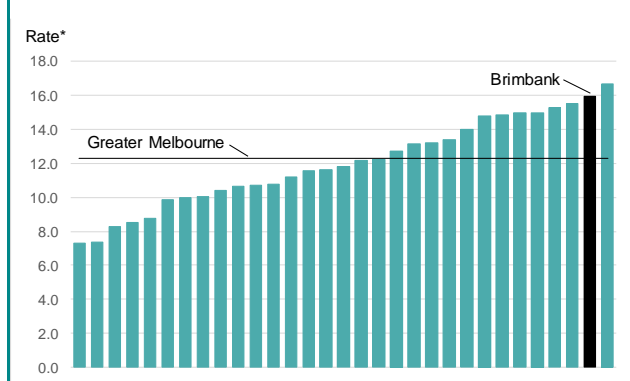
\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

### Regional comparisons

The level of high or very high psychological distress among people aged 18 years and over living in Brimbank was well above the average for Greater Melbourne LGAs, and second only to the rate of 16.7 people per 100 population in Greater Dandenong (Figure 33).

**Figure 33: High or very high psychological distress, by LGA in Greater Melbourne, 2014–15**



### Correlations

Correlations with the estimated prevalence of high or very high psychological distress were very strong with the rates of children living in jobless families, children in families with mothers with low educational attainment, unemployment, people working as labourers and households where no one accessed the Internet. There were very strong inverse correlations with people working as managers or professionals, young people learning or earning and with people undertaking voluntary work.

Very strong correlations were also found with indicators of education and child development, in particular the high rates of early school leavers. Under the AEDC, relatively fewer children were on track in the language and cognitive skills domains; and relatively more were vulnerable on one or more domains.

For the health and wellbeing indicators, there were very strong correlations between this indicator and people reporting fair or poor health, the estimated prevalence of diabetes type 2, male and female smokers, and adult obesity (the estimates for these indicators are modelled estimates). Strong correlations were apparent for rates of hospitalisations for ambulatory care-sensitive conditions for people aged 15 years and over, indicating relatively poorer access to adequate and timely primary health care.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

### References

1. Coombs T. Australian Mental Health Outcomes and Classification Network: Kessler-10 Training Manual. Sydney: NSW Institute of Psychiatry, 2005.
2. Australian Bureau of Statistics (ABS). National health survey: users' guide - electronic publication, 2007-08. (ABS Cat. no. 4364.0). Canberra: ABS, 2009.
3. Australian Bureau of Statistics (ABS). - National Health Survey: First Results, 2017-18 (ABS Cat. no. 4364.0.55.001). Canberra: ABS, 2019.

## Smoking

Tobacco remains the leading cause of preventable death and disability in Australia, with smoking estimated to kill almost 19,000 Australians a year. It is associated with an increased risk of a wide range of health conditions, including; heart disease, diabetes, stroke, cancer, renal disease, eye disease and respiratory conditions such as asthma, emphysema and bronchitis. In 2017-18, the National Health Survey estimated that just under one in seven (13.8%) or 2.6 million adults were daily smokers, while a further 1.4% of people also reported smoking, they did so on a less than daily basis.<sup>2</sup> The negative effects of passive smoking indicate that the risks to health of smoking affect more than just the smoker. Passive smoking increases the risk of heart disease, asthma, and some cancers. It may also increase the risk of Sudden Infant Death Syndrome (SIDS) and may predispose children to allergic sensitisation.<sup>3</sup> Rates of smoking differ between males and females and across age groups; and between 2001 and 2017-18, overall rates of smoking decreased for both males and females. In 2017-18, 16.5% of males and 11.1% of females aged 18 years and over were current smokers.<sup>2</sup>

**Indicator definition:** Estimated number of people aged 18 years and over who reported being a current smoker; expressed as an indirectly age-standardised rate per 100 population aged 18 years and over. These data are modelled estimates.

### Key points

- One in five adult males and one in seven females in Brimbank are estimated to be current smokers, representing rates which are 6% higher and 8% higher, respectively than the national rate.
- Variations in smoking rates at the PHA level for both males and females follow the pattern of socioeconomic disadvantage, as shown above.

## Geographic variation

### Males

One fifth (20.0%) of the male population in Brimbank aged 18 years and over was estimated to smoke cigarettes, of whom most smoked daily (Table 65). The rate of 20 male smokers per 100 population in 2014-15 is closer to the national average rate than in 2007-08, with the rate in Brimbank estimated to have declined more than for Australia (down by 20% and 16%, respectively).

**Table 65: Male smokers, Brimbank and comparators, 2007-08 and 2014-15**

Region	No.	Rate*	RR#
<b>2007-08</b>			
<b>Brimbank</b>	<b>17,341</b>	<b>24.9</b>	<b>1.11</b>
Melbourne SD	313,924	21.0	0.94
Victoria	435,529	21.9	0.98
Australia	1,779,203	22.4	1.00
<b>2014-15</b>			
<b>Brimbank</b>	<b>15,448</b>	<b>20.0</b>	<b>1.06</b>
Greater Melbourne	294,306	17.1	0.91
Victoria	400,742	18.4	0.97
Australia	1,646,784	18.9	1.00

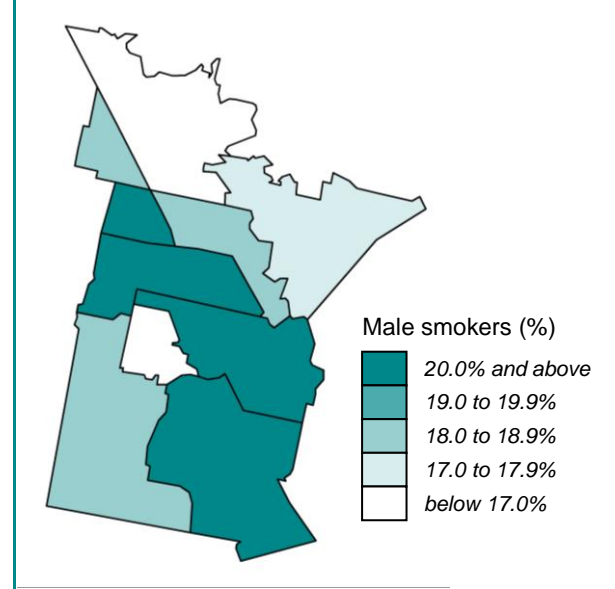
\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

St Albans - North/ Kings Park (with 23.1 male smokers per 100 population) had the highest rate at the PHA level in Brimbank – a rate that was 16% above the Brimbank average (Map 33 and Table 66). St Albans - South/ Sunshine North (21.6), Delahey (21.3) and Ardeer - Albion/ Sunshine West (21.1) also had rates above the average for Brimbank.

Taylors Lakes and Cairnlea had the lowest rates, with 15.9 and 16.4 male smokers per 100 population, respectively.

**Map 33: Male smokers, by PHA in Brimbank, 2014-15**





**Table 66: Male smokers, by PHA in Brimbank, 2014–15**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	3,199	21.1	1.06
Cairnlea	638	16.4	0.82
Deer Park - Derrimut	1,999	18.7	0.93
Delahey	698	21.3	1.07
Keilor	538	17.3	0.87
Keilor Downs	941	18.5	0.92
St Albans - North/ Kings Park	3,038	23.1	1.16
St Albans - South/ Sunshine North	2,350	21.6	1.08
Sydenham	898	18.5	0.93
Taylors Lakes	1,149	15.9	0.79
<b>Brimbank</b>	<b>15,448</b>	<b>20.0</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

### Females

The female smoking rate is markedly (28%) lower than the male rate, with 14.4 females aged 18 years and over per 100 population in Brimbank estimated to smoke cigarettes (Table 67). This rate is just (8%) above that in Greater Melbourne, a larger disparity than estimated in 2007–08.

**Table 67: Female smokers, Brimbank and comparators, 2007–08 and 2014–15**

Region	No.	Rate*	RR#
<b>2007–08</b>			
<b>Brimbank</b>	<b>13,184</b>	<b>18.7</b>	<b>1.02</b>
Melbourne SD	258,651	16.7	0.92
Victoria	367,910	17.8	0.98
Australia	1,495,094	18.2	1.00
<b>2014–15</b>			
<b>Brimbank</b>	<b>11,258</b>	<b>14.4</b>	<b>1.08</b>
Greater Melbourne	212,337	11.8	0.89
Victoria	293,215	12.7	0.95
Australia	1,195,985	13.3	1.00

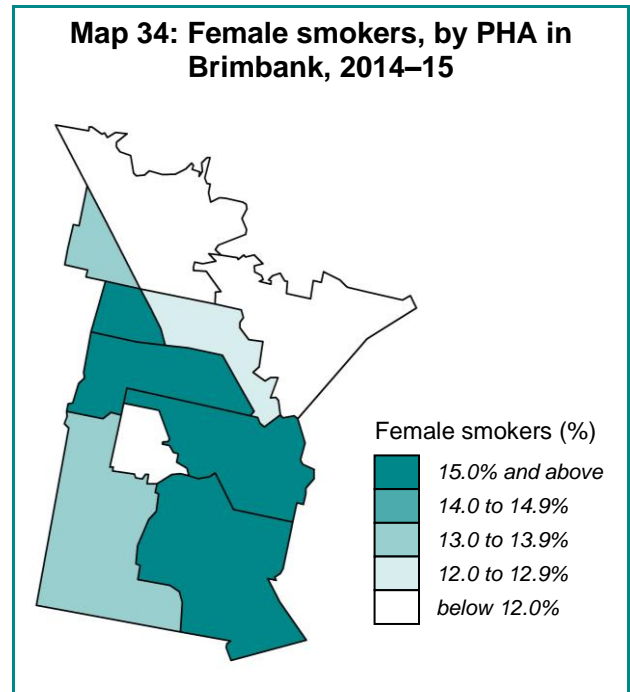
\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

The PHAs with smoking rates above the Brimbank average for females were the same as for males, with the highest estimated for St Albans - North/ Kings Park (17.2 female smokers per 100 population), St Albans - South/ Sunshine North (16.3), Ardeer - Albion/ Sunshine West (15.8) and Delahey (15.1) (Map 34 and Table 68).

Taylors Lakes had the lowest rate, with an estimated 10.0 female smokers per 100 population.

**Map 34: Female smokers, by PHA in Brimbank, 2014–15**



**Table 68: Female smokers, by PHA in Brimbank, 2014–15**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	2,155	15.8	1.10
Cairnlea	468	11.5	0.80
Deer Park - Derrimut	1,424	13.8	0.95
Delahey	547	15.1	1.05
Keilor	377	11.3	0.78
Keilor Downs	736	12.8	0.89
St Albans - North/ Kings Park	2,278	17.2	1.19
St Albans - South/ Sunshine North	1,806	16.3	1.13
Sydenham	671	13.3	0.92
Taylors Lakes	796	10.0	0.70
<b>Brimbank</b>	<b>11,258</b>	<b>14.4</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population

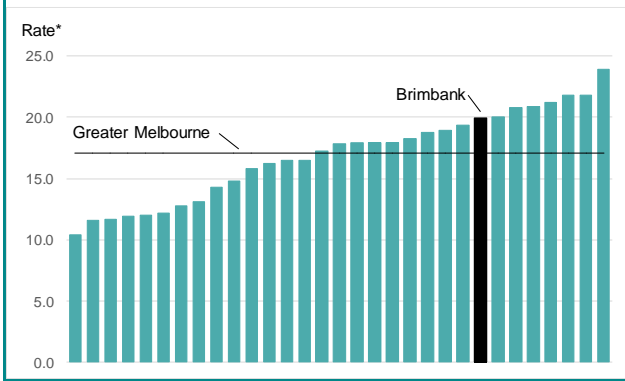
#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

## Regional comparisons

### Males

For males aged 18 years and over, the estimated rate of smoking in Brimbank is above the average for Greater Melbourne, with Brimbank ranked eighth among Greater Melbourne's LGAs (Figure 34, overleaf).

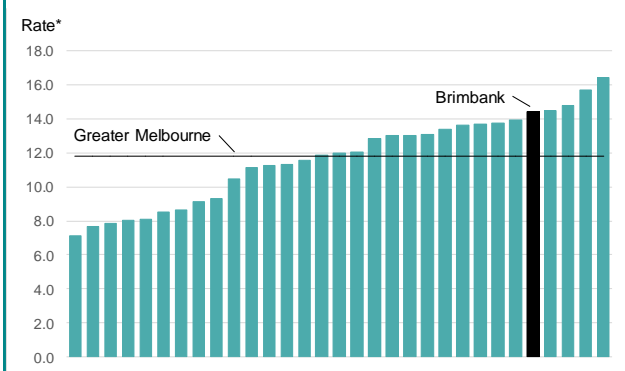
**Figure 34: Male smokers, by LGA in Greater Melbourne, 2014–15**



## Females

For females aged 18 years and over, the estimated rate of smoking in Brimbank is also above the average for Greater Melbourne’s LGAs, in this case ranked fourth (Figure 35).

**Figure 35: Female smokers, by LGA in Greater Melbourne, 2014–15**



## Correlations

There are different strength correlations for males and females at the PHA level in Greater Melbourne between this indicator and other indicators of socioeconomic disadvantage.

For male smokers, there were very strong correlations with children living in families where the mother has low educational attainment and early school leavers. Strong correlations were also found with children living in jobless families, people working as labourers, households where no one accessed the Internet, Aboriginal and Torres Strait Islander people, and people living with disability.

Strong or very strong correlations were also found with the indicators for high or very high psychological distress, women smoking in pregnancy, hospitalisations for ambulatory care-sensitive conditions, people reporting their health as fair or poor, estimated

prevalence of diabetes type 2, female smokers, and obesity (the estimates for a majority of these indicators are modelled estimates).

For female smokers, correlations were very strong with the rates of children in families with mothers with low educational attainment, early school leavers, people working as labourers, households where no one accessed the Internet and people living with disability. Very strong inverse correlations were found for people working as managers or professionals.

There were also very strong correlations with the health indicators for people reporting their health as fair or poor, high or very high psychological distress, male smokers, and adult obesity; and strong correlations with women smoking in pregnancy, estimated prevalence of diabetes type 2 and hospitalisations for ambulatory care-sensitive conditions.

For the education and child development indicators, very strong inverse correlations were present for both male and female smokers and young people learning or earning and highest level of education being a bachelor’s degree or higher. For male and female smokers, a very strong correlation was evident with early school leavers.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Australian Institute of Health and Welfare 2016. Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2011. Australian Burden of Disease Study series no. 3. BOD4. Canberra: AIHW. Available at: [www.aihw.gov.au/reports-statistics](http://www.aihw.gov.au/reports-statistics)
2. Australian Bureau of Statistics (ABS). National Health Survey: First results, 2017-18. (ABS Cat. no. 4364.0.55.001). Canberra: ABS, 2019.
3. National Public Health partnership (NPHP). National response to passive smoking in enclosed places and workplaces: a background paper. Canberra: NPHP, 2000.

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## Obesity

*Being obese has significant health, social and economic impacts, and is closely related to lack of exercise and to diet.<sup>1</sup> Obesity increases the risk of suffering from a range of health conditions, including coronary heart disease, type 2 diabetes, some cancers, knee and hip problems, and sleep apnoea.<sup>1</sup> In 2017–18, slightly more than a third (35.6%) of Australians over 18 years were overweight and slightly less than a third were obese (31.3%).<sup>2</sup> More men than women were overweight (42.0% of men compared with 29.6% of women) or obese (although the gap was much smaller, at 32.5% compared with 30.2%). The proportion of people who are obese has increased across all age groups over time, up from 18.7% in 1995 to 30.8% in 2017-18.<sup>2</sup>*

**Indicator definition:** Estimated number of people aged 18 years and over who were assessed as being obese, based on their measured height and weight; expressed as an indirectly age-standardised rate per 100 population aged 18 years and over. These data are modelled estimates.

Note: Obesity is classified as a Body Mass Index (BMI) of 30 and greater: the BMI was calculated from measured height and weight information and grouped to allow reporting against both the World Health Organization and the National Health and Medical Research Council guidelines.

### Key points

- Over one quarter of the male and female populations in Brimbank aged 18 years and over was estimated to be obese, reflecting rates which are 4% and 1%, respectively below the national rate.
- Variations in the rates of male and female obesity at the PHA level were generally within 10% of the Australian rate.

## Geographic variation

### Males

Over one quarter of the male population in Brimbank aged 18 years and over was estimated to be obese, a rate that is 4% below the national average, but notably (11%) above the level in Greater Melbourne (Table 69).

Although the data for Brimbank are modelled estimates, and not drawn from administrative data, the increase in the estimated rate of obesity from 2007–08 to 2014–15 is striking, at 49%; it is a slightly larger increase than the survey estimate for Australia, of 45%.

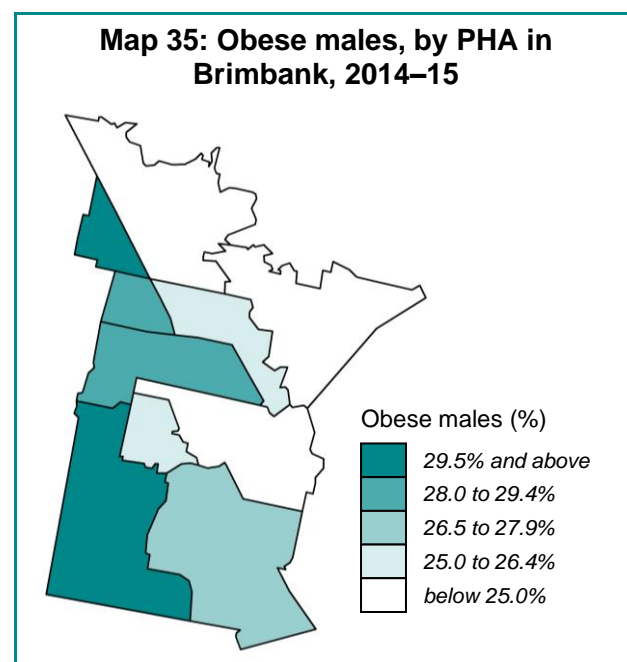
**Table 69: Obese males, Brimbank and comparators, 2007–08 and 2014–15**

Region	No.	Rate*	RR#
<b>2007–08</b>			
<b>Brimbank</b>	<b>12,288</b>	<b>18.3</b>	<b>0.93</b>
Melbourne SD	244,804	17.0	87
Victoria	355,824	18.0	92
Australia	1,558,360	19.6	100
<b>2014–15</b>			
<b>Brimbank</b>	<b>20,231</b>	<b>27.2</b>	<b>0.96</b>
Greater Melbourne	405,702	24.6	0.87
Victoria	572,250	26.3	0.93
Australia	2,474,286	28.4	1.00

\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

There are notable variations in the extent of obesity among males aged 18 years and over at the PHA level in Brimbank, with rates varying from 14% above to 10% below the average for Brimbank (Map 35 and Table 70). Deer Park – Derrimut and Sydenham had the highest rates of male obesity, with 31.0 and 30.2 obese males per 100 population, respectively. Rates in Delahey (28.4 obese males per 100 population), Keilor Downs (26.2%) St Albans - North/ Kings Park (28.3) and Ardeer - Albion/ Sunshine West (27.3) were also above the average for Brimbank.



The lowest rates were in Keilor (24.3 obese males per 100 population), St Albans - South/ Sunshine North (24.4) and Taylors Lakes (24.6).

**Table 70: Obese males, by PHA in Brimbank, 2014–15**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	3,865	27.3	1.00
Cairnlea	928	25.6	0.94
Deer Park - Derrimut	2,886	31.0	1.14
Delahey	901	28.4	1.05
Keilor	851	24.3	0.90
Keilor Downs	1,390	26.2	0.96
St Albans - North/ Kings Park	3,687	28.3	1.04
St Albans - South/ Sunshine North	2,597	24.4	0.90
Sydenham	1,294	30.2	1.11
Taylors Lakes	1,832	24.6	0.91
<b>Brimbank</b>	<b>20,231</b>	<b>27.2</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

### Females

Over one quarter (27.3%) of the female population in Brimbank aged 18 years and over in 2014–15 were estimated to be obese (Table 71). This was consistent with the Australian rate (27.5%).

Although the data are modelled estimates, and not drawn from administrative data, the increase in obesity of 52% from 2007–08 to 2014–15 is striking; it is, however, a notably smaller increase than seen for the survey estimate for Australia, of 68%.

**Table 71: Obese females, Brimbank and comparators, 2007–08 and 2014–15**

Region	No.	Rate*	RR#
<b>2007–08</b>			
<b>Brimbank</b>	<b>12,263</b>	<b>18.0</b>	<b>110</b>
Melbourne SD	233,172	15.5	94
Victoria	330,289	16.0	97
Australia	1,347,145	16.4	100
<b>2014–15</b>			
<b>Brimbank</b>	<b>20,762</b>	<b>27.3</b>	<b>0.99</b>
Greater Melbourne	433,986	24.9	0.91
Victoria	613,217	26.8	0.98
Australia	2,466,061	27.5	1.00

\*Indirectly age-standardised rate per 100 population

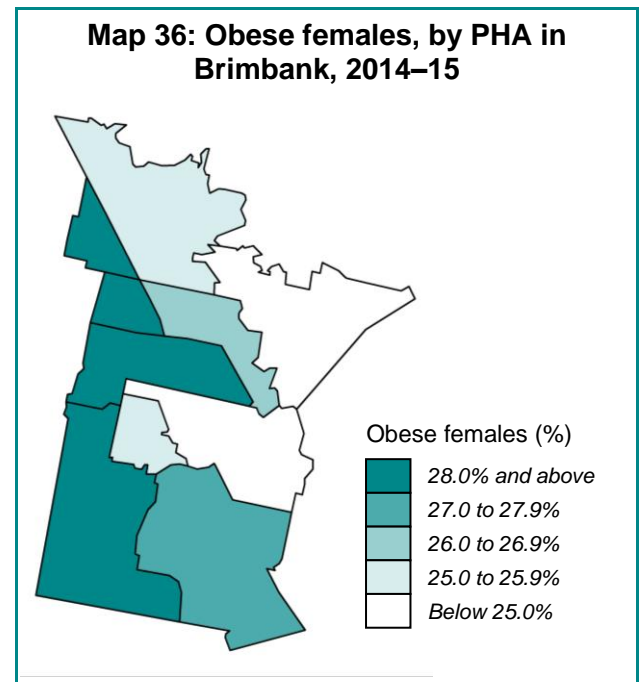
#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

Obesity among adult females varies at the PHA level in a similar way to that for males, with rates varying from 13% above to 11% below the average for Brimbank (Map 36 and Table 72).

Deer Park - Derrimut and Sydenham had the highest rates of female obesity, with 30.6 and

30.8 obese females per 100 population, respectively: these are similar to the rates estimated for males. Rates in St Albans - North/ Kings Park (28.5 obese females per 100 population) and Ardeer - Albion/ Sunshine West (27.7) were also above the average for Brimbank.

The lowest rates were estimated for St Albans - South/ Sunshine North (24.4 obese females per 100 population), Keilor (24.6), Cairnlea (25.1) and Taylors Lakes (25.3).



**Table 72: Obese females, by PHA in Brimbank, 2014–15**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	3,695	27.7	1.01
Cairnlea	925	25.1	0.92
Deer Park - Derrimut	2,886	30.6	1.12
Delahey	978	28.6	1.05
Keilor	926	24.6	0.90
Keilor Downs	1,531	26.5	0.97
St Albans - North/ Kings Park	3,820	28.5	1.04
St Albans - South/ Sunshine North	2,704	24.4	0.89
Sydenham	1,367	30.8	1.13
Taylors Lakes	1,930	25.3	0.92
<b>Brimbank</b>	<b>20,762</b>	<b>27.3</b>	<b>1.00</b>

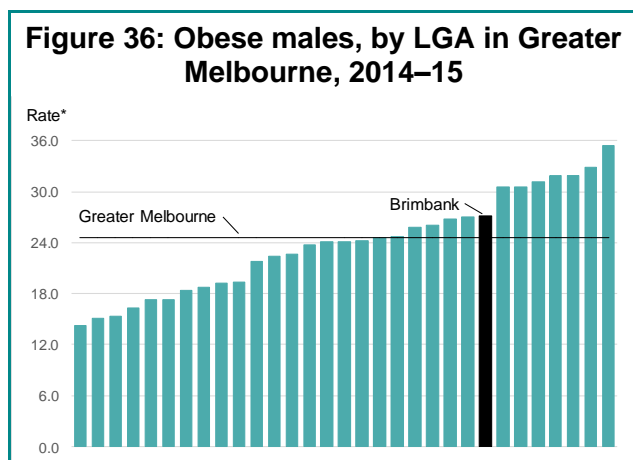
\*Indirectly age-standardised rate per 100 population

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

## Regional comparisons

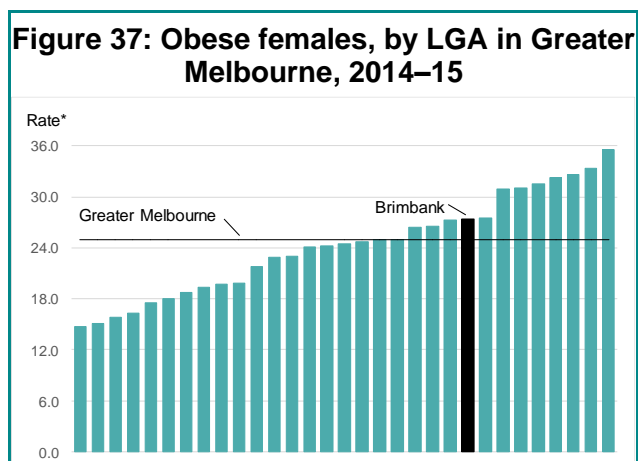
### Males

For males aged 18 years and over, the estimated rate of obesity in Brimbank is ten per cent above the average for Greater Melbourne's LGAs (Figure 36).



### Females

In Brimbank, the estimated rate of obesity for adult females is ten per cent above the average for Greater Melbourne's LGAs (Figure 37).



## Correlations

There are the same strength correlations for males and females at the PHA level in Greater Melbourne between this indicator and other indicators of socioeconomic disadvantage.

Strong correlations were found with children living in families with mothers with low educational attainment, people working as labourers, Aboriginal and Torres Strait Islander people, and people living with disability.

Very strong inverse correlations were found for people working as managers or professionals.

There were very strong correlations with the health indicators for high or very high psychological distress and the estimated

prevalence of diabetes type 2; and strong correlations with women smoking in pregnancy, people reporting their health as fair or poor and the estimated prevalence of circulatory system diseases (the estimates for these indicators, other than for women smoking in pregnancy, are modelled estimates). Strong correlations were also found with hospitalisations for ambulatory care-sensitive conditions among people aged 15 years and over, indicating relatively poorer access to adequate and timely primary health care.

In the education indicators, very strong correlations were evident for both obese males and females with early school leavers. A very strong inverse correlation was present for the highest level of education being a bachelor's degree or higher. Conversely, there was a strong correlation with the highest level of education being an advanced diploma, diploma or certificate.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Australian Bureau of Statistics (ABS). Measures of Australia's progress, 2010. (ABS Cat. no. 1370.0). Canberra: ABS, 2010.
2. Australian Bureau of Statistics (ABS). National Health Survey: First results, 2017-18. (ABS Cat. no. 4364.0.55.001). Canberra: ABS, 2019.

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## Participation in preschool

The Victorian Government funds kindergarten, pre-school and child care services to provide a kindergarten program to children in the year before they go to school, which aims to enhance children's social, emotional, physical and intellectual development.<sup>1</sup> Preschool services are also provided by private or community run child care services and by Catholic and Independent schools.

**Indicator definition:** Children aged four years recorded as enrolled and attending a preschool, as a proportion of the number of children aged from four years. The statistics were compiled from data collected through the National Early Childhood Education and Care Collection.

Note: These data are generally not published as percentages, as the age at which children commence preschool and leave preschool to enter primary school varies between states and includes children at age three and age six. Calculating the percentage of children at age four in preschool against the percentage of children in the population at this age results in some proportions of over 100%; this also occurs with those aged five. However, in order to provide an understanding of variations between geographic areas, we have calculated percentages. More information can be found at

<https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4240.0Explanatory%20Notes12018?OpenDocument>, accessed 27 September 2019.

### Key points

- The participation in preschool of four year old children living in Brimbank is relatively high and consistent with the level in Greater Melbourne.
- The 2018 data show that, in the majority of PHAs, more than three quarters of the eligible children are attending preschool.

## Geographic variation

The participation in preschool of four year old children living in Brimbank (84.1%) is relatively high, being just below the level in Australia overall (Table 73). The participation rate in Brimbank is slightly higher than the Victorian rate.

Participation rates have increased since 2014, with the largest increases recorded in Brimbank (from 81.6% to 84.1%) and in Australia as a whole (from 81.3% to 86.3%). Rates in Greater Melbourne and Victoria also increased over this period.

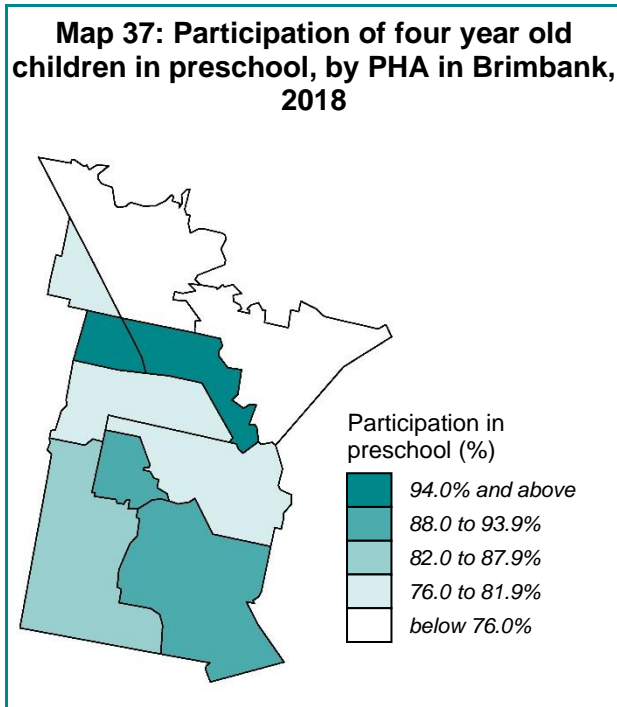
**Table 73: Participation of four year old children in preschool, Brimbank and comparators, 2014 and 2018**

Region	No.	%	RR#
<b>2014</b>			
<b>Brimbank</b>	<b>2,129</b>	<b>81.6</b>	<b>1.00</b>
Melbourne SD	47,210	81.5	1.00
Victoria	61,276	80.8	0.99
Australia	254,533	81.3	1.00
<b>2018</b>			
<b>Brimbank</b>	<b>3,085</b>	<b>84.1</b>	<b>0.97</b>
Greater Melbourne	53,303	84.2	0.98
Victoria	68,527	83.8	0.97
Australia	274,574	86.3	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

The variation in participation at the PHA level is substantial, from 23% above the Brimbank rate in Keilor Downs, to 17% below in Keilor and 16% below in Taylors Lake (Map 37 and Table 74).

Both Ardeer-Albion/Sunshine/Sunshine West and Cairnlea also had relatively high rates of participation in preschool (at 10% and 9% above, respectively); and in Keilor, less than 70% of young children were recorded in 2018 as attending preschool.





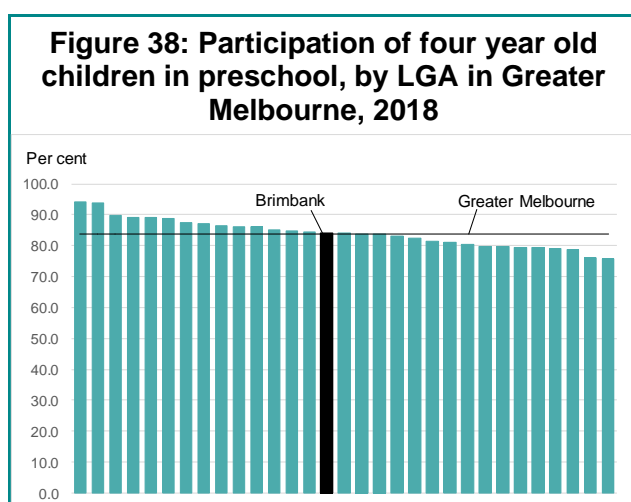
**Table 74: Participation of four year old children in preschool, by PHA in Brimbank, 2018**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	443	92.9	1.10
Cairnlea	136	92.5	1.09
Deer Park - Derrimut	479	87.1	1.03
Delahey	95	95.7	1.13
Keilor	64	69.4	0.83
Keilor Downs	160	103.8	1.23
St Albans - North/ Kings Park	380	78.4	0.93
St Albans - South/ Sunshine North	320	76.8	0.91
Sydenham	129	81.0	0.96
Taylors Lakes	131	70.9	0.84
<b>Brimbank</b>	<b>2,326</b>	<b>84.1</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Regional comparisons

Over 80% of young children in Brimbank were estimated to be attending preschool in 2018; this figure, of 84.1%, was just below the overall level in Greater Melbourne, of 84.2% (Figure 38).



### Correlations

This indicator was not strongly correlated at the PHA level in Greater Melbourne with socioeconomic advantage. There were however moderate correlations at the LGA level with the indicators for recent arrivals of people born in NES countries, unemployed youth, social housing, crowding, dwellings with no motor vehicles and hospitalisations for ambulatory care sensitive conditions: children aged 0 to 14 years- asthma. Moderate inverse correlations were recorded with Highest level of education – Advanced Diploma, Diploma or Certificate.

## Young people aged 16 years participating in full-time secondary school education

*The indicator for young people aged 16 years participating in full-time secondary education is not intended as an indicator of educational participation; it is included because young people completing Year 12 (and who would be still at school at age 16) are more likely to make a successful initial transition to further education, training and work than are early school leavers.<sup>1</sup>*

**Indicator definition:** Young people at 16 years of age recorded at the 2016 Census as attending full-time secondary education, expressed as a proportion of all people at that age.

### Key points

- Young people 16 years of age living in Brimbank were attending full-time secondary education in 2016 at the same rate as other young Australians at this age; however, this was slightly below the level in Greater Melbourne overall.
- Unlike the pattern seen for the majority of indicators, there was relatively little variation within the City at the PHA level.

### Geographic variation

In Brimbank, more than four fifths (84.3%) of young people 16 years of age were attending full-time secondary education in 2016; this was almost identical to the figure for Australia, of 84.1%. Although Brimbank also had a slightly better outcome on this measure than Australia overall, participation was below the level in Greater Melbourne, where 87.4% of young people at this age were attending full-time secondary education (Table 75).

Although secondary school participation rates have increased in Brimbank since 2006 (up by 8.6%), the increased was not as strong as that recorded in Australia (up by 12.4%). The data for the earlier period are available at <https://tinyurl.com/yyyy4race>.

**Table 75: Young people participating in full-time secondary education, Brimbank and comparators, 2006 and 2016**

Region	No.	%	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>1,977</b>	<b>77.6</b>	<b>1.04</b>
Melbourne SD	37,989	80.4	1.07
Victoria	54,094	79.9	1.07
Australia	208,200	74.8	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>2,062</b>	<b>84.3</b>	<b>1.00</b>
Greater Melbourne	44,800	87.4	1.04
Victoria	59,565	86.1	1.02
Australia	237,292	84.1	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

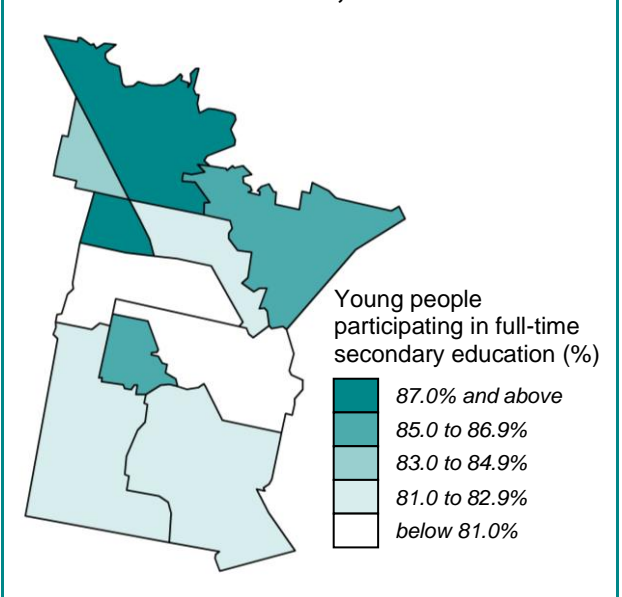
The lowest rates of participation in full-time secondary education were found for young people in St Albans - South/ Sunshine North (80.3%), St Albans - North/ Kings Park (80.8%)

and Ardeer - Albion/ Sunshine/ Sunshine West (81.2%), with proportions below the

Brimbank average also in Deer Park - Derrimut (82.0%) and Keilor Downs (82.2%) (Map 38 and Table 76).

The highest proportions of young people participating in full-time secondary education were in Taylors Lakes (91.4%) and Delahey (87.1%).

**Map 38: Young people participating in full-time secondary education, by PHA in Brimbank, 2016**



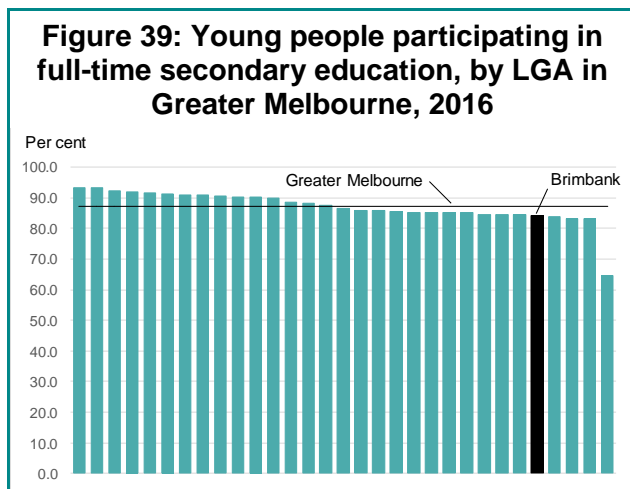
**Table 76: Young people participating in full-time secondary education, by PHA in Brimbank, 2016**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	310	81.2	0.96
Cairnlea	137	86.7	1.03
Deer Park - Derrimut	250	82.0	0.97
Delahey	101	87.1	1.03
Keilor	96	86.5	1.03
Keilor Downs	143	82.2	0.98
St Albans - North/ Kings Park	332	80.8	0.96
St Albans - South/ Sunshine North	289	80.3	0.95
Sydenham	133	84.2	1.00
Taylors Lakes	256	91.4	1.08
<b>Brimbank</b>	<b>2,062</b>	<b>84.3</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Regional comparisons

Brimbank had slightly fewer young people 16 years of age attending full-time secondary education in 2016 than in Greater Melbourne overall (Figure 39). LGAs with lower participation rates were Melbourne (64.6%), Cardinia (83.1%), Hume (83.2%) and Frankston (83.7%).



### Correlations

There was a strong correlation at the PHA level in Greater Melbourne between this indicator and young people aged 15 to 24 years who were learning or earning. Strong inverse correlations were found with the indicators of socioeconomic disadvantage for children living in jobless families, youth unemployment, low income households under financial stress from rent or mortgage payments, people living in crowded dwellings and living in dwellings without access to a motor vehicle.

In the health and wellbeing indicators, there were strong inverse correlations between this indicator and hospitalisations of children for ambulatory care-sensitive conditions and the estimated prevalence of mental health disorders (the estimates for this indicator is a modelled estimate).

There are strong and moderate correlations with the following indicators of child development: children developmentally on track in the physical health and wellbeing, and the language and cognitive skills domains under the AEDC, and fewer children developmentally vulnerable on one or more domains under the AEDC.

These correlations reinforce the differences in health and wellbeing between communities with high levels of educational participation and those with lower levels. Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

### References

1. Foundation for Young Australians (FYA). How young people are faring 2009. Greater Melbourne: Foundation for Young Australians, 2009.

## Early school leavers

*Education increases opportunities for choice of occupation and for income and job security, and also equips people with the skills and ability to control many aspects of their lives – key factors that influence wellbeing throughout the life course.<sup>1</sup>*

*People who leave school early and do not undertake further training or education may be at risk of social exclusion, poorer life chances and socioeconomic disadvantage in the longer term.<sup>1</sup> Research has shown that a model of community-centred education that offers a networked, integrated and contextual approach to learning, which is broader than the concept of ‘schooling’ is more likely to be successful in re-engaging those young people at risk of becoming disconnected from education.<sup>2</sup>*

**Indicator definition:** Comprises people of all ages who completed Year 10 or below, or did not go to school, expressed as a proportion of the population aged 15 years and over: the data have been age-standardised to remove expected differences between areas in the level of school attendance related to the age of the population (see box for details).

### Key points

- Looking across the population as whole, although the number of people who completed Year 10 or below, or did not go to school, was consistent with the national figure, it was some 31% above the level in Greater Melbourne.
- This group comprised over 30% of the population in over half of the PHAs.

## Geographic variation

There were slightly more early school leavers in Brimbank in 2016 (31.2% of the population 15 year and over) than in Australia (30.4%).

However, both Greater Melbourne and Victoria had lower rates, of below one quarter of the population aged 15 years and over in Greater Melbourne (23.9%) and just over one quarter in Victoria (26.0%). Rates have remained relatively consistent across all jurisdictions since 2006, with a slight increase in the level of early school leavers recorded in Brimbank.

**Table 77: Early school leavers, Brimbank and comparators, 2006 and 2016**

Region	No.	Rate*	RR#
<b>2006</b>			
<b>Brimbank</b>	<b>48,875</b>	<b>30.2</b>	<b>0.99</b>
Melbourne SD	851,664	23.9	0.79
Victoria	1,295,113	26.2	0.86
Australia	6,017,801	30.4	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>47,491</b>	<b>31.2</b>	<b>1.03</b>
Greater Melbourne	838,811	23.9	0.79
Victoria	1,247,813	26.0	0.86
Australia	5,791,199	30.4	1.00

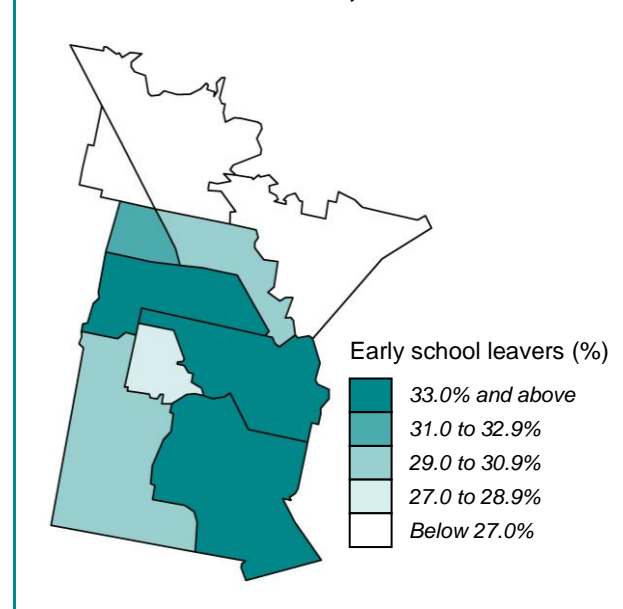
\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

There is, however, marked variation in rates at the PHA level in Brimbank, from around one quarter of the population aged 15 years and over in Taylors Lakes (24.9%) and Sydenham (25.7%), to one third or more in St Albans -

South/ Sunshine North (34.7%), St Albans - North/ Kings Park (34.4%) and Ardeer - Albion/ Sunshine/ Sunshine West (33.2%) (Map 39 and Table 78).

**Map 39: Early school leavers, by PHA in Brimbank, 2016**



### Age-standardised data

Rates of completion of schooling beyond Year 10 have increased over the years; for example, the population aged 80 years had lower rates of completion of Year 10 than did the population aged 40 years. The data have therefore been age-standardised to remove any cohort influence in the data.

**Table 78: Early school leavers, by PHA in Brimbank, 2016**

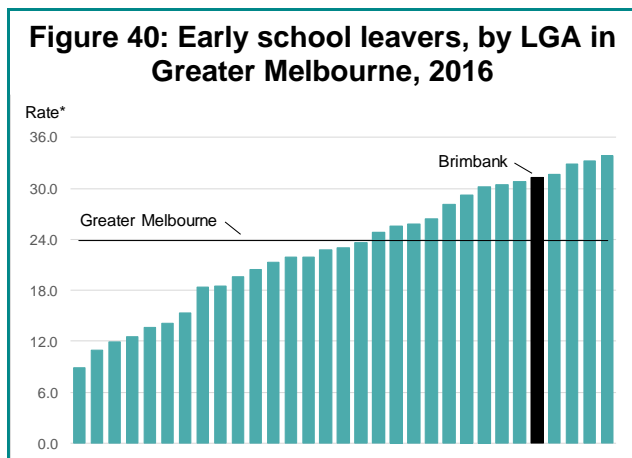
PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	9,329	33.2	1.06
Cairnlea	1,825	27.3	0.88
Deer Park - Derrimut	5,363	30.5	0.98
Delahey	2,103	31.9	1.02
Keilor	2,091	26.8	0.86
Keilor Downs	3,419	30.6	0.98
St Albans - North/ Kings Park	9,324	34.4	1.10
St Albans - South/ Sunshine North	8,078	34.7	1.11
Sydenham	2,285	25.7	0.82
Taylors Lakes	3,664	24.9	0.80
<b>Brimbank</b>	<b>47,491</b>	<b>31.2</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

### Regional comparisons

The rate of early school leavers in Brimbank is 31% above the Greater Melbourne average, and is ranked fifth highest among the Greater Melbourne LGAs (Figure 40). Higher rates were found in the LGAs of Cardinia (33.8%), Hume (33.3%), Greater Dandenong (32.9%) and Melton (31.7%).



\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

### Correlations

There are very strong correlations at the PHA level in Greater Melbourne between this indicator and the indicators for children in families where the mother has low educational attainment, people living with disability, and people working as labourers; and a very strong inverse correlation was found between this indicator and people working as managers or professionals.

A very strong inverse correlation was found with people having a bachelor's degree or higher; and there was a strong inverse correlation with children developmentally on track on the language and cognitive skills domains under the AEDC. This indicator was also strongly correlated with children assessed as being developmentally vulnerable on one or more domains under the AEDC.

In the health and wellbeing indicators, there is a very strong correlation for adult smokers, adult obesity, the estimated prevalence of diabetes type 2, and high or very high levels of psychological distress (the estimates for these indicators are modelled estimates). Strong correlations are also evident with women who smoked during pregnancy, hospitalisations of people aged 15 years and over for ambulatory care-sensitive conditions, and people reporting their health as fair or poor.

These correlations stand in contrast to those for the previous indicator (young people 16 years of age attending full-time secondary education). Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Pech J, McNevin A, Nelms L. Young people with poor labour force attachment: a survey of concepts, data and previous research. Canberra: Australian Fair Pay Commission, 2009.
2. Stehlik T. Schooling vs. education: (Re)engaging early school leavers in meaningful learning through whole-of-community approaches to learning as part of social inclusion initiatives in South Australia. Refereed paper presented to the New Zealand Association for Research in Education National Conference, December 2006.

## Highest level of education

*Upward mobility is a significant feature of Australia's education system, with 41% of 25-34 year olds having attained tertiary education despite being from socioeconomically disadvantaged backgrounds and having parents with low levels of education.<sup>1</sup> This is the highest proportion among OECD countries.<sup>1</sup> Educational attainment also adds an earnings premium, though less so than across many OECD countries. In 2009, a tertiary-educated worker in Australia could expect to earn 35% more than a worker with an upper secondary education.<sup>1</sup>*

*A bachelor's degree (or higher) is the standard university qualification and is recognised worldwide. Most courses take three to four years to complete and are almost exclusively delivered by universities.<sup>2</sup> Courses at Diploma, Advanced Diploma and Associate degree level take between two to three years to complete, and are generally considered to be equivalent to one to two years of study at degree level. These courses are usually delivered by universities, TAFE colleges, community education centres and private RTO's (Registered Training Organisations).<sup>2</sup>*

**Indicator definition:** Bachelor's degree or higher comprises people who have a qualification at bachelor's degree, Graduate Diploma and Graduate Certificate, or Postgraduate Degree Level. Advanced Diploma, Diploma or Certificate comprises people who have a qualification at any of these three levels. The data have been age-standardised to remove expected differences between areas in the level of qualification held related to the age of the population.

### Key points

- Just over one in seven people in Brimbank had a bachelor's degree or higher in 2016, markedly below the level in Australia overall; none of the PHAs had a proportion above that for Australia.
- Almost one in four people had the level of education of an Advanced Diploma, Diploma or Certificate, again below the Australian average overall (and similarly below in all but one PHA).

## Geographic variation

### Bachelor's degree or higher

After adjusting for differences in the age of the population of Brimbank in comparison with the Australian population, the rate of people who had a bachelor's degree or higher qualification at the 2016 Census is markedly below the Australian rate and, in particular, the Greater Melbourne rate (Table 79).

**Table 79: Bachelor's degree or higher, Brimbank and comparators, 2011 and 2016**

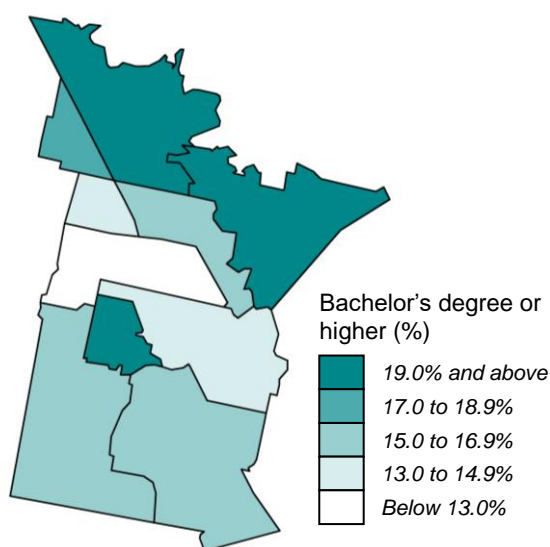
Region	No.	Rate*	RR#
<b>2011</b>			
<b>Brimbank</b>	<b>19,476</b>	<b>12.8</b>	<b>0.68</b>
Melbourne SD	769,673	23.0	1.22
Victoria	906,952	20.8	1.10
Australia	3,268,910	18.8	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>25,310</b>	<b>15.6</b>	<b>0.71</b>
Greater Melbourne	1,006,217	26.7	1.21
Victoria	1,177,556	24.2	1.10
Australia	4,181,416	22.0	1.00

\*Indirectly age-standardised rate per 100 population, also referred to here as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

The number of people with these qualifications per 100 population in Brimbank has increased since 2011, from 12.8 in 2011 to 15.6 in 2016, an increase of 21.9% (the increase in Greater Melbourne overall was 17.0%).

**Map 40: Bachelor's degree or higher, by PHA in Brimbank, 2016**



Within Brimbank, none of the PHAs had rates above the Australian rate. The lowest rates were in the PHAs of St Albans - North/ Kings

Park (11.4 people with these qualifications per 100 population), Delahey (13.0) and St Albans - South/ Sunshine North (13.4). In contrast, the highest rates were calculated for people living in Cairnlea (20.3), Keilor (19.6) and Taylors Lakes (19.3) (Map 40 and Table 80).

**Table 80: Bachelor's degree or higher, by PHA in Brimbank, 2016**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	5,174	16.4	1.05
Cairnlea	1,590	20.3	1.30
Deer Park - Derrimut	3,709	16.8	1.08
Delahey	895	13.0	0.83
Keilor	1,278	19.6	1.26
Keilor Downs	1,688	15.6	1.00
St Albans - North/ Kings Park	3,213	11.4	0.73
St Albans - South/ Sunshine North	3,201	13.4	0.86
Sydenham	1,884	18.8	1.21
Taylors Lakes	2,678	19.3	1.24
<b>Brimbank</b>	<b>25,310</b>	<b>15.6</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

#### Advanced Diploma, Diploma or Certificate

More than one in five people living in Brimbank had an Advanced Diploma, Diploma or Certificate level of education at the 2016 Census (Table 81). After adjusting for differences in the age of the population in Brimbank in comparison with the Australian population, this rate (22.9 people with these qualifications per 100 population) is lower than the rates in Greater Melbourne (24.6) and Australia (27.7).

**Table 81: Advanced Diploma, Diploma or Certificate, Brimbank and comparators, 2011 and 2016**

Region	No.	Rate*	RR#
<b>2011</b>			
<b>Brimbank</b>	<b>30,888</b>	<b>20.7</b>	<b>0.79</b>
Melbourne SD	773,603	23.5	0.90
Victoria	1,078,949	24.8	0.95
Australia	4,527,962	26.1	1.00
<b>2016</b>			
<b>Brimbank</b>	<b>36,456</b>	<b>22.9</b>	<b>0.83</b>
Greater Melbourne	906,115	24.6	0.89
Victoria	1,265,459	26.1	0.94
Australia	5,270,061	27.7	1.00

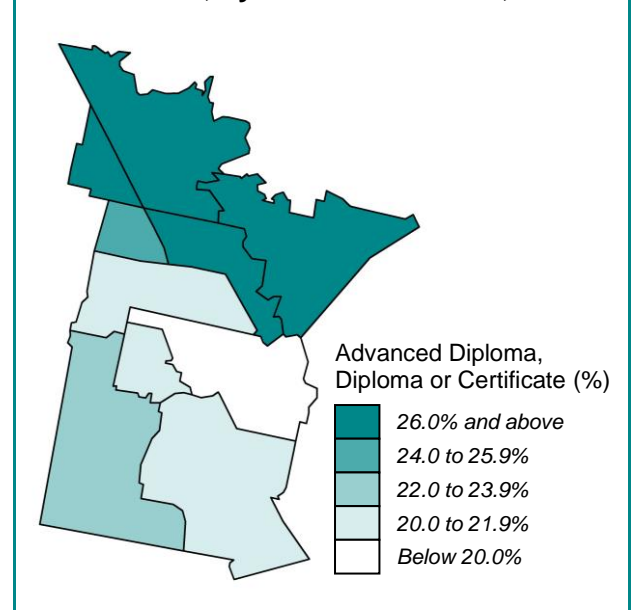
\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Australia

The rate of people reporting having achieved these qualifications increased from 20.7 per 100 population in 2011 to 22.9 in 2016.

The rate of people with an Advanced Diploma, Diploma or Certificate was lowest in the PHAs of St Albans - South/ Sunshine North (19.1 people with these qualifications per 100 population) followed by Cairnlea (20.5) and Ardeer - Albion/ Sunshine/ Sunshine West (21.0). In contrast, higher rates of people with these qualifications were calculated for people living in Keilor (28.8), Taylors Lakes (26.7), Sydenham (26.5) and Keilor Downs (26.3) (Map 41 and Table 82).

**Map 41: Advanced Diploma, Diploma or Certificate, by PHA in Brimbank, 2016**



**Table 82: Advanced Diploma, Diploma or Certificate, by PHA in Brimbank, 2016**

PHA	No.	Rate*	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	6,333	21.0	0.92
Cairnlea	1,557	20.5	0.90
Deer Park - Derrimut	4,893	23.8	1.04
Delahey	1,691	24.5	1.07
Keilor	1,988	28.8	1.26
Keilor Downs	2,905	26.3	1.15
St Albans - North/ Kings Park	6,076	21.8	0.95
St Albans - South/ Sunshine North	4,542	19.1	0.83
Sydenham	2,576	26.5	1.16
Taylors Lakes	3,895	26.7	1.17
<b>Brimbank</b>	<b>36,456</b>	<b>22.9</b>	<b>1.00</b>

\*Indirectly age-standardised rate per 100 population, also referred to as a percentage (age-standardised)

#RR (the rate ratio) is the ratio of the rate in the area to the rate for Brimbank

## Regional comparisons

### Bachelor's degree or higher

Of the LGAs in Greater Melbourne, Brimbank had a relatively low number of people with a bachelor's degree or higher, ranking fifth lowest among the 31 Greater Melbourne LGAs (Figure 41). The four LGAs with lower rates were Cardinia (13.4 people with these qualifications per 100 population), Hume (14.2), Frankston (14.5) and Melton (14.8).

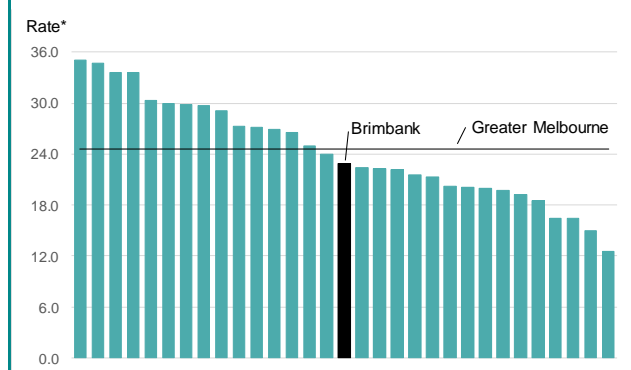
**Figure 41: Bachelor's degree or higher, by LGA in Greater Melbourne, 2016**



### Advanced Diploma, Diploma or Certificate

The LGA of Brimbank had a similar rate of people with a qualification of an Advanced Diploma, Diploma or Certificate as Greater Melbourne, with just 3% fewer people with this qualification (Figure 42).

**Figure 42: Advanced Diploma, Diploma or Certificate, by LGA in Greater Melbourne, 2016**



## Correlations

### Bachelor's degree or higher

There is a very strong correlation at the PHA level in Greater Melbourne between this indicator and people working as managers or professionals; and there are very strong inverse correlations with children in families where the mother has low educational attainment, and people working as labourers.

There are very strong inverse correlations between areas with high proportions of the population having a bachelor's degree or higher qualification, and adult smokers, obese adults, high or very high psychological distress, the prevalence of diabetes type 2, early school leavers, and the highest level of education being an Advanced Diploma, Diploma and Certificate. Strong inverse correlations were evident for hospitalisations for ambulatory care-sensitive conditions, women smoking in pregnancy and people reporting their health as fair or poor, among others.

Strong correlations with child development indicators were also found, in particular with children being developmentally on track in the language and cognitive skills domains under the AEDC. Conversely, there were relatively fewer children assessed as being developmentally vulnerable on one or more domains under the AEDC. Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

### Advanced Diploma, Diploma or Certificate

There were strong correlations at the PHA level in Greater Melbourne between this indicator and children living with disability, adult obesity, early school leavers, male smokers, women smoking during pregnancy and Aboriginal and Torres Strait Islander people.

Strong inverse correlations were recorded with people working as managers or professionals, people without access to a motor vehicle, and low-income households under financial stress from rent or mortgage payments. A very strong inverse correlation was apparent with the highest level of education being a bachelor's degree or higher.

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

## References

1. Organisation for Economic Co-operation and Development (OECD). Education at a glance, 2012: OECD Indicators - Australia. Paris: OECD, 2012.
2. Australian Qualifications Framework Council (AQFC). Australian Qualifications Framework (2<sup>nd</sup> edn.). Adelaide: AQFC, 2013.



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## Australian Early Development Census: children developmentally on track

In 2009, the Australian Early Development Index (AEDI), which provides information on early childhood development outcomes, was undertaken nationwide.<sup>1</sup> Information was collected on children in their first year of full-time formal school (average age of five years and seven months), using a teacher-completed checklist. The AEDI data collection was repeated in 2012: in 2014, it was renamed the Australian Early Development Census.

AEDC data help communities to assess how well they supporting young children and their families.<sup>2</sup> The results from the AEDC provide information about how local children have developed by the time they start school, measured across five areas (domains) of early child development: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), and communication skills and general knowledge.<sup>2</sup>

**Indicator definition:** Children who were assessed as being developmentally ‘on track’ (i.e., children in the top 75% of the national AEDC population) in the *physical health and wellbeing* and the *language and cognitive skills (school-based)* developmental domains, expressed as a proportion of all children for whom a checklist was completed.

### Key points

- Four out of every five children in Brimbank in their first year of school were assessed as being developmentally on track in the physical health and wellbeing developmental domain (above the national average proportion), and the language and cognitive skills (school-based) developmental domain (but below the national average).
- There was little variation across the City for the domain of physical health and wellbeing; however, for the language and cognitive skills (school-based) domain, the variations are more marked.

## Geographic variation

### Physical health and wellbeing domain

Four out of five children in Brimbank were assessed as being developmentally on track in the physical health and wellbeing domain. The proportion, of 80.6% was slightly above that in Australia (78.1%), but lower than in Greater Melbourne and Victoria. There has however been an increase (of 7.3%, from 75.1% in 2009 to 80.6% in 2018)) in the rate in Brimbank since 2009.

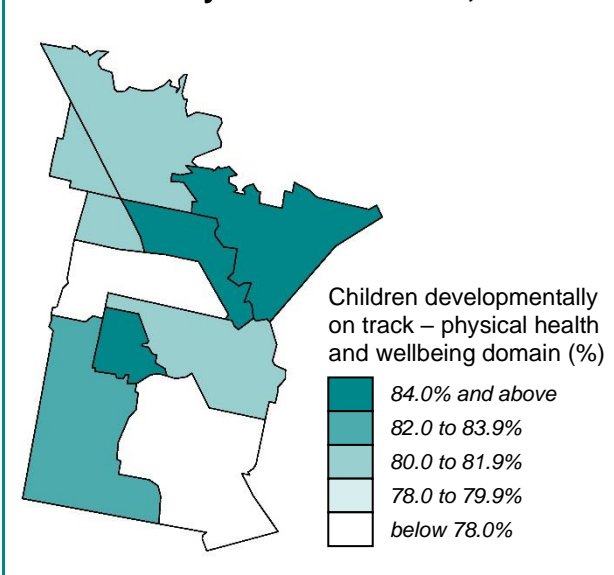
**Table 83: Children developmentally on track under the physical health and wellbeing domain, Brimbank and comparators, 2009 and 2018**

Region	No.	%	RR#
<b>2009</b>			
<b>Brimbank</b>	<b>1,526</b>	<b>75.1</b>	<b>0.97</b>
Melbourne SD	34,539	81.2	1.05
Victoria	47,192	80.6	1.04
Australia	196,517	77.6	1.00
<b>2018</b>			
<b>Brimbank</b>	<b>1,952</b>	<b>80.6</b>	<b>1.03</b>
Greater Melbourne	45,046	82.0	1.05
Victoria	58,221	80.9	1.04
Australia	229,542	78.1	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

In the majority of PHAs, the proportion of children assessed as being developmentally on track in this domain were within 5% of the Brimbank average (Map 42 and Table 84). The major variations were the higher proportion in Cairnlea (10% above the city-wide rate), and the lower proportion in St Albans - North/Kings Park (7% below).

**Map 42: Children developmentally on track under the physical health and wellbeing domain by PHA in Brimbank, 2018**



**Table 84: Children developmentally on track under the physical health and wellbeing domain by PHA in Brimbank, 2018**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	329	77.8	0.97
Cairnlea	136	88.3	1.10
Deer Park - Derrimut	384	82.9	1.03
Delahey	62	80.5	1.00
Keilor	64	84.2	1.05
Keilor Downs	142	85.5	1.06
St Albans - North/ Kings Park	338	75.3	0.93
St Albans - South/ Sunshine North	286	81.0	1.01
Sydenham	98	81.0	1.01
Taylors Lakes	113	80.1	0.99
<b>Brimbank</b>	<b>1,952</b>	<b>80.6</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Language and cognitive skills (school-based) domain

The proportion of children assessed as being developmentally on track in the language and cognitive skills domain was notably lower in Brimbank (79.3%) than in Australia (84.4%) or Greater Melbourne (85.3%) (Table 85).

Unlike the physical health and wellbeing domain, in this instance, there has been little improvement recorded for children in Brimbank in 2015 compared to 2009.

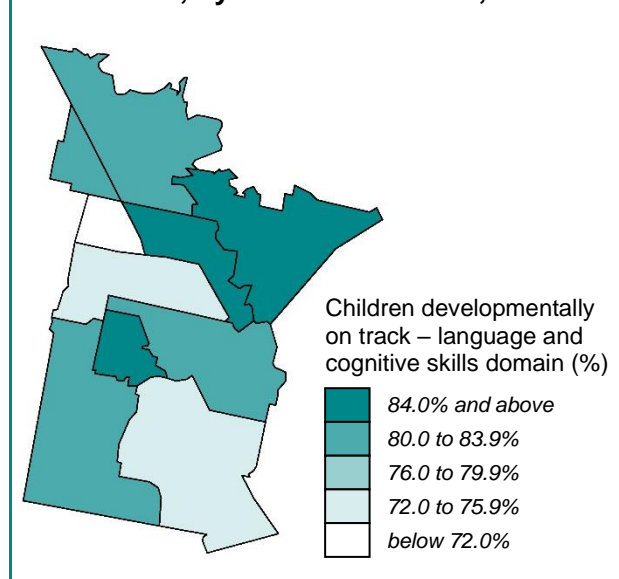
**Table 85: Children developmentally on track under the language and cognitive skills domain, Brimbank and comparators, 2009 and 2018**

Region	No.	%	RR#
<b>2009</b>			
<b>Brimbank</b>	<b>1,606</b>	<b>79.1</b>	<b>1.03</b>
Melbourne SD	35,985	84.7	1.10
Victoria	49,133	84.1	1.09
Australia	194,886	77.1	1.00
<b>2018</b>			
<b>Brimbank</b>	<b>1,920</b>	<b>79.3</b>	<b>0.94</b>
Greater Melbourne	46,858	85.3	1.01
Victoria	60,779	84.6	1.00
Australia	247,870	84.4	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

The variation at the PHA level was significant, ranging from 16% above the Brimbank average in Keilor and 12% above in Cairnlea, to 16% below in Delahey; however, half of the PHAs had proportions within 4% of the City's average (Map 43 and Table 86).

**Map 43: Children developmentally on track under the language and cognitive skills domain, by PHA in Brimbank, 2018**



**Table 86: Children developmentally on track under the language and cognitive skills domain, by PHA in Brimbank, 2018**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	310	73.3	0.92
Cairnlea	137	89.0	1.12
Deer Park - Derrimut	375	81.0	1.02
Delahey	51	66.2	0.84
Keilor	70	92.1	1.16
Keilor Downs	140	84.3	1.06
St Albans - North/ Kings Park	340	75.7	0.96
St Albans - South/ Sunshine North	284	80.5	1.01
Sydenham	97	80.8	1.02
Taylors Lakes	116	82.3	1.04
<b>Brimbank</b>	<b>1,605</b>	<b>79.3</b>	<b>1.00</b>

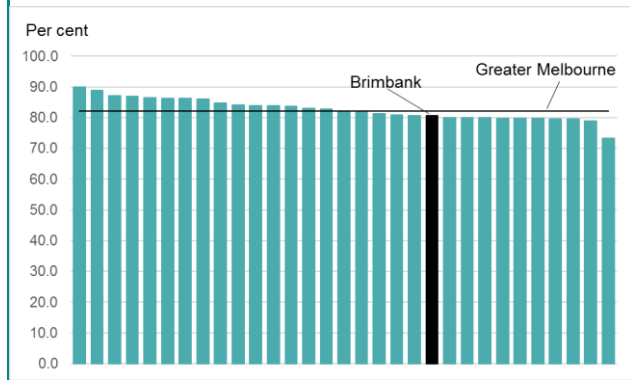
#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Regional comparisons

#### Physical health and wellbeing domain

The proportion of children developmentally on track under the physical health and wellbeing domain in Brimbank is below the Greater Melbourne figure, although not the lowest of the LGAs (Figure 43, overleaf).

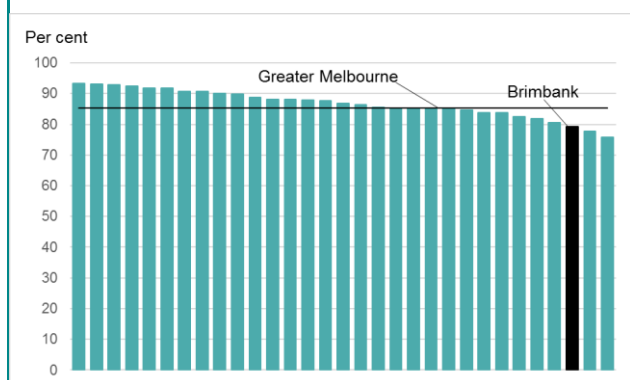
**Figure 43: Children developmentally on track under the physical health and wellbeing domain, by LGA in Greater Melbourne, 2018**



### Language and cognitive skills (school-based) domain

Compared with other LGAs in Greater Melbourne, Brimbank had one of the lowest proportions of children who were assessed as being on track under this domain (Figure 44).

**Figure 44: Children developmentally on track under the language and cognitive skills domain, by LGA in Greater Melbourne, 2018**



## Correlations

### Physical health and wellbeing domain

There is a strong correlation at the PHA level in Greater Melbourne between this indicator and socioeconomic advantage, as measured by the IRSD; conversely, there are strong inverse correlations with the individual indicators of socioeconomic disadvantage of children living in jobless families, unemployment and children in families where the mother has low educational attainment.

Strong inverse correlations were also found with the indicators for people reporting their health as fair or poor, estimated prevalence of female smokers, and people living with a disability aged 15 years and over.

A strong correlation was also found with children developmentally on track in the

language and cognitive skills domain of the AEDC. Conversely, there is a very strong inverse correlation with children developmentally assessed as vulnerable on one or more domains under the AEDC.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

### Language and cognitive skills (school-based) domain

There is a very strong correlation between this indicator and socioeconomic advantage, as measured by the IRSD; similarly, there are very strong correlations with the individual indicators of socioeconomic disadvantage of children living in jobless families, children in families where the mother has low educational attainment, unemployment and people working as labourers. There was also a very strong correlation between this indicator and young people learning or earning.

Strong correlations were also found with the following indicators of education and child development: the highest level of education being a bachelor's degree or higher, young people participating in full-time secondary education and children assessed as being developmentally on track in the physical health and wellbeing domain of the AEDC. In line with this finding, relatively fewer children were assessed as being developmentally vulnerable on one or more domains under the AEDC. A very strong inverse correlations was present for the estimated prevalence of diabetes type 2.

Similar outcomes were also evident for many of these indicators in Brimbank and its component areas.

## References

1. Centre for Community Child Health (CCCH), Telethon Institute for Child Health Research (TICHR). A snapshot of early childhood development in Australia: Australian Early Development Index (AEDI) National Report 2009. Canberra, ACT: Australian Government, 2009.
2. The Royal Children's Hospital (RCH), Greater Melbourne. Uses for the AEDI. [Website - updated 19 March 2013]. At [http://www.rch.org.au/aedi/resources/Uses\\_for\\_the\\_AEDI/](http://www.rch.org.au/aedi/resources/Uses_for_the_AEDI/) (accessed 17 April 2014).

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## Australian Early Development Index: children developmentally vulnerable

In 2009, the Australian Early Development Index (AEDI), which provides information on early childhood development outcomes, was undertaken nationwide.<sup>1</sup> Information was collected on children in their first year of full-time formal school (average age of five years and seven months), using a teacher-completed checklist. The AEDI data collection was repeated in 2012: in 2014 it was renamed the Australian Early Development Census.

AEDC data help communities to assess how well they supporting young children and their families.<sup>2</sup> The results from the AEDC provide information about how local children have developed by the time they start school, measured across five areas (domains) of early child development: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), and communication skills and general knowledge.<sup>2</sup>

**Indicator definition:** Children who were assessed as being developmentally vulnerable on one or more domains, expressed as a proportion of all children for whom a checklist was completed.

### Key points

- Almost one in three children in Brimbank were assessed as being developmentally vulnerable on one or more of the AEDC developmental domains; this was markedly above the level in Australia and Greater Melbourne overall.
- Only in Taylors Lakes were there relatively fewer children in their first year of school assessed as developmentally vulnerable on one or more domains when compared with Australia overall.

### Geographic variation

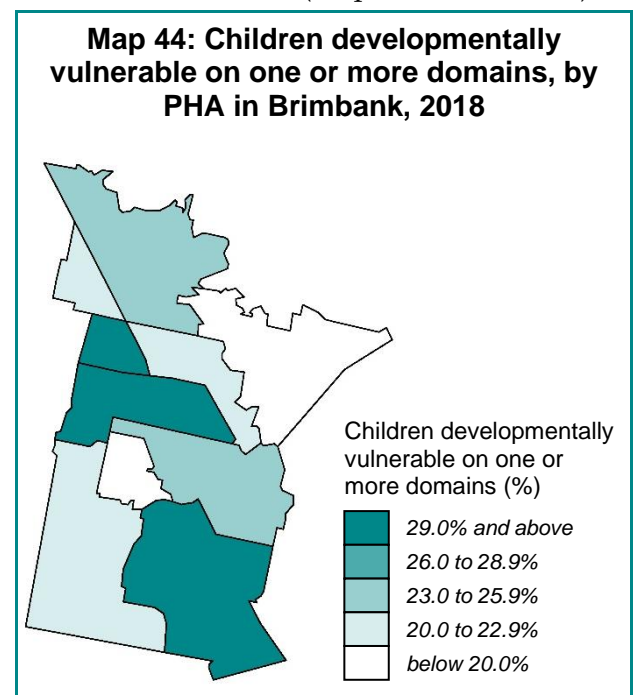
Despite the relatively high proportions of children assessed as being on track in the domains discussed above, more than a quarter of children in Brimbank were assessed as being developmentally vulnerable on one or more of the AEDC developmental domains (Table 87). This figure, of 26.2% of children in their first year of school who were assessed, was higher than in Australia overall (21.7%), and substantially higher than in Greater Melbourne (19.2%). However, the proportion in Brimbank has decreased since 2009, as have the figures for Greater Melbourne and Australia.

**Table 87: Children developmentally vulnerable on one or more domains, Brimbank and comparators, 2009 and 2018**

Region	No.	%	RR#
<b>2009</b>			
<b>Brimbank</b>	<b>549</b>	<b>27.1</b>	<b>1.15</b>
Melbourne SD	8,522	20.1	0.85
Victoria	11,832	20.3	0.86
Australia	59,699	23.6	1.00
<b>2018</b>			
<b>Brimbank</b>	<b>630</b>	<b>26.2</b>	<b>1.21</b>
Greater Melbourne	10,503	19.2	0.88
Victoria	14,232	19.9	0.92
Australia	63,448	21.7	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

There was a wide range at the PHA level in the proportions of young children assessed as being developmentally vulnerable on one or more AEDC domains (Map 44 and Table 88).



Proportions ranged from 40% below the City's average in Keilor, to 27% above the average in Ardeer - Albion/ Sunshine/ Sunshine West (a rate ratio of 1.27). St Albans - North/ Kings Park (with a rate ratio of 1.26, or 26% more of these children than in the City overall) and Delahey (1.16) had the next highest proportions.

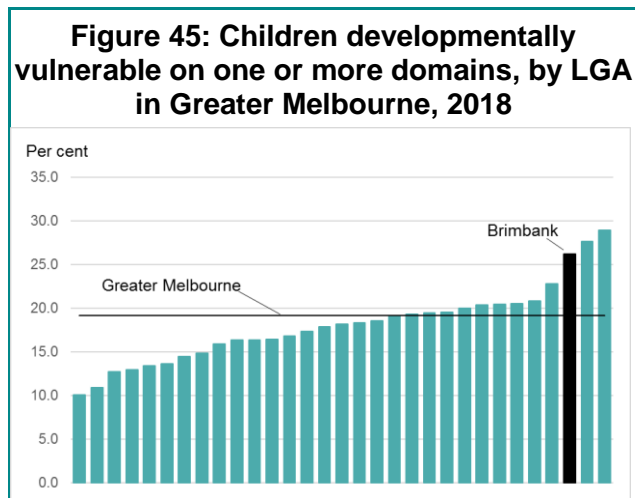
**Table 88: Children developmentally vulnerable on one or more domains, by PHA in Brimbank, 2018**

PHA	No.	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	141	33.3	1.27
Cairnlea	25	16.3	0.62
Deer Park - Derrimut	100	21.6	0.82
Delahey	23	30.3	1.16
Keilor	12	15.8	0.60
Keilor Downs	35	24.4	0.81
St Albans - North/ Kings Park	146	35.7	1.26
St Albans - South/ Sunshine North	85	24.6	0.94
Sydenham	27	22.5	0.86
Taylors Lakes	36	25.5	0.97
<b>Brimbank</b>	<b>630</b>	<b>26.2</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Regional comparisons

Brimbank has a relatively high proportion of children in their first year of school assessed as developmentally vulnerable on one or more domains under the AEDC, being ranked third highest when compared with all LGAs in Greater Melbourne (Figure 45).



### Correlations

There are very strong correlations at the PHA level in Greater Melbourne between high proportions of children being developmentally vulnerable on one or more domains under the AEDC and socioeconomic disadvantage, as measured by the IRSD; correlations with the individual indicators of socioeconomic disadvantage were most evident with children living in jobless families and children in families where the mother has low educational attainment.

Very strong inverse correlations were found between this indicator and children assessed as being developmentally on track in the physical health and wellbeing domain and the language and cognitive skills domains under the AEDC.

For the health and wellbeing indicators, there was a very strong correlations with the estimated prevalence of diabetes type 2. Strong correlations were also recorded with the indicators for people reporting their health as fair or poor and high or very high psychological distress (the estimates for these indicators are modelled estimates).

Relatively poor outcomes are also evident for many of these indicators in Brimbank and its component areas.

### References

1. Centre for Community Child Health (CCCH), Telethon Institute for Child Health Research (TICHR). A snapshot of early childhood development in Australia: Australian Early Development Index (AEDI) National Report 2009. Canberra, ACT: Australian Government, 2009.
2. The Royal Children's Hospital (RCH), Greater Melbourne. Uses for the AEDI. [Website - updated 19 March 2013]. At [http://www.rch.org.au/aedi/resources/Uses\\_for\\_the\\_AEDI/](http://www.rch.org.au/aedi/resources/Uses_for_the_AEDI/) (accessed 17 April 2014).

## NAPLAN: reading and numeracy outcomes

One of the outcomes for schooling under the Council of Australian Governments (COAG National Education Agreement) is that 'young people are meeting basic literacy and numeracy standards, and overall levels of literacy and numeracy achievements are improving'<sup>1</sup>. To this end, the National Partnership Agreement on Literacy and Numeracy aims to deliver improvements in literacy and numeracy outcomes for all students, with a particular focus for targeted cohorts of at risk students, by focusing on the key areas of teaching, leadership and the effective use of student performance data.

The literacy and numeracy focus saw the introduction in 2008 of the National Assessment Program – Literacy and Numeracy (NAPLAN) with all Australian students in Years 3, 5, 7 and 9 being assessed using national tests in Reading, Writing, Spelling, Grammar and Punctuation and Numeracy. Students who achieve at or above the national minimum standard are deemed to have demonstrated the basic elements of literacy and numeracy required for that year level.

**Indicator definition:** Children in Year 3 or 9 with reading or numeracy scores below the national minimum standard (referred to as the 'minimum standard', by PHA of the student's address. The data, other than for Victoria and Australia, are estimates based on data for which the postcode of the student was known.

### Key points

- There were relatively more children in Year 3 (30% more) and Year 9 (12% more) in Brimbank reading at levels below the national minimum standard than in Australia as a whole.
- Numeracy levels in Year 3 for children living in Brimbank had improved since 2018 at a greater rate than for Australia overall. However, for those in Year 9, the rate of improvement was slower than in Australia, resulting in the proportion of children with numeracy levels below the national minimum standard in 2018 being 5.3%, compared with the national rate of 4.5%.

## Geographic variation

### Year 3 reading

The proportion of children in Year 3 reading at levels below the national minimum standard in Brimbank (5.7%) is markedly above the level in Australia overall (4.4%), as shown by the rate ratio of 1.30 (Table 89). The proportion of children in Year 3 reading below this standard has, however, decreased since 2012, although the decrease in Brimbank is the smallest of the comparators shown here.

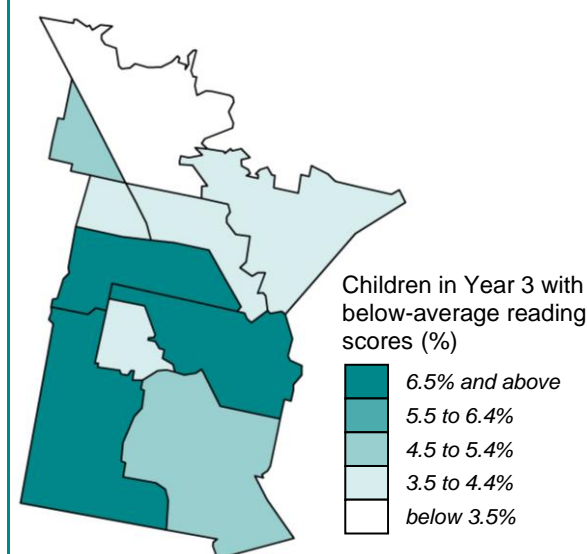
**Table 89: Children in Year 3 with reading scores below the minimum standard, Brimbank and comparators, 2012 and 2018**

Region	%	RR#
<b>2012</b>		
<b>Brimbank</b>	<b>6.8</b>	<b>1.06</b>
Melbourne SD	4.7	0.73
Victoria	4.8	0.75
Australia	6.4	1.00
<b>2018</b>		
<b>Brimbank</b>	<b>5.7</b>	<b>1.30</b>
Greater Melbourne	4.5	1.02
Victoria	3.8	0.86
Australia	4.4	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

The variation at the PHA level was substantial, ranging from more than twice the Brimbank average in St Albans - North/ Kings Park (12.8%), to just over half in Taylors Lake (3.0%). Above average rates were also recorded in St Albans - South/ Sunshine North (10.7%) and Deer Park - Derrimut (7.1%) (Map 45 and Table 90).

**Map 45: Children in Year 3 with reading scores below the minimum standard by PHA in Brimbank, 2018**





**Table 90: Children in Year 3 with reading scores below the minimum standard, by PHA in Brimbank, 2018**

PHA	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	5.0	0.88
Cairnlea	3.8	0.67
Deer Park - Derrimut	7.1	1.25
Delahey	3.9	0.68
Keilor	4.1	0.72
Keilor Downs	4.3	0.75
St Albans - North/ Kings Park	12.8	2.25
St Albans - South/ Sunshine North	10.7	1.88
Sydenham	5.3	0.93
Taylors Lakes	3.0	0.53
<b>Brimbank</b>	<b>5.7</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Year 9 reading

The proportion of children in Year 9 assessed as having reading scores below the national minimum standard was somewhat higher in Brimbank (7.4%) than in Australia (6.6%) or Greater Melbourne (6.7%), although the difference was smaller than for children in Year 3 (Table 91).

Since 2012, the rate of children in Year 9 reading below this standard has decreased in Brimbank, from 9.0% in 2012 to 7.4% in 2018. A similar decrease was recorded in Australia, with smaller decreases in Greater Melbourne and Victoria.

**Table 91: Children in Year 9 with reading scores below the minimum standard, Brimbank and comparators, 2012 and 2018**

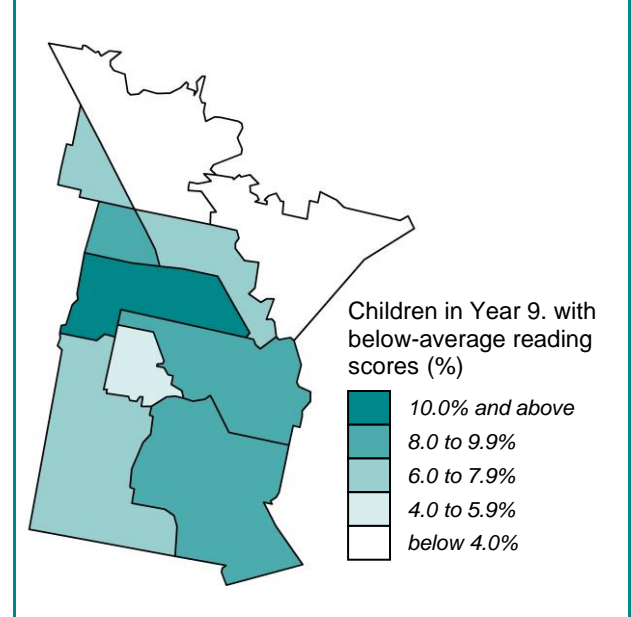
Region	%	RR#
<b>2012</b>		
<b>Brimbank</b>	<b>9.0</b>	<b>1.05</b>
Melbourne SD	7.1	0.83
Victoria	7.0	0.81
Australia	8.6	1.00
<b>2018</b>		
<b>Brimbank</b>	<b>7.4</b>	<b>1.12</b>
Greater Melbourne	6.7	1.02
Victoria	5.9	0.89
Australia	6.6	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

In the majority of PHAs, the proportion of children in Year 9 reading at a level below the national minimum standard was within 25% of the Brimbank average (Map 46 and Table 92). The major variations were the higher proportion in St Albans - North/ Kings Park (39% above the City's average, a rate ratio of 1.39), and the lower proportions in Keilor and

Taylors Lake (both 53% below the Brimbank average).

**Map 46: Children in Year 9. with reading scores below the minimum standard by PHA in Brimbank, 2018**



**Table 92: Children in Year 9 with reading scores below the minimum standard, by PHA in Brimbank, 2018**

PHA	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	9.3	1.26
Cairnlea	5.8	0.78
Deer Park - Derrimut	7.8	1.05
Delahey	8.8	1.19
Keilor	3.5	0.47
Keilor Downs	7.3	0.99
St Albans - North/ Kings Park	10.3	1.39
St Albans - South/ Sunshine North	9.0	1.22
Sydenham	7.7	1.04
Taylors Lakes	3.5	0.47
<b>Brimbank</b>	<b>7.4</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Year 3 numeracy

In Brimbank, the proportion of children in Year 3 with numeracy scores at a level below the national minimum standard (4.4%) was only slightly above that in Australia (4.1%), but notably higher than in Greater Melbourne (3.5%) and Victoria (3.7%) (Table 93). There has been a decline in the proportion of children with numeracy scores below this standard since 2012 in all of the areas listed in Table 93; however, this improvement was more evident in Brimbank than in Greater Melbourne, Victoria or Australia

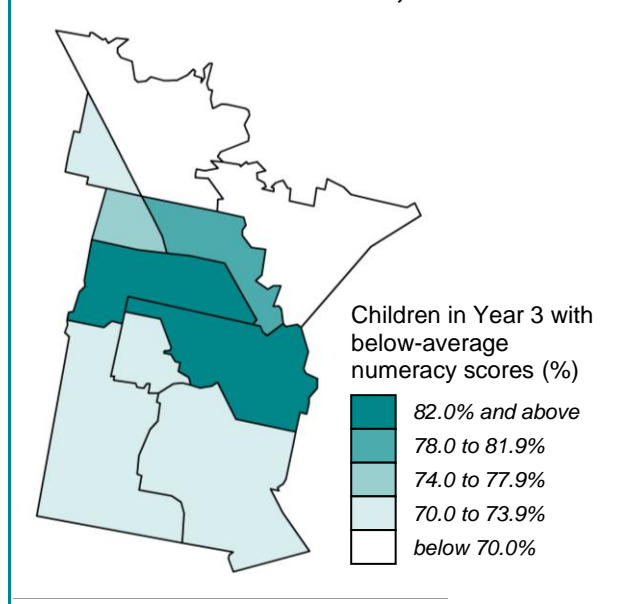
The variation at the PHA level was substantial, ranging from more than twice the Brimbank average in St Albans - North/ Kings Park, to 71% below in Taylors Lake (Map 47 and Table 94). Proportions above the Brimbank average were also recorded in St Albans - South/ Sunshine North (7.8%), Keilor Downs (6.5%), Delahey (4.9%) and Sydenham (4.4%).

**Table 93: Children in Year 3 with numeracy scores below the minimum standard, Brimbank and comparators, 2012 and 2018**

Region	%	RR#
<b>2012</b>		
<b>Brimbank</b>	<b>7.0</b>	<b>1.15</b>
Melbourne SD	4.7	0.77
Victoria	4.5	0.74
Australia	6.1	1.00
<b>2018</b>		
<b>Brimbank</b>	<b>4.4</b>	<b>1.07</b>
Greater Melbourne	3.6	0.88
Victoria	3.7	0.90
Australia	4.1	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

**Map 47: Children in Year 3 with numeracy scores below the minimum standard by PHA in Brimbank, 2018**



**Table 94: Children in Year 3 with numeracy scores below the minimum standard, by PHA in Brimbank, 2018**

PHA	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	3.7	0.90
Cairnlea	3.8	0.93
Deer Park - Derrimut	4.1	1.00
Delahey	4.9	1.20
Keilor	2.6	0.63
Keilor Downs	6.5	1.59
St Albans - North/ Kings Park	9.4	2.29
St Albans - South/ Sunshine North	7.8	1.90
Sydenham	4.4	1.07
Taylors Lakes	1.2	0.29
<b>Brimbank</b>	<b>4.1</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

### Year 9 numeracy

In 2018, the proportion of children in Year 9 with numeracy scores below the national minimum standard were consistent in Greater Melbourne, Victoria and Australia (4.5%), although higher in Brimbank, at 5.3% (Table 95).

Since 2012, the level of children with numeracy scores below the minimum standard decreased in Brimbank, Victoria and Australia, while an increase was evident for Year 9 children in Greater Melbourne.

**Table 95: Children in Year 9 with numeracy scores below the minimum standard, Brimbank and comparators, 2012 and 2018**

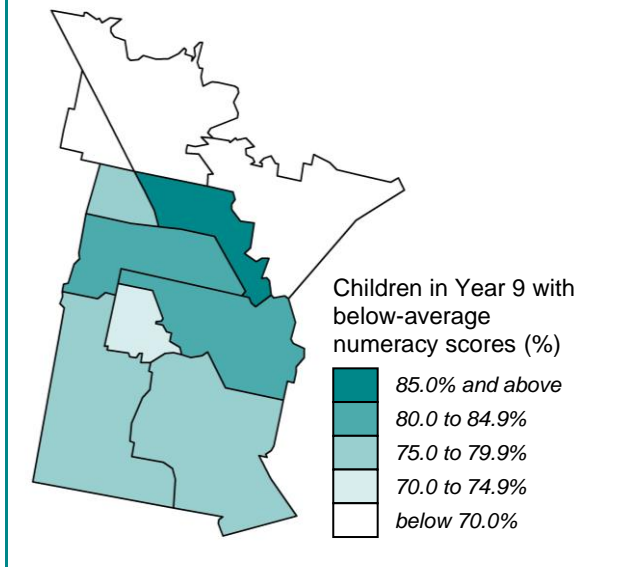
Region	%	RR#
<b>2012</b>		
<b>Brimbank</b>	<b>5.8</b>	<b>0.92</b>
Melbourne SD	4.2	0.67
Victoria	5.0	0.79
Australia	6.3	1.00
<b>2018</b>		
<b>Brimbank</b>	<b>5.3</b>	<b>1.18</b>
Greater Melbourne	4.5	1.00
Victoria	4.5	1.00
Australia	4.5	1.00

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Australia

Children in Year 9 in all PHAs other than Keilor (2.4%) had numeracy scores at a level below the national minimum standard greater than in Australia overall. The highest proportions were found in Keilor Downs (8.2%), St Albans - South/ Sunshine North (7.3%), St Albans - North/ Kings Park (7.2%), Delahey (6.9%), Ardeer - Albion/ Sunshine/ Sunshine West (6.8%) and Deer Park - Derrimut (6.4%) (Map 48 and Table 96). The

lowest proportions of children in Year 9 with scores below the national minimum standard for numeracy were recorded in Keilor (2.4%), Sydenham (4.6%) and Taylors Lake (4.8%).

**Map 48: Children in Year 9 with numeracy scores below the minimum standard by PHA in Brimbank, 2018**



**Table 96: Children in Year 9 with numeracy scores below the minimum standard, by PHA in Brimbank, 2018**

PHA	%	RR#
Ardeer - Albion/ Sunshine/ Sunshine West	6.8	1.28
Cairnlea	5.3	1.00
Deer Park - Derrimut	6.4	1.21
Delahey	6.9	1.30
Keilor	2.4	0.45
Keilor Downs	8.2	1.55
St Albans - North/ Kings Park	7.2	1.36
St Albans - South/ Sunshine North	7.3	1.38
Sydenham	4.6	0.87
Taylors Lakes	4.8	0.91
<b>Brimbank</b>	<b>5.3</b>	<b>1.00</b>

#RR (the rate ratio) is the ratio of the percentage in the area to the percentage for Brimbank

## Regional comparisons

The NAPLAN data were not available by LGA.

## Correlations

The NAPLAN data were not available for all PHAs and LGAs in Greater Melbourne.

## References

1. COAG (Council of Australian Governments) 2008. *Council of Australian Governments' Meeting 26 March 2008*. At <https://www.coag.gov.au/meeting-outcomes/coag-meeting-communicu%C3%A9-26-march-2008>

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# Summary

## Comparison tables

The following tables provide, in summary form, the data presented above for the Brimbank LGA and its PHAs. Table 97 comprises the contextual indicators and Table 98 comprises the health and wellbeing, and education and child development indicators. Each of the tables shows the percentage or rate for the indicators, with the table cells shaded to demonstrate the extent to which the percentage or rate in each PHA differs from that in Australia. Areas shaded in green indicate a good outcome, and those shaded in grey indicate a poor outcome; note that some indicators have not been shaded. Defining indicators as representing 'good' or 'poor' outcomes is, in a number of instances, somewhat arbitrary. For example, we have said that having a relatively high proportion of people in occupations of managers or professionals represents a 'good' outcome, whereas having relatively high proportions of people working as labourers is a 'poor' outcome. This allocation was made in the context of the population having sufficient resources to ensure access to adequate housing, transport etc., as well as the degree of control over one's life that we know leads to better health outcomes.

We acknowledge that while for many indicators the table delivers a clear message, this is not the case in all instances. For example, we have shaded 'managers or professionals' as a 'good outcome', with a result that the absence of managers and professionals in many PHAs is not immediately clear, as proportions in many areas are 10% or more below the Australian figure; in these cases the cells remain unshaded (white). In contrast, the proportions for people working as labourers are shaded in grey, as this group of workers have, in general, lower incomes and lower levels of education, contributing to poorer health outcomes. The cells for both Keilor and Taylors Lakes PHAs are both unshaded, as the proportion of people working as labourers is more than ten per cent below the Australian average.

Indicators that have not been mapped at the PHA level are italicised in the tables. However, all of the indicators are included in

the correlation analysis in Appendix C, and in the online atlas.

The contextual indicators, for which PHAs within the Brimbank LGA had substantially poorer outcomes, when compared with Australia, are the extent to which:

- children under 15 years of age lived in jobless families, or whose mothers had low educational attainment (while noting an improvement for this measure in Brimbank over the ten years to 2016); or
- people reported having poor proficiency in English, or were unemployed (at all ages and for young people), who were working as labourers, lived in a dwelling where crowding was a problem or in a household from where the Internet was not accessed, or were aged 15 years and over and were living with disability.

These adverse outcomes were generally most evident in St Albans – North/Kings Park, St Albans – South/Sunshine North and Ardeer – Albion/Sunshine/Sunshine West PHAs. As shown in the table there are also many instances of adverse outcomes in Cairnlea, Deer Park – Derrimut and Delahey. However, the pattern was different for player losses on gaming machines, as the data for this indicator relate to the location of the electronic gaming machines.

The indicators of health and wellbeing suggest generally poorer outcomes for the population of:

- St Albans - South/Sunshine North, for the following indicators where rates are at levels of 50% or more above the average rates for Australia – hospitalisations for ambulatory care-sensitive conditions (ACSCs) at ages 0 to 14 years - asthma conditions and dental conditions; at ages 15 years and over - type 2 diabetes; self-assessed health status as 'fair' or 'poor'; and prevalence of high or very high psychological distress;
- St Albans – North/Kings Park similarly had rates 50% or more above the national average for the following indicators – hospitalisations (ACSCs) at ages 15 years and over: type 2 diabetes; self-assessed health status reported as 'fair' or 'poor', prevalence of diabetes type 2, prevalence of high or very high psychological distress and the infant death rate.

- Poorer outcomes are also evident for various indicators in the other PHAs within Brimbank, as indicated by the grey shading in the table. Of note is the relatively poor performance in Ardeer - Albion/ Sunshine/ Sunshine West.

For the education and child development indicators, poor outcomes are particularly evident for NAPLAN test results for reading and numeracy, for children in Years 3 and 9. The poorest results were in the PHAs of St Albans - North/Kings Park and St Albans - South/Sunshine North. Similarly, poor results were also found for children living in Ardeer-Albion/Sunshine/Sunshine West, Deer Park-Derrimut and Delahey.

Poor outcomes for children who are developmentally vulnerable in one or more domains under the Australian Early Development Census (AEDC) were evident in Ardeer - Albion/ Sunshine/ Sunshine West, St Albans - North/Kings Park and Delahey, all with rates of 16% or more above the national average.

However, for several indicators, the outcomes were positive and at a level above the Australian average: these results are shaded in light to darker greens in the following tables. For example, for school leavers admitted to university there were good outcomes for the PHAs of Cairnlea, Delahey, Keilor, Keilor Downs and Taylors Lake, with rates at levels 50% or more above the average rate for Australia. Also of note are the improved outcomes for participation in pre-school, fulltime secondary school education (at age 16) and vocational education and training. There are also some encouraging signs in the data from the Australian Early Development Census.

### Populations identified in the atlas as potentially vulnerable

There is a great deal of information in the text, tables, maps and graphs describing the indicators that Brimbank Council and its community may wish to respond to or use to expand supportive initiatives already in place. Having worked with these data for some time, we suggest focusing on the following groups, for whom we have found some clustering of indicators across the Brimbank population:

- infants and children (including infant mortality and low birth weight; hospitalisations for ACSCs; children who live

in jobless families or have mothers with low educational attainment; AEDC vulnerability, and low NAPLAN scores);

- young people (including early school leavers, those who are unemployed; households where no one accessed the Internet; those not participating in secondary school; and those not learning or earning);

- women (where there is low female workforce participation, poor English proficiency, low educational attainment, and households where no one accessed the Internet; and high prevalence of self-assessed health as fair or poor, or high or very high psychological distress, obesity and diabetes type 2);

- men (with high levels of unemployment and poor English proficiency, households where no one accessed the Internet and working as a labourer; and high prevalence of self-assessed health as fair or poor, obesity, smoking, and diabetes type 2);

- disadvantaged households (high levels of disability of people living in the community; people living in crowded dwellings; and households where no one accessed the Internet).

Although not shaded in the tables, there are very high proportions of the Brimbank population who are:

- recent and longer-term migrants from predominantly non-English speaking countries - and of note is that just over one quarter (26.0%) of this group who have been in Australia for five years of more is aged 65 years and over;
- people who arrived in Australia under the permanent Humanitarian visa program.

These people have particular needs that council will have a role in providing.

### Opportunities/strengths

Childhood immunisation rates are consistent with the rates in Australia, although they could be improved to cover the five per cent of children who have not been fully immunised at five years of age.

Rates of smoking in pregnancy are generally low when compared with Greater Melbourne but have increased at a time when the rates for Australia overall have decreased.

**Table 97: Contextual indicators, PHAs in Brimbank**  
*All indicators expressed as percentages, other than the IRSD (expressed as an index)*











Indicator	A-A/S/SW	C	DP-D	D	K	KD	St A-N/KP	St A-S/SN	S	TL	Brimbank	Melb	Aust
<b>Socioeconomic status</b>													
IRSD - Summary measures of socioeconomic disadvantage	889	976	944	923	1049	973	846	841	993	1055	921	1022	1000
Children under 15 years of age in jobless families	20.3	14.2	16.0	18.9	5.3	17.1	27.0	24.3	9.9	6.6	18.3	10.0	11.5
Children under 15 years of age whose mothers had low educational attainment	23.0	15.6	16.9	20.5	6.7	15.6	25.7	27.6	10.5	8.6	19.5	11.5	17.0
Learning or earning at ages 15 to 24 years	80.8	87.5	83.3	85.6	90.4	86.8	79.9	82.7	86.3	91.1	84.1	87.3	84.3
<b>Birthplace (indicators not all shaded)</b>													
Recent arrivals from countries in which English is not the predominant language	11.7	4.2	7.0	4.1	1.0	2.9	8.6	10.5	7.7	1.6	7.4	5.9	3.8
Longer term residents from countries in which English is not the predominant language	34.4	42.7	36.3	38.9	18.9	32.7	41.1	43.0	28.4	26.1	35.7	20.3	13.4
English proficiency reported as being 'poor' by people born overseas	13.6	12.9	9.8	11.1	2.8	7.8	15.8	20.3	4.9	3.7	11.8	4.8	3.0
<b>Four main overseas countries of birth (indicators not shaded)</b>													
<i>Vietnam</i>	11.9	19.0	7.9	6.8	0.9	5.4	14.7	23.0	1.6	1.9	11.2	1.8	0.9
<i>India</i>	4.6	2.8	5.5	4.4	1.0	2.6	5.5	5.1	10.7	3.0	4.8	3.6	1.9
<i>Italy</i>	1.5	0.6	1.2	0.9	6.1	2.4	1.0	1.2	1.6	3.0	1.6	1.4	0.7
<i>Philippines</i>	2.1	5.2	5.7	5.3	0.6	1.2	2.8	2.4	4.0	1.2	3.0	1.0	1.0
<b>Four main (non-English) languages spoken at home (indicators not shaded)</b>													
<i>Vietnamese</i>	16.9	28.7	12.1	10.8	1.0	8.2	21.5	32.3	2.3	2.4	16.2	2.3	1.2
<i>Punjabi</i>	2.3	1.9	3.1	2.7	0.0	1.4	4.1	3.7	6.1	1.2	2.9	1.2	0.6
<i>Greek</i>	3.9	1.3	1.4	1.9	3.4	4.9	2.3	1.8	1.9	4.3	2.7	2.4	1.0
<i>Maltese</i>	2.5	1.4	2.1	3.0	0.9	2.1	3.5	3.7	2.0	2.2	2.6	0.4	0.1
<b>Migrants (indicators not shaded)</b>													
<i>Humanitarian stream</i>													
Total	4.6	1.5	3.9	1.9	0.0	0.9	3.8	3.6	1.0	0.3	2.9	1.2	0.8
- 2012 - 9th August 2016	1.9	0.2	1.0	0.3	0.0	0.1	0.7	1.4	0.2	0.0	0.9	0.4	0.2
- 2007 - 2011	1.7	0.3	1.3	0.3	0.0	0.3	1.2	1.1	0.4	0.0	0.9	0.4	0.3
- 2000 - 2006 (d)	1.0	1.1	1.7	1.3	0.0	0.5	1.8	1.1	0.5	0.3	1.1	0.5	0.3
<i>Family stream</i>													
Total	6.1	6.0	6.6	5.0	1.1	3.0	7.4	8.2	4.1	1.6	5.7	3.7	2.6
- 2012 - 9th August 2016	1.9	1.3	1.7	1.0	0.3	0.8	2.1	2.2	1.3	0.5	1.6	1.0	0.7
- 2007 - 2011	2.2	1.9	2.5	2.0	0.3	1.1	2.8	2.9	1.5	0.5	2.1	1.3	0.9
- 2000 - 2006 (d)	2.1	2.9	2.4	2.0	0.6	1.2	2.5	3.1	1.3	0.7	2.1	1.4	1.0
<i>Skilled stream</i>													
Total	4.5	4.6	8.6	4.9	1.2	3.1	4.1	4.0	8.9	2.4	4.8	6.8	4.9
- 2012 - 9th August 2016	1.1	0.5	1.3	0.7	0.3	0.6	0.9	0.8	2.3	0.4	0.9	1.5	1.0
- 2007 - 2011	2.0	1.4	3.4	2.1	0.4	1.3	2.1	2.0	3.6	0.9	2.1	2.7	2.0
- 2000 - 2006 (d)	1.5	2.6	3.8	2.1	0.6	1.2	1.2	1.3	3.0	1.0	1.8	2.6	1.8
<b>Aboriginal and Torres Strait Islander people (indicators not shaded)</b>													
	0.6	0.1	0.6	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.6	3.3

- Notes: 1. Key to areas: Ardeer - Albion/ Sunshine/ Sunshine West, Cairnlea, Deer Park – Derrimut, Delahey, Keilor, Keilor Downs, St Albans - North/ Kings Park, St Albans - South/ Sunshine North, Sydenham, Taylors Lakes, Brimbank LGA, Melbourne, Australia  
2. Details of legend (shading) and footnotes are at the end of the table (next page)  
3. Where the text is italicised, the indicators have not been reported on in detail in this atlas, although they are included in the online atlas and the correlation table

**Table 97: Contextual indicators, PHAs in Brimbank ...cont**

*All indicators expressed as percentages*

Indicator	A-A/S/SW	C	DP-D	D	K	KD	St A-N/KP	St A-S/SN	S	TL	Brimbank	Melb	Australia
<b>Labour force</b>													
Unemployed (Census)	12.5	6.8	8.9	9.5	3.3	8.1	13.9	15.5	7.0	3.8	10.0	5.9	5.9
Unemployed youth (Census)	21.9	17.7	21.0	20.2	12.6	16.5	22.3	20.6	17.4	12.7	19.2	15.9	14.9
Female labour force participation (Census)	47.5	58.1	53.3	52.3	53.8	52.5	42.2	43.8	57.1	61.1	50.0	56.9	55.9
People working as managers or as professionals	23.3	27.0	23.0	18.1	35.5	26.1	15.9	17.6	24.3	30.6	22.8	38.2	35.2
People working as labourers	16.7	14.0	13.8	16.5	6.8	11.1	20.1	20.8	11.5	8.2	14.8	8.1	9.5
<b>Housing and transport</b>													
Social housing	2.4	0.7	2.1	4.5	0.3	3.3	4.0	3.2	0.5	0.3	2.5	2.7	4.2
Low income households under financial stress from rent or mortgage payments	26.9	33.2	32.4	28.3	16.4	21.4	26.7	25.4	33.9	16.7	26.5	30.6	28.4
Housing suitability	18.7	11.6	14.2	13.3	3.4	8.6	18.0	21.7	9.8	4.7	14.6	7.7	7.1
No motor vehicle at dwelling on Census night	6.3	1.6	2.9	3.0	2.0	2.6	5.8	5.9	2.3	1.3	4.3	5.3	4.6
<b>Internet</b>													
Internet not accessed at home	14.0	5.0	10.4	9.0	8.4	9.5	14.6	13.3	7.2	7.0	11.4	7.3	8.8
<b>Electronic gaming machines</b>													
Player losses (\$m)	690	0	1,292	0	806	2,096	183	1,100	0	2,093	851	551	636
<b>Community strengths</b>													
Voluntary work through an organisation	11.6	11.4	10.4	10.4	15.8	11.3	9.0	9.6	12.0	13.1	10.9	17.6	19.0
<b>People living with a disability, who are living in the community</b>													
0 to 14 years	1.8	2.6	2.3	2.4	2.7	3.0	2.5	1.7	2.6	2.6	2.3	2.4	2.7
15 years and over	7.6	5.0	5.7	7.0	5.9	7.8	8.9	8.1	4.7	5.1	7.0	4.8	5.2

Good outcome		Poor outcome	
	50% or more above Australian average		50% or more above Australian average
	30-49% above Australian average		30-49% above Australian average
	10-29% above Australian average		10-29% above Australian average
	within +/- 10% of Australian average		within +/- 10% of Australian average
	10% or more below Australian average		10% or more below Australian average

Notes: 1. Key to areas: Ardeer - Albion/ Sunshine/ Sunshine West, Cairnlea, Deer Park – Derrimut, Delahey, Keilor, Keilor Downs, St Albans - North/ Kings Park, St Albans - South/ Sunshine North, Sydenham, Taylors Lakes

Source: See Appendix A



**Table 98: Indicators of health and wellbeing, and education and child development, PHAs in Brimbank**

*Infant deaths expressed as a rate per 1,000 births, hospitalisations per 1,000 population and premature mortality per 100,000 population; all other indicators expressed as percentages*

Indicator	A-A/S/SW	C	DP-D	D	K	KD	St A-N/KP	St A-S/SN	S	TL	Brimbank	Melb	Australia
<b>Health and wellbeing</b>													
Mothers and babies													
- Low birthweight babies	7.6	6.3	6.2	8.0	4.1	7.2	7.6	7.5	8.0	7.0	7.2	6.3	6.1
- Women smoking during pregnancy	8.5	11.2	10.6	10.5	9.8	13.0	11.5	9.8	10.5	13.9	10.5	11.2	12.3
- <i>Childhood immunisation at five years of age</i>	93	97.8	94.5	98	94.6	97.1	92.8	95.9	96.1	95.7	94.8	94.7	94.7
Hospitalisations for ambulatory care-sensitive conditions													
- 0-14 years: total	22.1	13.2	13.5	14.6	15.5	15.4	18.1	22.7	14.5	13.8	17.4	16.7	20.6
- 0-14 years: <i>asthma</i>	4.5	..	2.9	..	7.1	4.3	2.9	4.3	2.0	3.1	3.5	2.8	2.7
- 0-14 years: <i>dental conditions</i>	8.2	5.2	5.2	5.3	..	7.0	7.4	10.6	5.8	5.0	6.9	4.8	5.8
- 15 years and over: total	34.4	16.1	27.9	23.0	22.7	29.5	36.8	40.0	29.5	30.2	32.2	32.2	32.1
- 15 years and over: <i>type 2 diabetes</i>	3.8	1.5	2.5	2.0	1.1	3.1	3.6	4.5	1.7	2.4	3.12	2.4	2.3
- 15 years and over: <i>angina</i>	1.2	..	1.2	..	1.2	1.0	1.5	1.4	1.5	1.2	1.3	1.4	1.7
- 15 years and over: <i>COPD</i>	3.0	..	2.9	1.6	1.7	1.7	3.8	3.6	1.4	2.5	2.8	3.3	4.0
<b>Health status</b>													
- Self-assessed health status reported as 'fair' or 'poor**	22.2	19.4	20.7	22.5	13.6	20.1	25.1	24.0	18.1	15.2	21.2	15.1	14.8
- Prevalence of diabetes type 2*	6.2	6.1	6.4	6.5	3.7	5.2	6.7	6.5	6.0	4.4	5.9	4.6	4.4
- <i>Prevalence of mental health disorders*</i>	13.7	11.8	13.7	13.0	15.7	17.3	14.2	13.7	13.9	13.6	14.0	16.5	17.5
- Prevalence of circulatory system diseases*	17.5	22.4	23.0	18.3	19.3	17.2	17.4	18.9	18.1	17.1	18.6	18.2	18.3
- <i>Infant death rate</i>	4.6	..	6.8	..	..	..	7.6	3.2	6.8	..	5.1	2.8	3.5
- <i>Premature mortality (deaths before 75 years of age)</i>													
-- <i>Males</i>	325.0	157.8	270.5	296.9	167.2	222.7	324.7	339.1	283.7	149.3	275.9	249.8	293.9
-- <i>Females</i>	190.6	76.8	220.6	160.8	121.0	190.1	163.4	157.7	207.7	130.0	169.0	157.7	182.2
-- <i>External causes</i>	32.9	15.2	24.5	38.4	..	19.0	25.3	25.6	19.1	16.3	24.3	21.7	29.5
<b>Health risks</b>													
- Prevalence of high or very high psychological distress*	16.3	13.6	15.9	18.2	10.2	14.0	19.2	17.7	15.6	11.4	15.9	12.3	11.7
- Smoking: males*	21.1	16.4	18.7	21.3	17.3	18.5	23.1	21.6	18.5	15.9	20.0	17.1	18.9
- Smoking: females*	15.8	11.5	13.8	15.1	11.3	12.8	17.2	16.3	13.3	10.0	14.4	11.8	13.3
- Obesity: males*	27.3	25.6	31.0	28.4	24.3	26.2	28.3	24.4	30.2	24.6	27.2	24.6	28.4
- Obesity: females*	27.7	25.1	30.6	28.6	24.6	26.5	28.5	24.4	30.8	25.3	27.3	24.9	27.5

\*Indicates data are modelled estimates: see p. 111

Notes: 1. Key to areas: Ardeer - Albion/ Sunshine/ Sunshine West, Cairnlea, Deer Park – Derrimut, Delahey, Keilor, Keilor Downs, St Albans - North/ Kings Park, St Albans - South/ Sunshine North, Sydenham, Taylors Lakes

2. Details of legend (shading) and footnotes are at the end of the table (next page)











3. Where the text is italicised, the indicators have not been reported on in detail in this atlas, although they are included in the online atlas and the correlation table

**Table 99: Indicators of health and wellbeing, and education and child development, PHAs in Brimbank ...cont**

*All indicators expressed as percentages, other than participation in vocational education and training (expressed as a rate per 100,000 population)*

Indicator	A-A/S/SW	C	DP-D	D	K	KD	St A-N/KP	St A-S/SN	S	TL	Brimbank	Melb	Australia
<b>Child development and education</b>													
Participation in preschool	92.9	92.5	87.1	95.7	69.4	103.8	78.4	76.8	81.0	70.9	84.1	84.2	86.3
Young people aged 16 participating in full-time secondary school	81.2	86.7	82.0	87.1	86.5	82.2	80.8	80.3	84.2	91.4	84.3	87.4	84.1
<i>Participation in vocational education and training (ASR)</i>	23.2	15.3	20.6	23.6	16.1	19.0	34.0	8.1	16.0	15.7	20.3	16.3	18.3
<i>School leavers admitted to university</i>	43.2	61.3	46.4	53.2	65.2	50.3	44.1	43.8	43.1	66.5	49.8	45.6	33.6
Early school leavers (ASR)	33.2	27.3	30.5	31.9	26.8	30.6	34.4	34.7	25.7	24.9	31.2	23.9	30.4
Highest level of education:													
- Bachelor Degree or higher	16.4	20.3	16.8	13.0	19.6	15.6	11.4	13.4	18.8	19.3	15.0	26.7	22.0
- Advanced Diploma or lower	21.0	20.5	23.8	24.5	28.8	26.3	21.8	19.1	26.5	26.7	22.9	24.6	27.7
AEDC: children who are developmentally													
- on track in the Physical health and wellbeing domain	77.8	88.3	82.9	80.5	84.2	85.5	75.3	81.0	81.0	80.1	80.6	82.0	78.1
- on track in the Language and cognitive skills (school-based) domain	73.3	89.0	81.0	66.2	92.1	84.3	75.7	80.5	80.8	82.3	79.3	85.3	84.4
- vulnerable on one or more domains	33.3	16.3	21.6	30.3	15.8	21.2	33.0	24.6	22.5	25.5	26.2	19.2	21.7
NAPLAN: children with results below the national minimum standard in													
- reading outcomes in Year 3	5.0	3.8	7.1	3.9	4.1	4.3	12.8	10.7	5.3	3.0	5.7	4.5	4.4
<i>- reading outcomes in Year 5</i>	8.9	4.4	9.1	8.7	2.9	3.4	11.7	10.4	5.1	6.8	6.5	5.0	5.1
<i>- reading outcomes in Year 7</i>	9.0	6.8	8.2	9.2	2.8	3.8	9.2	6.7	4.8	3.8	6.4	5.3	5.9
- reading outcomes in Year 9	9.3	5.8	7.8	8.8	3.5	7.3	10.3	9.0	7.7	3.5	7.4	6.7	6.6
- numeracy outcomes in Year 3	3.7	3.8	4.1	4.9	2.6	6.5	9.4	7.8	4.4	1.2	4.4	3.6	4.1
<i>- numeracy outcomes in Year 5</i>	4.7	3.8	7.0	5.0	1.1	3.3	9.1	8.5	1.5	3.8	4.7	3.5	4.3
<i>- numeracy outcomes in Year 7</i>	7.2	6.7	7.1	10.7	1.8	3.8	6.3	6.1	4.0	5.6	4.6	3.8	4.5
- numeracy outcomes in Year 9	6.8	5.3	6.4	6.9	2.4	8.2	7.2	7.3	4.6	4.8	5.3	4.5	4.5

Key to shading

Good outcome		Poor outcome	
	50% or more above Australian average		50% or more above Australian average
	30-49% above Australian average		30-49% above Australian average
	10-29% above Australian average		10-29% above Australian average
	within +/- 10% of Australian average		within +/- 10% of Australian average
	10% or more below Australian average		10% or more below Australian average

Notes: 1. Key to areas: Ardeer - Albion/ Sunshine/ Sunshine West, Cairnlea, Deer Park – Derrimut, Delahey, Keilor, Keilor Downs, St Albans - North/ Kings Park, St Albans - South/ Sunshine North, Sydenham, Taylors Lakes

2. Where the text is italicised, the indicators have not been reported on in detail in this atlas, although they are included in the online atlas and the correlation table

Source: See Appendix A

Participation rates of young people in VET programs are above average in half of the PHAs in Brimbank. However, in PHAs with below-average rates of participation in VET programs, the numbers of school leavers admitted to university are above-average.

However, rates of youth unemployment, which are above the average for Greater Melbourne, need further attention.

The higher proportions of people from non-English speaking countries who live in Brimbank contribute to a vibrant, multicultural community, which enhances the City as a cultural precinct. While the rate of undertaking voluntary work through an organisation is lower.

### Challenges/ further efforts

Markedly more young children in Brimbank were assessed as being developmentally vulnerable on one or more domains under the AEDC when compared with the outcome for Greater Melbourne overall. There are also higher proportions of children living in families where the mother has low educational attainment and/or in jobless families.

Opportunities to improve developmental outcomes for young children, especially through targeted, subsidised preschool programs should be considered, and are likely to improve their readiness to learn at school entry and beyond. Similarly, proportions of students in Years 3 NAPLAN scores in reading and numeracy outcomes below the national minimum standard are relatively high and need improving; it is of note that the gap evident in Year 3 between the Brimbank and national proportions is smaller for students in Year 9.

Women with low educational attainment, poor proficiency in English and households where no one accessed the Internet, face substantial barriers to finding employment, which is likely reflected in the relatively low female workforce participation rate for Brimbank (most evident in Ardeer - Albion/ Sunshine/ Sunshine West, St Albans - North/ Kings Park and St Albans - South/ Sunshine North), compared to the Greater Melbourne average. Higher estimated prevalence of high or very high levels of psychological distress, smoking and obesity also contribute to their poorer health and wellbeing, as well as to the likelihood of living in low income, welfare-dependent and jobless

households, and financial stress from rent or mortgage payments. Interventions to increase women's proficiency in English and their educational outcomes should improve their chances to participate in the workforce. Better health literacy will also provide greater understanding of their health and that of their children, as will timely access to culturally responsive primary health care.

The increase in smoking during pregnancy, and which population group or groups are driving it, would be worthy of further investigation.

Men who are unemployed and unskilled and have poor proficiency in English and households where no one accessed the Internet also face additional challenges in finding employment.

There are higher proportions of households in Brimbank which are significantly disadvantaged because of low incomes, lack of employment, welfare dependency, financial stress from rent or mortgage payments, and high levels of disability than for Greater Melbourne's LGAs. Such households also more likely to experience difficulty in accessing services.

Inequalities in outcomes span populations, so it is important to consider the differences across all population subgroups. Examining patterns in disaggregated data, such as those represented by the indicators in this atlas, helps to identify the most appropriate approaches to tackling inequalities. Interventions, particularly those that focus on the determinants of health, learning, development and wellbeing, and which address the lack of opportunities that many other households in Greater Melbourne already enjoy, are needed across the life course, to ensure that all residents can lead flourishing, productive and fulfilled lives, and contribute to a sustainable and prosperous future for Brimbank.

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# Appendices

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

- Appendix A: Notes on the indicators and data sources
- Appendix B: Correlation analysis
- Appendix C: Key maps

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# Appendix A: Notes on the indicators and data sources

## Background details

### 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 where there were between one and four cases.

### Glossary

.. not applicable

### Measures used

Data are presented as percentages, rates per population, or rate 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 standardised rates compare the actual number of events in an area (e.g., in the LGA of Brimbank) with the expected number of events based on rates in a reference population (e.g., in Australia). These rates are generally based on the five-year age group data in the reference population. This effectively means that the remaining 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 2.

### Socioeconomic status

#### Index of Relative Socio-economic Disadvantage, 2016

The Index of Relative Socio-economic Disadvantage is one of four socioeconomic indexes produced by the ABS from the 2016 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), 2016* (ABS Cat. no. 2033.0.55.001).

*Source: Compiled by PHIDU using data from ABS SEIFA, 2016 Census.*

### Crowding, 2016

Persons living in dwellings assessed as crowded according to the Canadian National Occupancy Standard. The measure assesses the bedroom requirements of a household, accounting for both household size and composition, specifying that:

- there should be no more than two persons per bedroom
- children less than five years of age of different sexes may reasonably share a bedroom
- children less than 18 years of age and of the same sex may reasonably share a bedroom
- single household members 18 years and over should have a separate bedroom, as should parents or couples and
- a lone person household may reasonably occupy a bed-sitter.

Note: Severely crowded households are one of the six Homeless Operational Groups developed by the ABS to estimate homelessness. This is because people living in severe overcrowding are considered to lack of control of and access to space for social relations (one of the key elements of the ABS definition of homelessness) and are considered not to have accommodation alternatives when remaining in such extreme living arrangements (Australian Bureau of Statistics. Information Paper – a Statistical Definition of Homelessness, Cat. No. 4922.0. 2012).

Source: Compiled by PHIDU using data from the ABS 2016 Census, extracted from Census TableBuilder.

## Electronic Gaming Machines

Source: Victorian Commission for Gambling and Liquor Regulation, data accessed 17 June 2019 at <https://www.vcglr.vic.gov.au/resources/data-and-research/gambling-data/gaming-expenditure-venue>

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

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 needs 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 young people are reported under this measure as having a profound or severe disability as 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 at a small geographical level.

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 the disabled and psychiatric hospitals. The figures in this atlas exclude people living in these accommodation types, to provide an estimate of the numbers 'living in the community'.

Source: Compiled by PHIDU using data from the ABS 2016 Census (unpublished data purchased from ABS).

## Health and wellbeing

### Mothers and babies

#### Low birth weight 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;
- 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 the NSW Department of Health; Victorian Perinatal Data Collection; Perinatal Data Collection, Department of Health, Queensland; SA Health; WA Department of Health; the Tasmanian Perinatal Database; NT Department of Health and Families and Health Directorate, ACT Government.

### 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.

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

### Hospitalisations for ambulatory care-sensitive conditions

Ambulatory care-sensitive conditions 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.

Source: Compiled by PHIDU using data from the Australian Institute of Health and Welfare, supplied on behalf of State and Territory health departments for 2016/17; and the ABS Estimated Resident Population, 30 June 2016



## Health status: modelled estimates from the 2014–15 National Health Survey

Source: All modelled estimates compiled by PHIDU using data produced from the 2014–15 National Health Survey, ABS (unpublished data purchased from ABS)

### 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 type 2

The prevalence of diabetes type 2 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 AHS: people with an HbA1c level of greater than or equal to 6.5% were recorded as having diabetes type 2 (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.

### Prevalence of high or very high psychological distress

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.

## Education and child development

### Participation in preschool and secondary school

V. However, estimates can be made from ABS Census data for 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, Vic, Tas, NT and ACT; and 13 to 17 years of age in Qld, SA and WA.

*Source: Compiled by PHIDU using data from the ABS 2016 Census.*

### 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

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.

*Source: Compiled by PHIDU using data supplied by the Social Research Centre, on behalf of the Australian Government Department of Education*

### 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 are considered to have scores below the national minimum standard for reading or numeracy.

The data, other than for Victoria and Australia, are estimates based on data for which the postcode of the student was known.

*Source for data for Victoria: Compiled by PHIDU using data supplied by the Data Analysis, Measurement and Reporting Unit, Victorian Curriculum and Assessment Authority*

Note: Data for Australia are from <https://www.nap.edu.au/information/faqs/2018-naplan-results>

**Table 99: Data sources for indicators not included above**

<b>Data indicator</b>	<b>Source</b>
Children in jobless families	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016 (unpublished) data.
Children in families with mothers with low educational attainment	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016 (unpublished) data.
Learning or earning at ages 15 to 24	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
People born in NES countries (and resident for less than five years)	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
People born in NES countries (and resident for five years or more)	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
People born overseas reporting poor proficiency in English	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
Permanent humanitarian migrants	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
Aboriginal and Torres Strait Islander people	Compiled by PHIDU based on the ABS Estimates of Aboriginal and Torres Strait Islander Australians, June 2016.
Unemployment	Compiled by PHIDU based on the <i>Small Area Labour Markets - Australia</i> , Department of Employment, June Quarter 2016.
Youth unemployment	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
Female labour force participation	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
People working as managers or professionals	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016
People working as labourers	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016
Social housing	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
Housing stress	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016 (unpublished) data.
No motor vehicle	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
Internet not accessed at home	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
Voluntary work	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
Early school leavers	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016
Bachelor's degree or higher	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.
Advanced Diploma, Diploma or Certificate	Compiled by PHIDU based on the ABS Census of Population and Housing, August 2016.

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## Appendix B: Correlation analysis

A correlation analysis has been undertaken to illustrate the extent of association at each of the Population Health Area (PHA) and Local Government Area (LGA) level between the indicators in this atlas for which data were available for Greater 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 at the PHA level in Greater Melbourne are discussed under each indicator in Section 2, where you can find full definitions and links to data sources, with additional information in Appendix A). In discussing the correlations, attention is drawn to the existence of similar associations at the PHA level within Brimbank.

Data for several indicators included in Tables 1 and 2 but which were not available discussed in detail in Section 2 have been included in the correlation analysis (and the indicator name italicised).

The tables containing the results of the analysis follow.

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**Table 100: Correlation matrix of the indicator data at the Population Health Area level, in Greater Melbourne...cont**

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	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)	-0.06	0.54**	-0.44**	-0.69**	0.62**	0.00	0.58**	0.80**	-0.77**
Children living in jobless families	0.06	-0.61**	0.34**	0.53**	-0.48**	-0.11	-0.58**	-0.80**	0.76**
Children in families where mother has low educational attainment	0.05	-0.47**	0.55**	0.83**	-0.79**	0.32**	-0.53**	-0.80**	0.71**
Learning or earning at ages 15 to 24 yrs	-0.03	0.53**	-0.49**	-0.63**	0.62**	-0.14	0.51**	0.71**	-0.65**
Recent arrivals of people born in NES countries	0.00	-0.51**	-0.15*	-0.23**	0.21**	-0.57**	-0.14	-0.25**	0.35**
Longer term residents born in NES countries	-0.04	-0.05	0.05	0.23**	-0.15*	-0.38**	-0.23**	-0.39**	0.47**
People born overseas reporting poor proficiency in English	-0.01	-0.22**	0.07	0.26**	-0.16*	-0.45**	-0.34**	-0.48**	0.56**
Humanitarian migrants	0.02	-0.24**	0.37**	0.51**	-0.42**	-0.03	-0.46**	-0.65**	0.62**
Aboriginal and Torres Strait Islander peoples	0.02	-0.37**	0.38**	0.56**	-0.57**	0.51**	-0.35**	-0.37**	0.28**
Unemployment	0.06	-0.39**	0.43**	0.62**	-0.51**	-0.03	-0.53**	-0.72**	0.68**
Unemployed youth	0.06	-0.56**	0.03	0.13	-0.11	-0.38**	-0.31**	-0.49**	0.53**
Female labour force participation	-0.03	0.39**	-0.29**	-0.48**	0.40**	0.03	0.48**	0.63**	-0.59**
People working as managers or professionals	-0.06	0.26**	-0.59**	-0.94**	0.95**	-0.62**	0.46**	0.65**	-0.58**
People working as labourers	0.02	-0.37**	0.52**	0.84**	-0.81**	0.32**	-0.49**	-0.73**	0.68**
Social housing	0.00	-0.41**	0.04	-0.07	0.11	-0.39**	-0.22**	-0.24**	0.25**
Low income households under financial stress from rent or mortgage	-0.01	-0.55**	-0.15*	-0.30**	0.24**	-0.51**	-0.06	-0.19**	0.23**
Crowding	0.04	-0.54**	0.19**	0.29**	-0.24**	-0.41**	-0.46**	-0.64**	0.68**
No motor vehicle	0.01	-0.56**	-0.22**	-0.44**	0.40**	-0.64**	-0.07	-0.11	0.16*
No Internet access at home	0.06	-0.43**	0.39**	0.61**	-0.54**	-0.04	-0.51**	-0.63**	0.64**
Electronic gaming machines - player losses (\$m)	-0.06	-0.17*	0.08	0.24**	-0.22**	-0.01	-0.31**	-0.27**	0.35**
Voluntary work through an organisation	-0.05	0.27**	-0.39**	-0.70**	0.70**	-0.14	0.49**	0.66**	-0.67**
Children living with disability aged 0 to 14 yrs	0.02	-0.15*	0.44**	0.66**	-0.68**	0.69**	-0.29**	-0.34**	0.25**
People living with disability aged 15 yrs and over	0.08	-0.15*	0.38**	0.72**	-0.60**	0.13	-0.52**	-0.61**	0.57**
Low birthweight babies	0.08	-0.31**	0.08	0.27**	-0.28**	-0.12	-0.28**	-0.45**	0.42**
Women smoking during pregnancy	-0.01	-0.25**	0.42**	0.60**	-0.65**	0.60**	-0.17*	-0.35**	0.23**
<u>Children fully immunised at 5 years of age</u>	0.02	0.28**	0.21**	0.44**	-0.4**	0.53**	0.04	0.06	-0.17*
Hospitalisations for ACSCs: children aged 0 to 14 yrs	-0.04	-0.53**	0.10	0.22**	-0.21**	-0.06	-0.24**	-0.38**	0.33**
<u>Hospitalisations for ACSCs: children aged 0 to 14 yrs: dental conditions</u>	0.01	-0.47**	-0.02	0.01	0.01	-0.25**	-0.15	-0.26**	0.21**
Hospitalisations for ACSCs: people aged 15 yrs and over	0.02	-0.16*	0.34**	0.65**	-0.58**	0.28**	-0.46**	-0.54**	0.51**
<u>Hospitalisations for ACSCs: people aged 15 yrs and over: type 2 diabetes</u>	0.03	-0.23**	0.23**	0.50**	-0.47**	0.16*	-0.38**	-0.46**	0.46**
<u>Hospitalisations for ACSCs: people aged 15 yrs and over: angina</u>	-0.07	-0.16*	0.20**	0.51**	-0.48**	0.25**	-0.27**	-0.44**	0.38**
<u>Hospitalisations for ACSCs: people aged 15 yrs and over: COPD</u>	0.02	-0.3**	0.33**	0.54**	-0.50**	0.25**	-0.43**	-0.47**	0.48**
Self assessed health status reported as 'fair' or 'poor' <sup>#</sup>	0.07	-0.47**	0.37**	0.64**	-0.60**	-0.03	-0.54**	-0.70**	0.69**
Prevalence of diabetes mellitus <sup>#</sup>	0.07	-0.45**	0.47**	0.76**	-0.72**	0.17*	-0.49**	-0.75**	0.71**
Prevalence of mental health disorders <sup>#</sup>	0.02	-0.02	0.05	-0.05	0.00	0.30**	0.13	0.21**	-0.29**
Prevalence of circulatory system diseases <sup>#</sup>	0.13	-0.16*	0.27**	0.48**	-0.51**	0.42**	-0.24**	-0.33**	0.28**
<u>Premature mortality - males</u>	0.06	-0.47**	0.38**	0.48**	-0.43**	0.03	-0.42**	-0.52**	0.46**
<u>Premature mortality - females</u>	0.09	-0.27**	0.42**	0.55**	-0.50**	0.23**	-0.44**	-0.47**	0.47**
<u>Premature mortality - external causes</u>	0.02	-0.43**	0.28**	0.29**	-0.30**	0.13	-0.26**	-0.38**	0.30**
High or very high psychological distress <sup>#</sup>	0.04	-0.4**	0.50**	0.79**	-0.77**	0.27**	-0.49**	-0.70**	0.65**
Male smokers <sup>#</sup>	0.07	-0.34**	0.57**	0.85**	-0.86**	0.60**	-0.46**	-0.60**	0.47**
Females smokers <sup>#</sup>	0.07	-0.37**	0.54**	0.82**	-0.80**	0.45**	-0.51**	-0.65**	0.54**
Obese males <sup>#</sup>	0.09	-0.19**	0.55**	0.88**	-0.89**	0.68**	-0.40**	-0.53**	0.44**
Obese females <sup>#</sup>	0.09	-0.18*	0.55**	0.88**	-0.89**	0.70**	-0.39**	-0.52**	0.42**
Participation in preschool	1.00	-0.01	-0.04	0.08	-0.09	0.05	-0.20**	-0.06	0.10
Young people participating in full-time secondary education	-0.01	1.00	-0.19*	-0.18*	0.25**	0.09	0.31**	0.55**	-0.47**
<u>Participation in vocational education and training</u>	-0.04	-0.19*	1.00	0.60**	-0.61**	0.46**	-0.33**	-0.43**	0.35**
Early school leavers	0.08	-0.18*	0.60**	1.00	-0.96**	0.65**	-0.48**	-0.62**	0.54**
Highest level of education - Bachelor Degree or higher	-0.09	0.25**	-0.61**	-0.96**	1.00	-0.74**	0.44**	0.61**	-0.52**
Highest level of education - Advanced Diploma, Diploma or Certificate	0.05	0.09	0.46**	0.65**	-0.74**	1.00	-0.10	-0.12	0.01
AEDC: Children developmentally on track - physical health and wellbeing	-0.20**	0.31**	-0.33**	-0.48**	0.44**	-0.1	1.00	0.66**	-0.79**
AEDC: Children developmentally on track - language and cognitive skills	-0.06	0.55**	-0.43**	-0.62**	0.61**	-0.12	0.66**	1.00	-0.88**
AEDC: Children developmentally vulnerable on one or more domains	0.10	-0.47**	0.35**	0.54**	-0.52**	0.01	-0.79**	-0.88**	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







**Table 101: Correlation matrix of the indicator data at the Local Government Area level, in Greater Melbourne...cont**

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	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)	-0.26	0.50**	-0.62**	-0.69**	0.68**	-0.13	0.66**	0.87**	-0.88**
Children living in jobless families	0.22	-0.52**	0.55**	0.61**	-0.60**	0.06	-0.70**	-0.89**	0.91**
Children in families where mother has low educational attainment	-0.08	-0.41*	0.84**	0.86**	-0.87**	0.51**	-0.65**	-0.91**	0.83**
Learning or earning at ages 15 to 24 yrs	-0.18	0.59**	-0.60**	-0.59**	0.65**	-0.19	0.59**	0.80**	-0.75**
Recent arrivals of people born in NES countries	0.58**	-0.61**	-0.34	-0.36*	0.32	-0.64**	-0.10	-0.10	0.25
Longer term residents born in NES countries	0.39*	-0.04	0.06	0.22	-0.13	-0.34	-0.24	-0.42*	0.54**
People born overseas reporting poor proficiency in English	0.44*	-0.19	0.03	0.17	-0.10	-0.42*	-0.30	-0.44*	0.58**
Humanitarian migrants	0.10	-0.25	0.54**	0.60**	-0.56**	0.12	-0.56**	-0.82**	0.82**
Aboriginal and Torres Strait Islander peoples	-0.18	-0.39*	0.68**	0.66**	-0.72**	0.63**	-0.52**	-0.55**	0.40*
Unemployment	0.11	-0.25	0.57**	0.70**	-0.64**	0.14	-0.57**	-0.81**	0.81**
Unemployed youth	0.57**	-0.62**	0.01	0.04	-0.05	-0.38*	-0.32	-0.41*	0.50**
Female labour force participation	-0.01	0.16	-0.31	-0.38*	0.33	-0.08	0.42*	0.52**	-0.54**
People working as managers or professionals	0.20	0.20	-0.91**	-0.97**	0.97**	-0.74**	0.57**	0.78**	-0.66**
People working as labourers	-0.06	-0.30	0.80**	0.88**	-0.87**	0.49**	-0.56**	-0.83**	0.77**
Social housing	0.56**	-0.30	-0.31	-0.39*	0.34	-0.58**	0.02	0.06	0.04
Low income households under financial stress from rent or mortgage	0.48**	-0.70**	-0.33	-0.41*	0.30	-0.56**	-0.07	-0.10	0.20
Crowding	0.53**	-0.64**	0.10	0.15	-0.15	-0.42*	-0.45*	-0.58**	0.69**
No motor vehicle	0.55**	-0.64**	-0.52**	-0.61**	0.50**	-0.72**	0.01	0.10	0.04
No Internet access at home	0.39*	-0.39*	0.46**	0.56**	-0.53**	-0.02	-0.53**	-0.67**	0.70**
Electronic gaming machines - player losses (\$m)	0.47**	-0.21	0.47**	0.51**	-0.5**	0.13	-0.41*	-0.54**	0.54**
Voluntary work through an organisation	-0.22	0.40*	-0.64**	-0.73**	0.74**	-0.22	0.60**	0.83**	-0.81**
Children living with disability aged 0 to 14 yrs	-0.35	-0.11	0.81**	0.80**	-0.82**	0.89**	-0.47**	-0.50**	0.34
People living with disability aged 15 yrs and over	0.02	0.07	0.57**	0.74**	-0.64**	0.29	-0.53**	-0.62**	0.60**
Low birthweight babies	0.25	-0.52**	0.32	0.40*	-0.42*	-0.03	-0.40*	-0.64**	0.64**
Women smoking during pregnancy	-0.31	-0.33	0.71**	0.67**	-0.71**	0.66**	-0.28	-0.51**	0.37*
<u>Children fully immunised at 5 years of age</u>	-0.34	0.51**	0.48**	0.60**	-0.49**	0.61**	-0.08	-0.14	-0.04
Hospitalisations for ACSCs: children aged 0 to 14 yrs	0.27	-0.68**	0.45*	0.42*	-0.49**	0.12	-0.60**	-0.70**	0.70**
<u>Hospitalisations for ACSCs: children aged 0 to 14 yrs: asthma</u>	0.55**	-0.64**	0.10	0.12	-0.17	-0.34	-0.47**	-0.54**	0.62**
<u>Hospitalisations for ACSCs: children aged 0 to 14 yrs: dental conditions</u>	0.45*	-0.46**	0.09	0.01	-0.01	-0.31	-0.40*	-0.33	0.39*
Hospitalisations for ACSCs: people aged 15 yrs and over	0.00	-0.06	0.66**	0.72**	-0.69**	0.45*	-0.46**	-0.63**	0.53**
<u>Hospitalisations for ACSCs: people aged 15 yrs and over: type 2 diabetes</u>	0.11	-0.08	0.54**	0.60**	-0.57**	0.32	-0.48**	-0.57**	0.51**
<u>Hospitalisations for ACSCs: people aged 15 yrs and over: angina</u>	-0.17	-0.07	0.67**	0.73**	-0.71**	0.50**	-0.39*	-0.66**	0.56**
<u>Hospitalisations for ACSCs: people aged 15 yrs and over: COPD</u>	0.06	-0.21	0.63**	0.63**	-0.65**	0.43*	-0.38*	-0.58**	0.47**
Self assessed health status reported as 'fair' or 'poor' <sup>#</sup>	0.39*	-0.44*	0.52**	0.64**	-0.62**	0.08	-0.61**	-0.74**	0.75**
Prevalence of diabetes mellitus <sup>#</sup>	0.12	-0.39*	0.76**	0.85**	-0.83**	0.37*	-0.62**	-0.88**	0.81**
Prevalence of mental health disorders <sup>#</sup>	0.20	-0.56**	-0.20	-0.34	0.21	-0.24	-0.04	0.03	0.02
Prevalence of circulatory system diseases <sup>#</sup>	-0.25	-0.25	0.76**	0.76**	-0.79**	0.72**	-0.44*	-0.61**	0.42*
Infant death rate	0.08	-0.35	0.05	0.09	-0.14	-0.15	-0.12	-0.29	0.36*
<u>Premature mortality - males</u>	0.40*	-0.40*	0.50**	0.54**	-0.56**	0.15	-0.44*	-0.56**	0.51**
<u>Premature mortality - females</u>	0.02	-0.19	0.66**	0.74**	-0.73**	0.50**	-0.47**	-0.59**	0.50**
<u>Premature mortality - external causes</u>	0.30	-0.36*	0.58**	0.63**	-0.64**	0.27	-0.47**	-0.60**	0.54**
High or very high psychological distress <sup>#</sup>	0.12	-0.43*	0.77**	0.85**	-0.85**	0.41*	-0.61**	-0.85**	0.78**
Male smokers <sup>#</sup>	-0.19	-0.29	0.88**	0.88**	-0.92**	0.74**	-0.57**	-0.71**	0.56**
Females smokers <sup>#</sup>	-0.11	-0.31	0.85**	0.86**	-0.89**	0.63**	-0.59**	-0.75**	0.62**
Obese males <sup>#</sup>	-0.22	-0.19	0.91**	0.94**	-0.95**	0.77**	-0.53**	-0.73**	0.57**
Obese females <sup>#</sup>	-0.25	-0.17	0.91**	0.95**	-0.94**	0.79**	-0.52**	-0.72**	0.55**
Participation in preschool	1.00	-0.34	-0.17	-0.23	0.23	-0.54**	-0.08	-0.01	0.11
Young people participating in full-time secondary education	-0.34	1.00	-0.21	-0.12	0.24	0.08	0.52**	0.53**	-0.54**
<u>Participation in vocational education and training</u>	-0.17	-0.21	1.00	0.92**	-0.93**	0.78**	-0.51**	-0.71**	0.56**
Early school leavers	-0.23	-0.12	0.92**	1.00	-0.97**	0.76**	-0.57**	-0.76**	0.63**
Highest level of education - Bachelor Degree or higher	0.23	0.24	-0.93**	-0.97**	1.00	-0.80**	0.57**	0.77**	-0.63**
Highest level of education - Advanced Diploma, Diploma or Certificate	-0.54**	0.08	0.78**	0.76**	-0.80**	1.00	-0.26	-0.34	0.14
AEDC: Children developmentally on track - physical health and wellbeing	-0.08	0.52**	-0.51**	-0.57**	0.57**	-0.26	1.00	0.83**	-0.85**
AEDC: Children developmentally on track - language and cognitive skills	-0.01	0.53**	-0.71**	-0.76**	0.77**	-0.34	0.83**	1.00	-0.96**
AEDC: Children developmentally vulnerable on one or more domains	0.11	-0.54**	0.56**	0.63**	-0.63**	0.14	-0.85**	-0.96**	1.00

**Notes:**

<sup>#</sup> Data based on modelled estimates: see Appendix C for details.

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

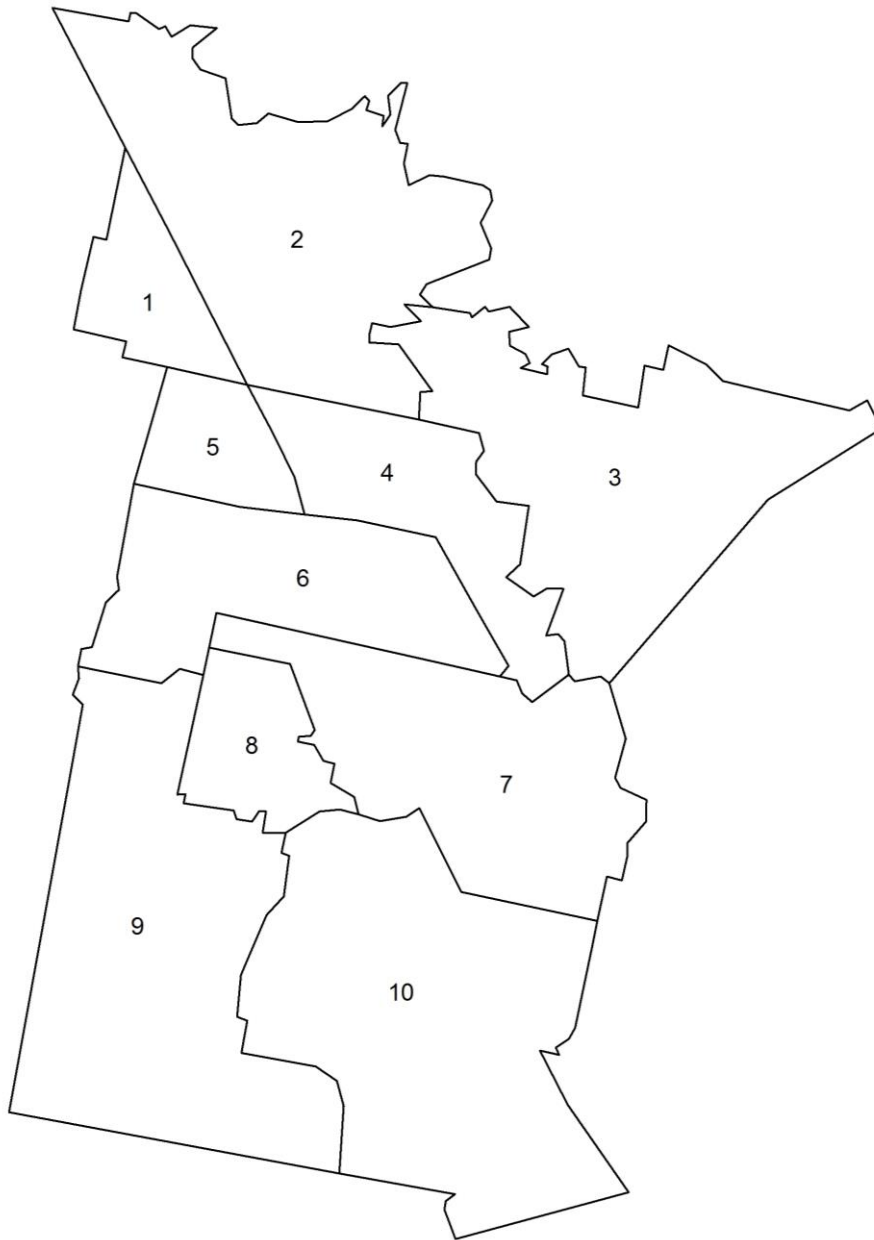
\*\*Correlation is statistically significant, at the 99% confidence level

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: Key maps

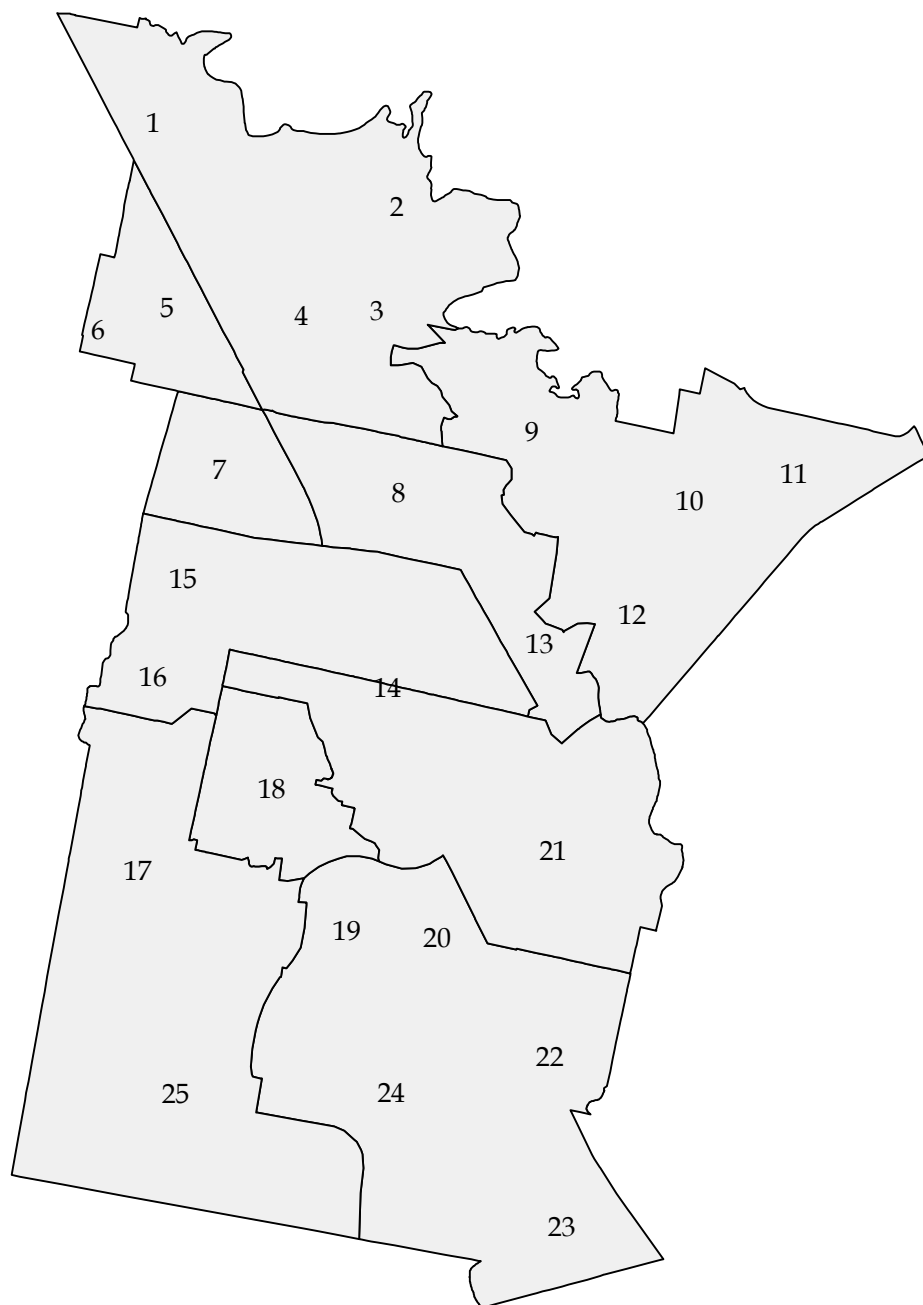
### Map C1: Population Health Areas in Brimbank, 2016



#### Alphabetical key to Population Health Areas in the Brimbank LGA

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

Map C2: Population Health Areas and suburbs in Brimbank, 2016



**Alphabetical key to suburbs in Brimbank**

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		

Suburbs — PHAs —