

Population health profile of the Barwon

Division of General Practice

Population Profile Series: No. 29

PHIDU

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The data in this report are designed to be used for needs assessment and planning purposes: while they are based on the best available data and analytic processes, data available by postcode or Statistical Local Area, as used in this report, cannot be precisely translated to Division. Division totals in the report should, therefore, be seen as estimates. Interpretation of differences between data in this profile and similar data from other sources needs to be undertaken with care as such differences may be due to the use of different methodology to produce the data.

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Population health profile of the *Barwon Division of General Practice*

Introduction

This profile has been designed to provide a description of the population of the Barwon Division of General Practice, and aspects of their health. Its purpose is to provide information to support a population health approach, which aims to improve the health of the entire population and to reduce health inequalities among population groups: a more detailed discussion of a population health approach is provided in the supporting information, page 17.

Contents

The profile includes a number of tables, maps and graphs to profile population health in the Division and provides comparisons with other areas (eg. country New South Wales and Australia) and Aboriginal and Torres Strait Islanders elsewhere in Australia. Specific topics covered for the Barwon Division include:

- a socio-demographic profile (pages 2-5);
- GP workforce data (pages 7);
- immunisation rates (page 7);
- rates of premature death (page 8); and
- estimates of the prevalence of chronic disease and selected risk factors (pages 9-13).

14.3

Key indicators

Location: New South Wales

Division number: 231

Population‡:	No.	%
Indigenous:	6,591	
<25	3,697	56.1%
65+	216	3.3%
Non-Indigenous:	48,905	
<25	15,783	32.3%
65+	6,803	13.9%

Disadvantage score¹: 950

GP services per head of population:

Division‡	3.7
Australia	4.7

Population per FTE GP:

Division‡	1,609
Australia	1,403

Premature death rate²:

Division‡	388.9
Australia	290.4

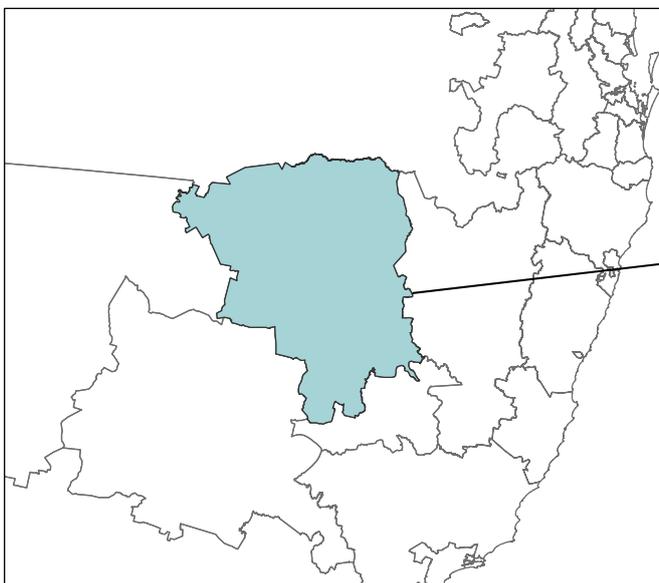
¹ Numbers below 1000 (the index score for Australia) indicate the Division is relatively disadvantaged

² Deaths at ages 0 to 74 years per 100,000 population

‡ See note “Data converters and mapping” re calculation of Division Total

Barwon Division of General Practice

NSW Divisions of General Practice



Barwon DGP by SLA



Socio-demographic profile

Population

The population figures used here have been adjusted to take account of the estimated under-counting at the 2001 Census of Aboriginal and Torres Strait Islander people.

The Barwon DGP had a population of 55,496 at the 2001 Census. Aboriginal and Torres Strait Islander people comprised one-eighth (11.9%) of the population, and had a markedly younger age structure than for the non-Indigenous population in the Division. The bars in the chart for the 0 to 4 years and 5 to 9 years age groups clearly show the effect of high Indigenous birth rates in the Division; this gives the chart a much broader base compared to the non-Indigenous population of the Division (Figure 1). The very marked drop in the proportion of the Indigenous population between each age group from 5 to 9 years suggests extremely high deaths (and perhaps some out-migration) are occurring from that age group through to 24 years of age, after which the rate of decline in the population slows.

The profile for the non-Indigenous population (shown by the shapes) is quite different and shows the impact of a lower birth rate and, from 10 to 24 years of age, possible out-migration for schooling and further education. There are smaller reductions in the population from age 40 through to the 70 to 74 year age group: the marked increase at the oldest ages (in particular for females) is suggestive of the non-Indigenous population moving into the Division from other areas to retire.

Figure 1: Population in Barwon DGP‡, by Indigenous status, age and sex, 2001

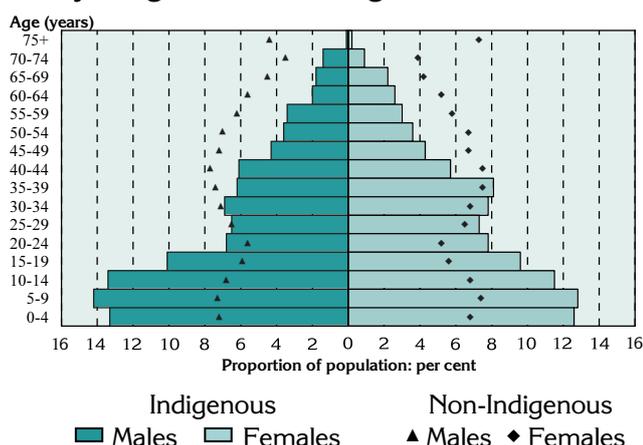
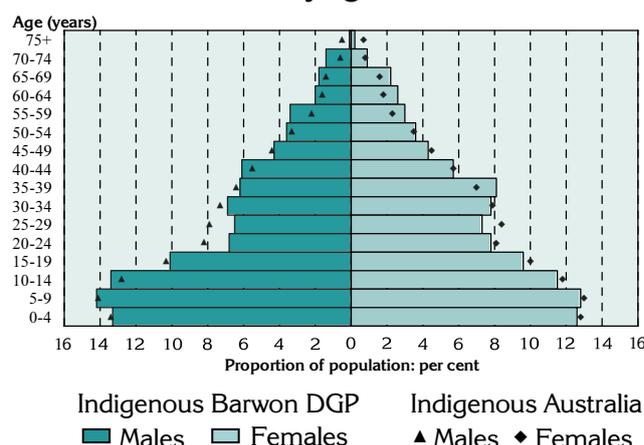


Figure 2: Indigenous population in Barwon DGP‡ and Australia, by age and sex, 2001



‡ See note under 'Data converters and mapping' re calculation of Division totals

The profile of the Indigenous population in the Division is similar to that for Indigenous people across Australia (Figure 2). The major differences are that the Division had a lower proportion of males aged 20 to 34 years and females aged 25 to 29 to years; and higher proportions of males aged 55 to 59 years and females aged 35 to 39 years and 55 to 69 years. Table 1 provides the data on which the charts in Figures 1 and 2 are based. The data highlight the differences in the age distribution of the Indigenous and non-Indigenous populations in the Barwon DGP and Australia.

Table 1: Population by Indigenous status and age*, Barwon DGP‡ and Australia, 2001

Age group (years)	Barwon DGP‡				Australia			
	Indigenous		Non-Indigenous		Indigenous		Non-Indigenous	
	No.	%	No.	%	No.	%	No.	%
0-14	2,565	38.9	10,342	21.1	178,622	39.0	3,807,808	20.1
15-24	1,132	17.2	5,440	11.1	83,942	18.3	2,570,934	13.6
25-44	1,799	27.3	13,952	28.5	128,474	28.0	5,715,858	30.2
45-64	879	13.3	12,368	25.3	54,206	11.8	4,435,376	23.4
65-74	208	3.2	3,949	8.1	10,249	2.2	1,310,587	6.9
75+	8	0.1	2,854	5.8	2,768	0.6	1,111,844	5.9
Total	6,591	100.0	48,905	100.0	458,261	100.0	18,952,407	100.0

* Experimental estimates of Aboriginal and Torres Strait Islander people, ABS 2001

‡ See note under 'Data converters and mapping' re calculation of Division totals

Just less than half (48.5%) of the Indigenous population in Barwon DGP lived in Moree Plains Statistical Local Area (SLA – see page 18), almost double the proportion of the Division’s non-Indigenous population (26.7%) (Table 2). One fifth (19.9%) of the Division’s Indigenous population lived in Gunnedah, with a marginally lower proportion (18.3%) in the SLA of Narrabri.

Table 2: Population by Indigenous status*, SLAs in Barwon DGP‡, 2001

Statistical Local Area	Indigenous		Non-Indigenous		Total	
	No.	%	No.	%	No.	%
Moree Plains	3,198	48.5	13,035	26.7	16,233	29.3
Gunnedah	1,312	19.9	10,612	21.7	11,924	21.5
Narrabri	1,209	18.3	13,328	27.3	14,537	26.2
Walgett	445	6.8	1,327	2.7	1,772	3.2
Manilla	206	3.1	2,904	5.9	3,110	5.6
Other	220	3.3	7,700	15.7	7,920	14.3
Total	6,591	100.0	48,905	100.0	55,496	100.0

* Experimental estimates of Aboriginal and Torres Strait Islander people, ABS 2001

‡ See note under ‘Data converters and mapping’ re calculation of Division totals

At 30 June 2004, the Estimated Resident Population of the Division was 54,280.

Socioeconomic status and Indigenous status

The indicators presented in this section describe geographic variations in the distribution of the population for a number of key socioeconomic influences, which impact on the health and wellbeing of populations. Where data are available, comparisons are made between the Indigenous and non-Indigenous populations.

At the 2001 Census, one-eighth (11.9%) of the population of Barwon DGP was estimated to be of Aboriginal or Torres Strait Islander origin, five times the Australian average of 2.4% (Figure 3, Table 3).

The proportion of Indigenous single parent families in the Division (28.1%) was similar to the Indigenous rate for country New South Wales¹ (27.5%), and three times that of the non-Indigenous families (8.2%).

There were fewer Indigenous 16 year olds living in the Division involved in full-time secondary school education (42.4%) compared to the Indigenous rate for country New South Wales (52.5%), and substantially less when compared with the non-Indigenous population (71.8%).

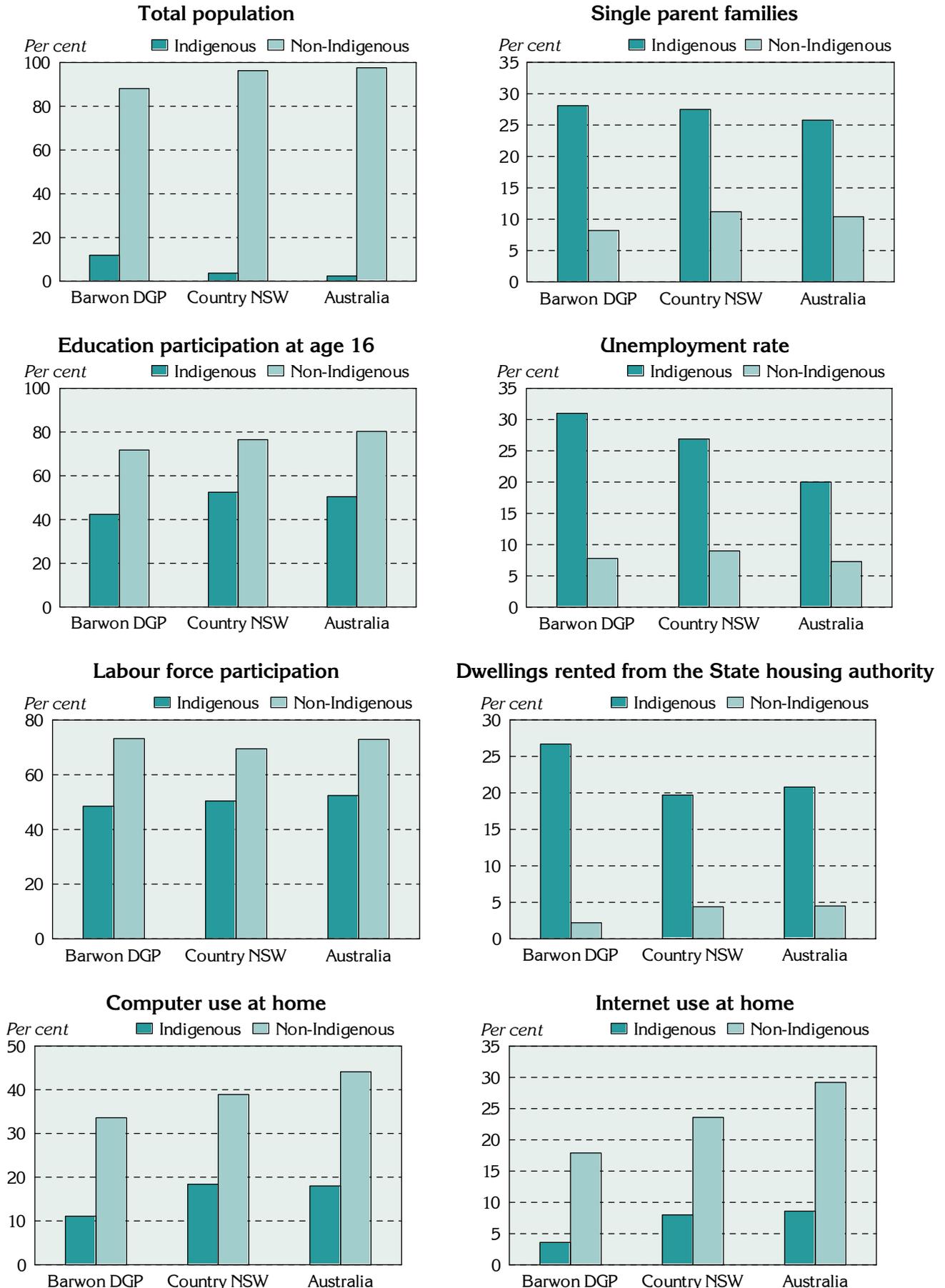
A higher proportion of the Indigenous population in the Division lived in dwellings rented from the State housing authority (26.7%), compared to the Indigenous population in country New South Wales (19.7%) This proportion was substantially higher compared to the non-Indigenous population (2.2%). The proportion of the population (Indigenous and non-Indigenous combined) in the Division receiving rent assistance from Centrelink (15.0%) was lower than that for country New South Wales (18.3%).

One tenth (11.1%) of the Indigenous population in Barwon DGP reported using a computer at home, almost half the Indigenous rate for country New South Wales (18.4%), and around one third the rate of the non-Indigenous population in the Division (33.6%). Similarly, the rate of Internet use at home by the Indigenous population in the Division (3.6%) was less than half that of the Indigenous population in country New South Wales (8.0%), and less than one fifth that of the non-Indigenous population (17.9%).

¹References to ‘country New South Wales’ relate to New South Wales excluding the Sydney Statistical Division

Figure 3: Socio-demographic indicators by Indigenous status, Barwon DGP‡, country New South Wales and Australia, 2001

Note the different scales



Note: The 'Total population' figure is based on the experimental estimates of Aboriginal and Torres Strait Islander people; the remaining figures are based on ABS Census data

‡ See note under 'Data converters and mapping' re calculation of Division totals

Table 3: Socio-demographic indicators, Barwon DGP‡, country New South Wales and Australia, 2001

Indicator	Barwon DGP‡		Country NSW		Australia	
	No.	%	No.	%	No.	%
Population						
- Indigenous	6,591	11.9	91,036	3.7	458,261	2.4
- Non-Indigenous	48,905	88.1	2,355,909	96.3	18,952,407	97.6
Single parent families						
- Indigenous	423	28.1	5,881	27.5	26,487	25.7
- Non-Indigenous	1,032	8.2	67,924	11.2	503,382	10.4
Full-time secondary school education at age 16						
- Indigenous	57	42.4	938	52.5	5,997	50.5
- Non-Indigenous	383	71.8	24,828	76.5	327,055	80.3
Dwellings rented from State housing authority						
- Indigenous	448	26.7	4,868	19.7	23,974	20.8
- Non-Indigenous	378	2.2	35,585	4.4	284,502	4.5
People who used a computer at home						
- Indigenous	639	11.1	14,924	18.4	73,636	18.0
- Non-Indigenous	15,166	33.6	854,211	38.9	7,761,390	44.1
People who used the Internet at home						
- Indigenous	205	3.6	6,454	8.0	35,384	8.6
- Non-Indigenous	8,097	17.9	518,491	23.6	5,135,445	29.2
Households receiving rent assistance	2,817	15.0	156,074	18.3	1,006,599	15.0

Note: The 'Total population' data are based on the experimental estimates of Aboriginal and Torres Strait Islander people; the remaining data are based on ABS Census data

‡ See note under 'Data converters and mapping' re calculation of Division totals

The Indigenous unemployment rate in Barwon DGP of 31.0% was higher than the rate for the Indigenous population in country New South Wales (26.9%), and four times the rate of the Division's non-Indigenous population (7.9%) (Table 4). However, when taking into account the Indigenous population receiving payments as part of the Community Development Employment Projects (CDEP) scheme (effectively an Aboriginal work-for-the-dole scheme), the 'real' Indigenous unemployment rate was a much higher 47.3%, substantially higher than the 'real' Indigenous unemployment rates of 34.1% in country New South Wales and 34.2% for Australia as a whole.

Table 4: Unemployment and labour force participation, Barwon DGP‡, country New South Wales and Australia, 2001

Labour force indicators	Barwon DGP‡		Country NSW		Australia	
	No.	%	No.	%	No.	%
Unemployment rate						
- Indigenous	496	31.0	6,155	26.9	24,930	20.0
- Non-Indigenous	1,684	7.8	87,454	9.0	624,337	7.3
Labour force participation (incl. CDEP as employed)						
- Indigenous	1,599	48.5	22,902	50.4	124,517	52.4
- Non-Indigenous	21,479	73.2	972,088	69.5	8,609,525	72.9
Female labour force participation (incl. CDEP as employed)						
- Indigenous	642	41.6	9,403	44.3	52,981	46.6
- Non-Indigenous	7,838	68.2	390,835	67.2	3,564,409	69.8
Indigenous unemployment rate (incl. CDEP)						
- excluding CDEP	496	31.0	6,155	26.9	24,930	20.0
- CDEP	260	16.3	1,650	7.2	17,662	14.2
- Total (including CDEP)	756	47.3	7,805	34.1	42,592	34.2

‡ See note under 'Data converters and mapping' re calculation of Division totals

Labour force participation in the Division for the Indigenous population (in this case with those under the CDEP counted as employed) was two thirds that of the non-Indigenous population (48.5%, compared to 73.2%), and similar to the Indigenous rate for country New South Wales (69.5%) (Table 4).

The Indigenous female labour force participation rate (41.6%) was marginally lower than the Indigenous rate for country New South Wales (44.3%), and notably lower than for the Division’s non-Indigenous females (68.2%).

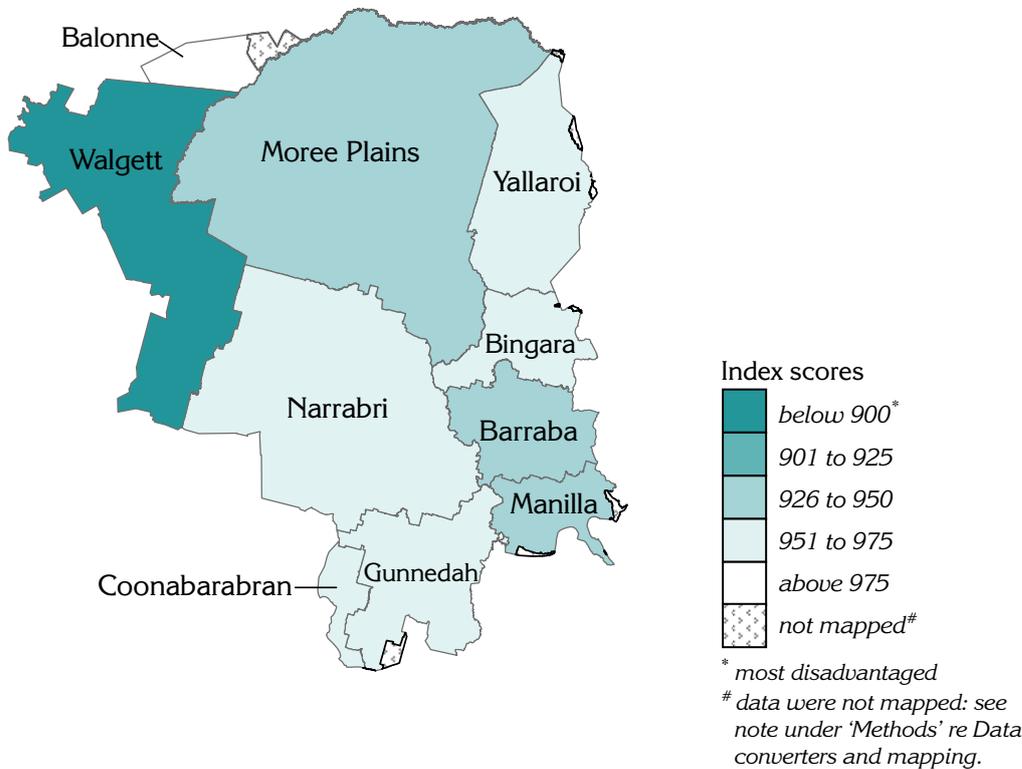
Summary of the socioeconomic ranking of the Barwon DGP

Following the 2001 Census, the Australian Bureau of Statistics (ABS) produced four socioeconomic indexes for areas (SEIFA) which describe various aspects of the socioeconomic profile of populations in areas. The scores for these indexes for each Statistical Local Area (SLA) or part SLA in Barwon DGP are shown in the supporting information, Table 9, page 17: SLAs are described on page 18.

The Barwon DGP area’s SEIFA Index of Relative Socio-Economic Disadvantage (IRSD) score is 950, 5.0% below the average score for Australia (1000) and below that for country New South Wales (973); this highlights the lower socioeconomic status profile of the Barwon DGP population. However, there are variations in the IRSD within the Division at the SLA level (Map 1).

Map 1: Index of Relative Socio-Economic Disadvantage by SLA, Barwon DGP, 2001

See ‘Notes on the data’ re Data converters and mapping concerning SLAs mapped to the Division. This is of particular relevance where part of an SLA is mapped to the Division.



General medical practitioner (GP) supply

A total of 33.9 full-time equivalent (FTE) GPs and 38.8 full-workload equivalent (FWE²) GPs worked in the Division in 2003/04 (Table 5). Of the FWE GPs, 22.1% were female, and 16.1% were over 55 years of age (compared to 26.4% and 33.4%, respectively, for New South Wales).

Apart from the day-time population, the rates of population per FTE GP varied, depending on the population measure used, from a high of 1,609 people per GP (calculated on the average Estimated Resident Population (ERP) as at 30 June 2003 and 2004), to a low of 1,537 people per GP (calculated on the 1 August 2001 Census count – all people counted in the Division on Census night, including visitors from Australia and overseas). The rates of population per FWE GP were lower, ranging from 1,344 (calculated on the Census count) to 1,407 (calculated on the ERP). When calculated on the estimated day-time population, the rates of population in the Division were 1.9% below the Usual Resident Population (usual residents of the Division counted in Australia on Census night).

Based on the ERP, the rates of population per GP in the Barwon DGP were higher than the rates for New South Wales and Australia, indicating a lower level of provision of GP services in the Division.

Table 5: Population per GP in Barwon DGP, New South Wales and Australia, 2003/04

Population measure	Population	GPs		Population per GP	
		FTE	FWE	FTE	FWE
Barwon DGP					
Census count (adjusted)*	52,117	33.9	38.8	1,537	1,344
Usual Resident Population (URP) (adjusted)*	52,298	..	..	1,542	1,349
Estimated Resident Population (ERP)	54,564	..	..	1,609	1,407
Day-time population (estimated on URP)* ‡	51,290	..	..	1,513	1,323
New South Wales (ERP)	6,706,674	4,819	5,969	1,392	1,124
Australia (ERP)	19,989,303	14,246	16,872	1,403	1,185

* The Census count, Usual Resident Population and Day-time population were adjusted to reflect population change between 2001 and 2003/04, as measured by the ERP

‡ See note under 'Data converters and mapping' re calculation of Division totals

Immunisation

Data from the Australian Childhood Immunisation Register show that 93.6% of children in the Division in 2002 were fully immunised at age one, consistent with the Australian proportion of 94.2%.

Immunisation by provider type for children between the ages of 0 to 6 is shown in Table 6. The proportion of children in the Division who were immunised by a general practitioner was 81.6%, compared to 70.0% for Australia, with 10.0% immunised at a community health centre, or by a community health worker.

Table 6: Childhood immunisation at ages 0 to 6 by provider type, Barwon DGP and Australia, 2003/04

Provider	Barwon DGP	Australia
	%	%
General practitioners	81.6	70.0
Local government council	0.0	16.6
Community health centre / worker	10.0	9.8
Public hospital	2.9	2.1
Aboriginal health service / worker	5.6	0.9
Other*	0.0	0.6
Total: Per cent	100.0	100.0
Number	11,719	3,843,610

* Includes immunisations in/ by State Health Departments, RFDS and private hospitals

² The FWE value is calculated for each GP location by dividing the GP's total Medicare billing (Schedule fee value of services provided during the reference period) by the mean billing of full-time doctors in that derived major speciality for the reference period. Thus, a GP earning 20% more than the mean billing of full-time doctors is shown as 1.2 FWE: this differs from full-time equivalent (FTE) counts, where the FTE value of any GP cannot exceed 1.0

Premature mortality

Deaths at ages below 75 years are used as an indicator of health status, as they largely reflect premature deaths, given the current levels of life expectancy in Australia.

The 'all causes' death rate in the Division at ages 0 to 74 years (388.9 deaths per 100,000 population) is substantially higher than for both country New South Wales (318.3) and for Australia (290.4): the rates have been age standardised to allow for comparisons between areas, regardless of differences in age profiles between the Division and Australia.

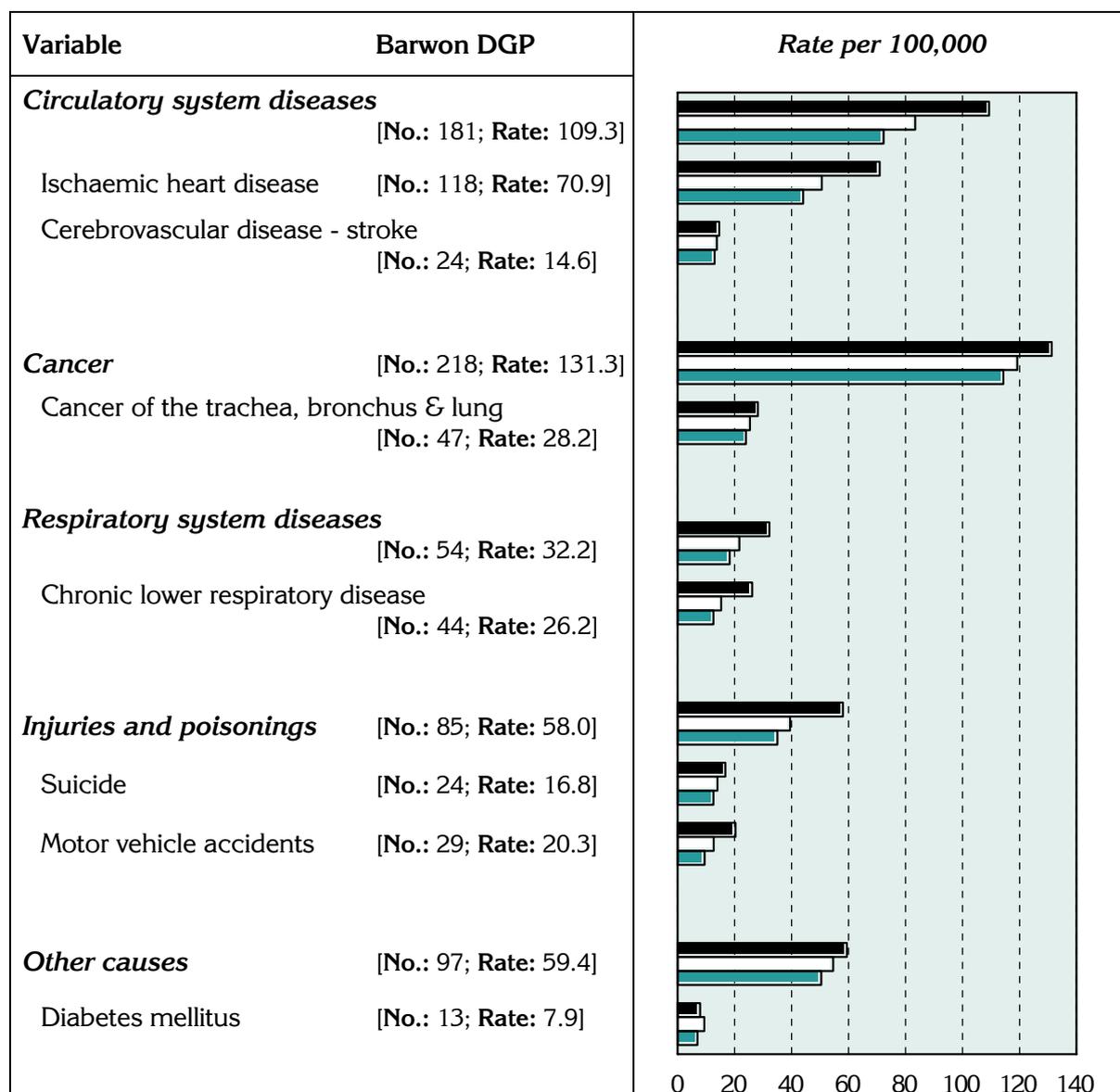
The major causes of premature mortality in the Division, as for country New South Wales and Australia as a whole, are cancer and diseases of the circulatory system (Figure 4). The death rates in the Division for the conditions and causes shown were all higher than those for Australia, and, with the exception of diabetes mellitus, lower than the rates for country New South Wales.

The data on which the following chart is based are in Table 11.

Figure 4: Deaths before 75 years of age, by major condition group and selected cause, Barwon DGP‡, country New South Wales and Australia, 2000-02*

Indirectly age standardised rate per 100,000 population

■ Barwon DGP □ Country NSW ■ Australia



* 'No.' is the total number of deaths for the 2000-02 period; 'Rate' is an annual rate, based on the 3 year average

‡ See note under 'Data converters and mapping' re calculation of Division totals

Chronic diseases and risk factors

The term “chronic disease” describes health problems that persist across time and require some degree of health care management (WHO 2002). Chronic diseases tend to have complex causes, are often long lasting and persistent in their effects, and can produce a range of complications (Thacker et al. 1995). They are responsible for a significant proportion of the burden of disease and illness in Australia and other westernised countries. Given the ageing of the population, this trend is likely to continue.

At different life stages, risk factors for chronic diseases and their determinants include genetic predisposition; poor diet and lack of exercise; alcohol misuse and tobacco smoking; poor intra-uterine conditions; stress, violence and traumatic experiences; and inadequate living environments that fail to promote healthy lifestyles (NPHP 2001). Risk factors are also more prevalent in areas of low socioeconomic status, and in communities characterised by low levels of educational attainment; high levels of unemployment; substantial levels of discrimination, interpersonal violence and exclusion; and poverty. There is a higher prevalence of risk factors among Indigenous communities, and other socioeconomically disadvantaged Australians (NPHP 2001).

Background

In this section, estimates of the prevalence of selected chronic diseases and risk factors, and two summary measures of health, are shown for the Division‡, and for non-remote SLAs within the Division. These estimates are only available for some SLAs in this Division – generally the ‘non-remote’ areas – as remote areas were not included in the 2001 National Health Survey. Note that the estimates have been predicted from self-reported data, and are not based on clinical records or physical measures. The chronic diseases and risk factors are those for which sufficiently reliable estimates can be made for the Division from national survey data. The process by which the estimates have been made, and details of their limitations, are described in the Notes section, pages 15-16. The data on which the following charts are based are in Table 12.

The estimates provide information of relevance to a number of the National Health Priority Areas (NHPAs – asthma; cardiovascular health; diabetes mellitus; injury prevention and control; mental health; and arthritis and musculoskeletal conditions: estimates have not been made for cancer control, the other NHPA). The risk factors for which estimates have been made are those which are accepted as being associated with these important chronic conditions. They are overweight (not obese), obesity, smoking, lack of exercise and high risk alcohol use.

The numbers are estimates for an area, not measured events as are death statistics: they should be used as indicators of likely levels (and not actual levels) of a condition or risk factor in an area.

Prevalence estimates: chronic disease‡

It is estimated that, with the exceptions of diabetes type 2, mental and behavioural disorders, osteoarthritis and osteoporosis (females), relatively more people in Barwon DGP reported having the conditions than in Australia as a whole (Figure 5); that is, the prevalence rates per 1,000 population were slightly higher.

Prevalence estimates: self-reported health‡

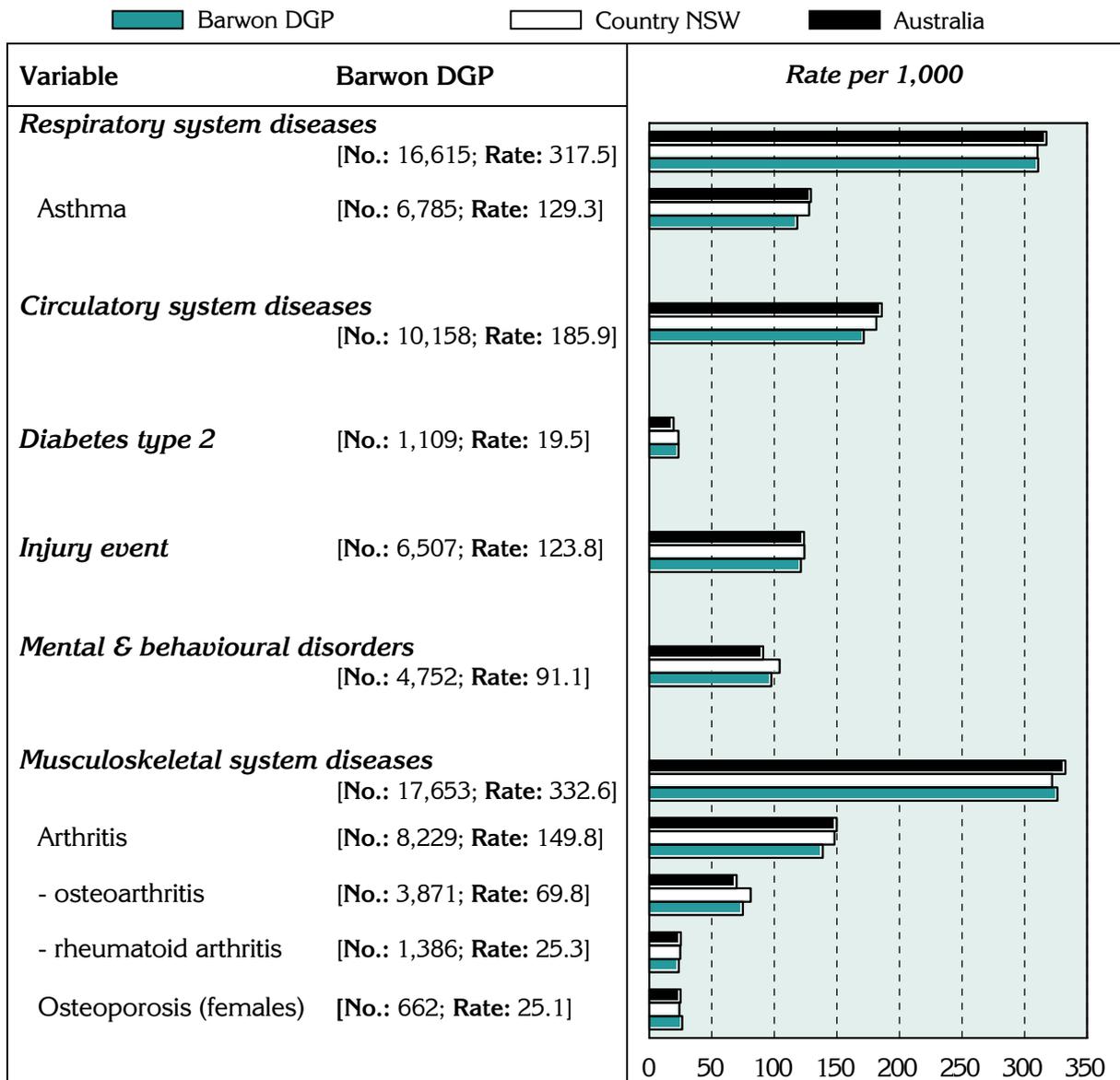
The NHS includes two measures of self-reported health. One is the Kessler Psychological Distress Scale–10 items (K–10). This is a scale of non-specific psychological distress based on 10 questions about negative emotional states in the four weeks prior to interview, asked of respondents 18 years and over (ABS 2002). The other asks respondents aged 15 years and over to rate their health on a scale from ‘excellent’, through ‘very good’, ‘good’ and ‘fair’, to ‘poor’ health.

The population of the Division aged 18 years and over is estimated to have marginally more people with very high psychological distress levels as measured by the K–10 (Figure 6) compared to Australia as a whole. The proportion of the population aged 15 years and over estimated to have reported their health as ‘fair’ or ‘poor’ is notably higher than the national average.

‡ See note under ‘Data converters and mapping’ re calculation of Division totals

Figure 5: Estimates* of chronic disease and injury, Barwon DGP‡, country New South Wales and Australia, 2001

Indirectly age standardised rate per 1,000 population



* 'No.' is a weighted estimate of the number of people in Barwon DGP reporting each chronic condition and is derived from synthetic predictions from the 2001 NHS

‡ See note under 'Data converters and mapping' re calculation of Division totals

Figure 6: Estimates* of measures of self-reported health, Barwon DGP ‡, country New South Wales and Australia, 2001

Indirectly age standardised rate per 1,000 population



* 'No.' is a weighted estimate of the number of people in Barwon DGP reporting under these measures and is derived from synthetic predictions from the 2001 NHS.

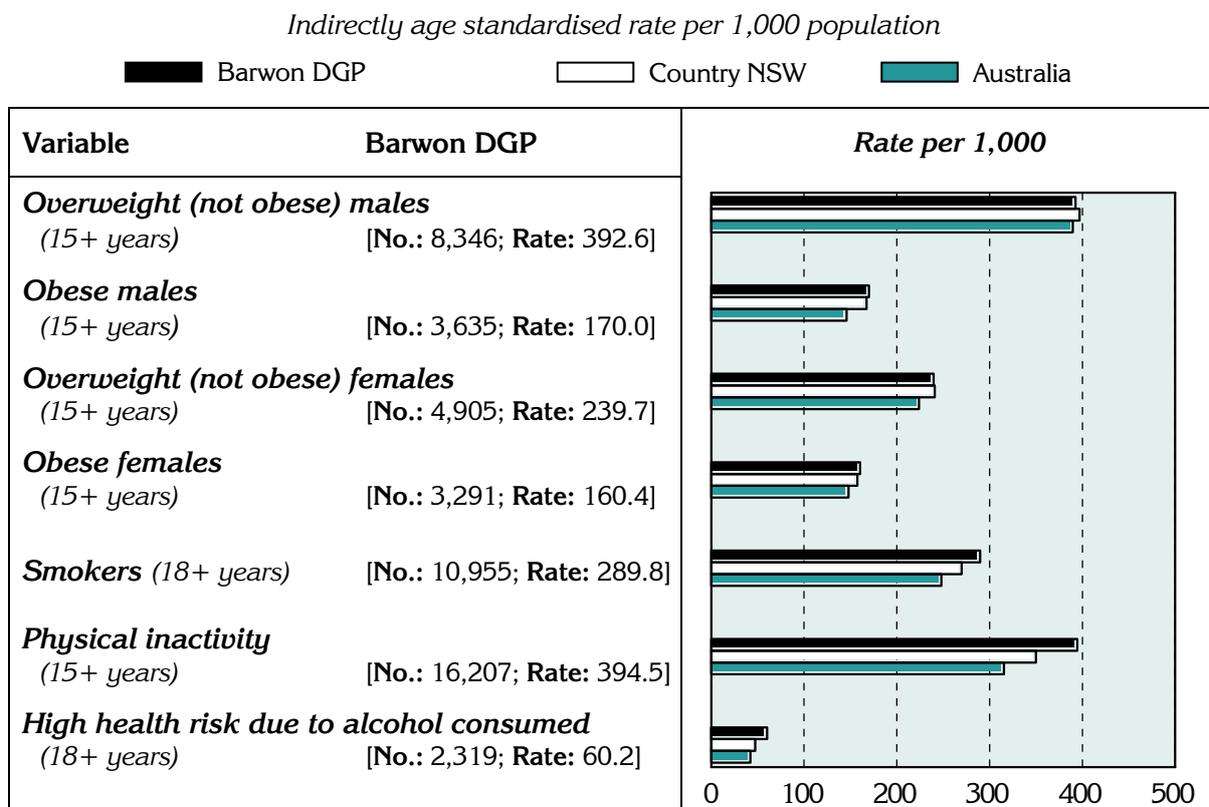
¹ Kessler 10

‡ See note under 'Data converters and mapping' re calculation of Division totals

Prevalence estimates: risk factors‡

The relatively higher rates (when compared with the Australian population) for all of the selected risk factors (Figure 7) are consistent with the socioeconomic status profile of the area.

Figure 7: Estimates* of selected risk factors, Barwon DGP ‡, country New South Wales and Australia, 2001



* 'No.' is a weighted estimate of the number of people in Barwon DGP with these risk factors and has been predicted using data from the 2001 NHS and known data for the Division

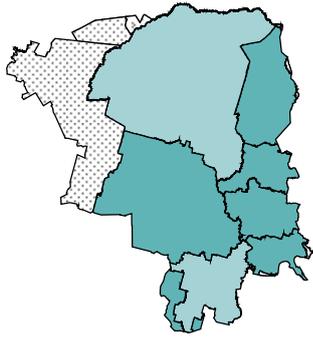
‡ See note under 'Data converters and mapping' re calculation of Division totals

The following maps provide details of the geographic distribution, at the SLA level, of the estimated prevalence of chronic disease (Map 2), self-reported health (Map 3) and risk factors associated with chronic disease (Map 4).

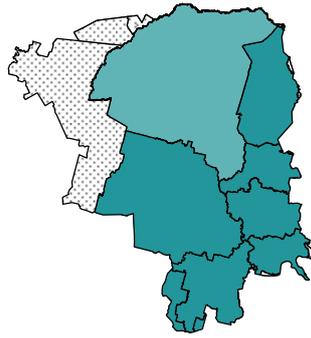
In the following maps, users should note that the estimates shown for part SLAs in the Division (see Table 10, page 18, for per cent of SLA population in the Division) represent the estimates for the whole SLA, and not just the part shown. However, SLAs with only a small proportion of their population in the Division are likely to have little influence on the total estimates for the Division, which have been based on the percentage of the SLA population in the Division.

Map 2: Estimates* of chronic disease and injury by SLA, Barwon DGP, 2001

Respiratory system diseases



Respiratory system diseases: Asthma



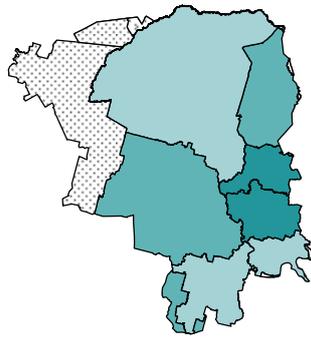
Circulatory system diseases



Diabetes type 2



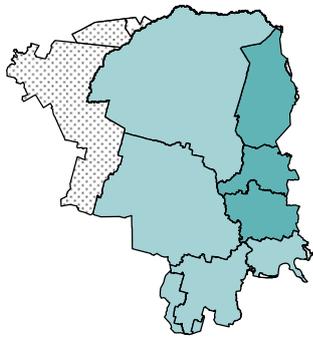
Injury event



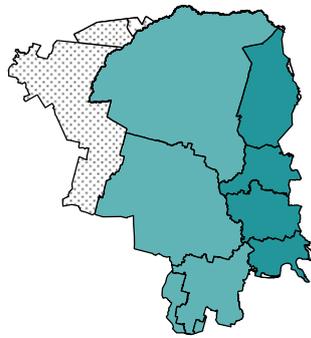
Mental & behavioural disorders



Musculoskeletal system diseases



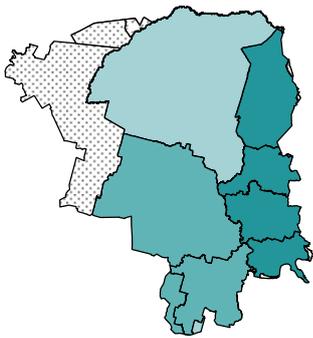
Musculoskeletal system diseases: Arthritis



Arthritis: Osteoarthritis



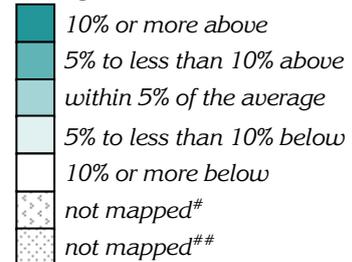
Arthritis: Rheumatoid arthritis



Osteoporosis (females)



Per cent difference from Australian average



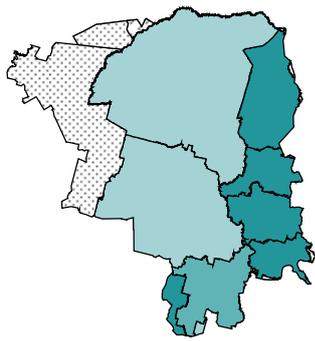
* See Notes on the data re these estimates.

Data not mapped: see 'Data converters and mapping' section under Notes on the data.

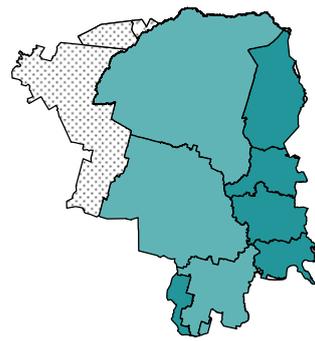
Estimates not available for remote areas

Map 3: Estimates* of measures of self-reported health by SLA, Barwon DGP, 2001

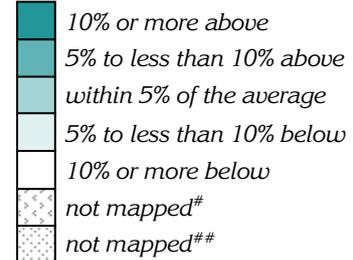
Very high psychological distress levels [K-10¹] (18+ years)



Fair or poor self-assessed health status (15+ years)



Per cent difference from Australian average

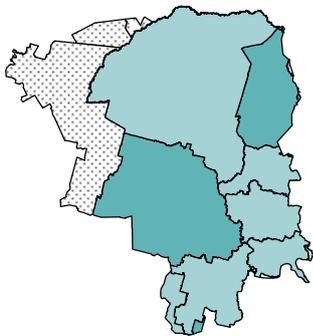


* See Notes on the data re these estimates.
Data not mapped: see 'Data converters and mapping' section under Notes on the data.
Estimates not available for remote areas

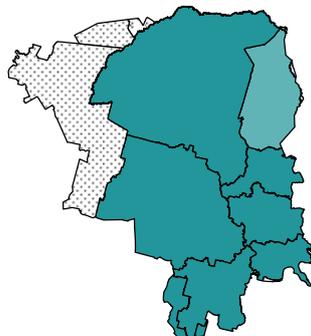
¹ Kessler 10

Map 4: Estimates* of selected risk factors by SLA, Barwon DGP, 2001

Overweight (not obese) males (15+ years)



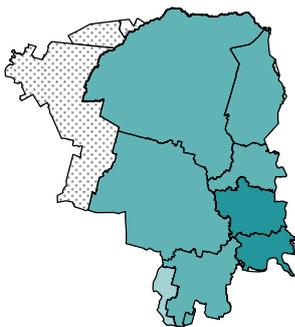
Obese males (15+ years)



Overweight (not obese) females (15+ years)



Obese females (15+ years)



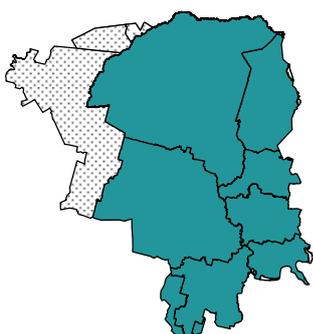
Smokers (18+ years)



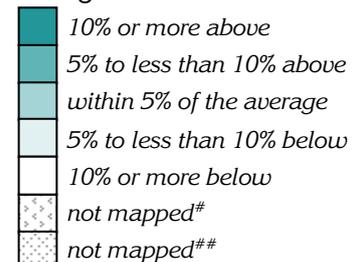
Physical inactivity (15+ years)



High health risk due to alcohol consumed (18+ years)



Per cent difference from Australian average



* See Notes on the data re these estimates.
Data not mapped: see 'Data converters and mapping' section under Notes on the data.
Estimates not available for remote areas

Notes on the data

Data sources and limitations

General

References to 'country New South Wales' relate to New South Wales, excluding Sydney Statistical Division.

Data sources

Table 7 details the data sources for the material presented in this profile.

Table 7: Data sources

Section	Source
Key indicators	
GP services per head of population	GP services data supplied by Department of Health and Ageing, 2003/04 Population data: Estimated Resident Population, ABS, mean of 30 June 2003 and 30 June 2004 populations
Socio-demographic profile	
Figures 1, 2 and 3; Tables 1 and 2	Experimental estimates of Aboriginal and Torres Strait Islander people, ABS 2001 (unpublished)
Figure 4, Tables 3 and 4	Data were extracted by postal area from the ABS Population Census 2001, except for the following indicators: - <i>Total population</i> – Experimental estimates, ABS 2001 (unpublished) - <i>Full-time secondary education participation at age 16</i> – Census 2001 (unpublished) - <i>Households receiving rent assistance</i> – Centrelink, December Quarter 2001 (unpublished)
Map 1; Table 9	ABS SEIFA package, Census 2001
General medical practitioner (GP) supply	
Table 5	GP data supplied by Department of Health and Ageing, 2003/04 Population estimates used in calculating the population per GP rates are the: - Census count ¹ , ABS Population Census 2001, scaled to 2003/04 - Usual Resident Population ² , ABS Population Census 2001, scaled to 2003/04 - Day-time population: calculated from journey to work data, ABS Population Census (URP) 2001 (unpublished); and 2001 Census URP, scaled to 2003/04 - Estimated Resident Population, ABS, June 2003/2004
Immunisation	
Text comment: 1 year olds Table 6	National Centre for Immunisation Research and Surveillance, 2002 Australian Childhood Immunisation Register, Health Insurance Commission, 2003/04 (unpublished)
Premature mortality	
Figure 5; Table 11	ABS Deaths, 2000 to 2002
Chronic diseases and associated risk factors	
Figures 6, 7 and 8; Maps 2, 3 and 4; Table 12	Estimated from 2001 National Health Survey (NHS), ABS (unpublished)

¹ *Census count* - those counted in the Division on Census night, including tourists, business people and other visitors

² *Usual Resident Population* - those who usually live there and who were in Australia at the time and would have provided details in the Census at the address where they were counted

Chronic diseases and associated risk factors

The data for chronic conditions and risk factors have been estimated from the 2001 National Health Survey (NHS), conducted by the ABS: see note below on synthetic estimates. The NHS sample includes the majority of people living in private households, but excludes the most remote areas of Australia. These areas cover 86.4% of Australia's land mass and comprise just 3% of the total population, however, 28% of Australia's Indigenous population live in these areas. Thus it has not been possible to produce these estimates for Divisions with relatively high proportions of their population in the most remote areas of Australia.

The data for chronic conditions and risk factors are self-reported data, reported to interviewers in the 2001 NHS. Table 8 includes notes relevant to this data.

Table 8: Notes on estimates of chronic diseases and associated risk factors

Indicator	Notes on the data
Estimates of chronic disease and injury (Figure 5 and Map 2)	
Long term conditions	- Respondents were asked whether they had been diagnosed with any long term health condition (a condition which has lasted or is expected to last for 6 months or more), and were also asked whether they had been told by a doctor or nurse that they had asthma, cancer, heart and circulatory conditions, and/or diabetes
Injury event	- Injuries which occurred in the four weeks prior to interview
Estimates of measures of self-reported health (Figure 6 and (Map 3)	
Very high psychological distress levels (K10)	- Derived from the Kessler Psychological Distress Scale-10 items (K-10), which is a scale of non-specific psychological distress based on 10 questions about negative emotional states in the 4 weeks prior to interview. 'Very high' distress is the highest level of distress category (of a total of four categories)
Fair or poor self-assessed health status	- Respondent's general assessment of their own health, against a five point scale from excellent through to poor – 'fair' or 'poor' being the two lowest in the scale
Estimates of selected risk factors (Figure 7 and Map 4)	
Overweight (not obese)	- Based on self-reported height and weight; BMI calculated and grouped into categories (to allow reporting against both WHO and NHMRC guidelines) - overweight: 25.0 to less than 30.0
Obese	- Based on self-reported height and weight; BMI calculated and grouped into categories (to allow reporting against both WHO and NHMRC guidelines) – obese: 30.0 and greater
Smokers	- Respondent's undertaking regular (or daily) smoking at the time of interview
Physical inactivity	- Did not exercise in the two weeks prior to interview through sport, recreation or fitness (including walking) – excludes incidental exercise undertaken for other reasons, such as for work or while engaged in domestic duties
High health risk due to alcohol consumed	- Respondents estimated average daily alcohol consumption in the seven days prior to interview (based on number of days and quantity consumed). Alcohol risk levels were grouped according to NHMRC risk levels for harm in the long term, with 'high risk' defined as a daily consumption of more than 75 ml for males and 50 ml for females

Note: For a full description, refer to *ABS 2001 National Health Survey, Cat. No. 4364.0* and *ABS 2001 Health Risk Factors, Cat. No. 4812.0*

Methods

Synthetic estimates

The estimates of the prevalence of chronic disease and associated risk factors have been predicted for a majority of SLAs across Australia, using modelled survey data collected in the 2001 ABS National Health Survey (NHS) and known characteristics of the area. A synthetic prediction can be interpreted as the likely value for a 'typical' area with those characteristics: the SLA is the area level of interest for this project (where SLAs had small populations they were grouped to larger areas). This work was undertaken by the Australian Bureau of Statistics, as they hold the NHS unit record files: the small area data were compiled by PHIDU.

The approach used is to undertake an analysis of the survey data for Australia to identify associations in the NHS data between the variables that we wish to predict at the area level (eg. prevalence of chronic conditions and risk factors) and the data we have at the area level (eg. socioeconomic status, use of health services). The relationship between these variables for which we have area level data (the predictors) and the reporting of chronic conditions in the NHS is also a part of the model that is developed by the ABS. For example, such associations might be between the number of people reporting specified chronic conditions in the NHS and:

- the number of hospital admissions (in total, to public and to private hospitals, by age, sex and diagnosis),
- socioeconomic status (as indicated by Census data, or for recipients of government pensions and benefits), and
- the number of visits to a general medical practitioner.

The results of the modelling exercise are then applied to the SLA counts of the predictors. The prediction is, effectively, the likely value for a typical area with those characteristics. The raw numbers were then age-standardised, to control for the effects of differences in the age profiles of areas.

The numbers are estimates for an area, not measured events as are death statistics: they should be used as indicators of likely levels of a condition or risk factor in an area.

Premature deaths

Details of deaths by SLA were purchased from the ABS. The raw numbers were then age-standardised, by the indirect method, to control for the effects of differences in the age profiles of areas.

Data converters and mapping

[Conversion to Division of data available by postcode](#)

The allocation of postcodes to Divisions was undertaken using information from the Department of Health and Ageing's web site, which shows the proportion of a postcode in a Division (see page 18).

[Conversion to Division of data available by SLA](#)

(marked in this profile as ‡ See note under 'Data converters and mapping' re calculation of Division total)

Where the data presented in these profiles were only available by SLA they have been converted to Division of General Practice areas using a concordance based on data at the 2001 Census. A copy of the concordance is included in the Population data: A Guide for Divisions of General Practice: it is also available from the Divisions' data area on PHIDU web site.

In brief, the concordance splits the data (eg number of deaths) for each SLA across one or more Divisions. The proportion of an SLA's data that is allocated to each Division was calculated from (a) CD level Census 2001 data that splits SLAs across approximations to postcodes (referred to as postal areas) and (b) data on the DoHA website that splits postcodes across Divisions. This concordance can be adjusted to meet any new configuration of Division boundaries based on the 2001 Collection Districts, or combinations thereof.

The estimated population of each SLA in this Division is shown in Table 10.

[Mapping](#)

In some Divisions the maps may include a very small part of an SLA which has not been allocated any population, or either has a population of less than 100 or has less than 1% of the SLA's total population: these areas are mapped with a pattern.

Supporting information

This and other information is also available at www.publichealth.gov.au

A definition of population health

Population health, in the context of general practice, has been defined¹ as:

“The prevention of illness, injury and disability, reduction in the burden of illness and rehabilitation of those with a chronic disease. This recognises the social, cultural and political determinants of health. This is achieved through the organised and systematic responses to improve, protect and restore the health of populations and individuals. This includes both opportunistic and planned interventions in the general practice setting.”

The key determinants of health are social support networks, employment and working conditions, social environments, physical environments, geographical isolation, personal health practices, healthy child development, ageing and disability, biology and genetic endowment, health services, gender and culture.

In the Aboriginal and Torres Strait Islander context this means that a population health approach to health services will assist in ensuring “that Aboriginal and Torres Strait Islander people enjoy a healthy life equal to that of the general population, that is enshrined by a strong living culture, dignity and justice”.² This recognises the importance of achieving improvements to Aboriginal and Torres Strait Islander health and respects the particular health issues facing Indigenous people.

¹ “The role of general practice in population health – A Joint Consensus Statement of the General Practice Partnership Advisory Council and the National Public Health Partnership Group” (Joint Advisory Group on General Practice and Population Health 2001)

² As defined in the Strategic Framework for Aboriginal and Torres Strait Islander Health

SEIFA scores

Following the 2001 Census, the Australian Bureau of Statistics (ABS) produced four socioeconomic indexes for areas (SEIFA). The indexes describe various aspects of the socioeconomic make-up of populations in areas, using data collected in the 2001 Census.

The Index of Relative Socio-Economic Disadvantage (labelled ‘Disadvantage’ in Table 9) includes all variables that either reflect or measure disadvantage. The Index of Advantage/Disadvantage is used to rank areas in terms of both advantage and disadvantage: any information on advantaged persons in an area will offset information on disadvantaged persons in the area. The Index of Economic Resources and the Index of Education and Occupation were targeted towards specific aspects of advantage/disadvantage.

For further information on the composition and calculation of these indexes see the ABS Information Paper ABS Cat No. 2039.0 available on the ABS web site www.abs.gov.au. The scores for these indexes for each Statistical Local Area (SLA) or part SLA in Barwon DGP are shown in Table 9.

In using this table, users should note that the index score shown for SLAs with less than 100 per cent in the Division represents the score for the whole SLA, and not just the part shown. However, SLAs with small proportions may have little influence on the average index score for the Division which has been based on the postcodes in the Division.

Table 9: SEIFA scores by SLA, Barwon DGP, 2001

SLA code	SLA name (% per cent of SLA in the Division)	Index score			
		Disadvantage	Advantage	Economic Resources	Education & Occupation
10400	Barraba (100.0)	949	890	862	920
10700	Bingara (94.3)	954	879	851	912
12100	Coonabarabran (3.4)	955	919	879	953
13550	Gunnedah (94.9)	951	923	911	938
15100	Manilla (93.8)	932	885	874	906
15300	Moree Plains (100.0)	929	945	971	928
15750	Narrabri (100.0)	967	945	947	938
17900	Walgett (21.3)	876	896	898	907
18600	Yallaroi (100.0)	974	919	895	930
30300	Balonne (3.6)	978	947	955	932

* Proportions are approximate and are known to be incorrect in some cases, due to errors in the concordance used to allocate CDs to form postal areas

Statistical geography of the Barwon Division of General Practice

The Barwon DGP covers 55,019 square kilometres, based on 2001 SLA data.

The postcodes in the Division (all 100%) are: 2346 to 2347, 2356, 2379 to 2383, 2385 to 2388, 2390 to 2391, 2394, 2397 to 2399, 2400 to 2402, 2404 to 2409, 2411, and 2833³.

Statistical Local Areas (SLAs) are defined by the Australian Bureau of Statistics to produce areas for the presentation and analysis of data. In country New South Wales, SLAs are of the same size or smaller than local government areas (LGAs). In this Division, the very small (one per cent) part of Inverell LGA (Inverell - Part B) is the only SLA not equivalent to an LGA. Inverell - Part A and all or parts of other SLAs that comprise the Division are shown in Table 10.

Table 10: SLAs in Barwon DGP by 2001 boundaries

SLA code	SLA name	Per cent of the SLA's population in the Division *	Estimate of the SLA's 2004 population in the Division
10400	Barraba	100.0	2,182
10700	Bingara	94.3	1,911
12100	Coonabarabran	3.4	228
13550	Gunnedah	94.9	11,638
15100	Manilla	93.8	3,047
15300	Moree Plains	100.0	16,002
15750	Narrabri	100.0	14,217
17900	Walgett	21.3	1,720
18600	Yallaroi	100.0	3,132
30300	Ballone	3.6	203

* Proportions are approximate and are known to be incorrect in some cases, due to errors in the concordance used to allocate CDs to form postal areas

³ As per the Department of Health and Ageing web site (accessed online version as at February 2005): <http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pcd-programs-divisions-divspc.htm>

Supporting data

The numbers and rates of premature mortality used in Figure 4 are shown in Table 11 below.

Table 11: Deaths before 75 years of age by major condition and selected cause, Barwon DGP‡, country New South Wales and Australia, 2000-02*

Indirectly age standardised rate per 100,000 population

Variable	Barwon DGP‡		Country NSW		Australia	
	No.	Rate	No.	Rate	No.	Rate
Circulatory system diseases	181	109.3	6,468	83.4	38,357	72.3
Ischaemic heart disease	118	70.9	3,929	50.6	23,364	44.1
Cerebrovascular disease – stroke	24	14.6	1,080	13.8	6,920	13.0
Cancer	218	131.3	9,113	119.2	60,603	114.3
Cancer of the trachea, bronchus & lung	47	28.2	1,980	25.4	12,715	24.0
Respiratory system diseases	54	32.2	1,700	21.7	9,726	18.3
Chronic lower respiratory disease	44	26.2	1,209	15.3	6,657	12.6
Injuries and poisonings	85	58.0	2,541	39.5	18,573	35.0
Suicide	24	16.8	888	14.0	6,706	12.6
Motor vehicle accidents	29	20.3	809	12.7	5,014	9.5
Other causes	97	59.4	3,998	54.6	26,735	50.4
Diabetes mellitus	13	7.9	442	9.4	3,734	7.0

* 'No.' is the total number of deaths for the 2000-02 period; 'Rate' is an annual rate, based on the 3-year average

‡ See note under 'Data converters and mapping' re calculation of Division totals

The rates used to illustrate the prevalence estimates of chronic disease (Figure 5), measures of self-reported health (Figure 6), and selected risk factors (Figure 7), and are shown in Table 12, below.

Table 12: Estimates of chronic disease and associated risk factors, Barwon DGP‡, country New South Wales and Australia, 2001

Indirectly age standardised rate per 1,000 population

Variable	Barwon DGP‡	Country NSW	Australia
Chronic disease and injury (Figure 5)			
Respiratory system diseases	317.5	310.4	310.8
Asthma	129.3	127.9	118.3
Circulatory system diseases	185.9	181.6	171.5
Diabetes type 2	19.5	23.4	23.4
Injury event	123.8	124.0	121.2
Mental & behavioural disorders	91.1	104.3	97.6
Musculoskeletal system diseases	332.6	322.0	326.2
Arthritis	149.8	148.1	138.8
- Osteoarthritis	69.8	81.1	74.9
- Rheumatoid arthritis	25.3	24.8	23.6
Osteoporosis (females)	25.1	24.1	26.4
Measures of self-reported health (Figure 6)			
Very high psychological distress levels (18+ years)	38.8	38.9	36.6
Fair or poor self-assessed health status (15+ years)	201.4	189.5	184.0
Risk factors (Figure 7)			
Overweight (not obese) males (15+ years)	392.6	397.0	389.7
Obese males (15+ years)	170.0	167.5	145.9
Overweight (not obese) females (15+ years)	239.7	240.9	223.9
Obese females (15+ years)	160.4	157.5	148.0
Smokers (18+ years)	289.8	269.8	248.0
Physical inactivity (15+ years)	394.5	349.9	315.5
High health risk due to alcohol consumed (18+ years)	60.2	47.4	42.1

‡ See note under 'Data converters and mapping' re calculation of Division totals

References

Australian Bureau of Statistics (ABS) (2002). *2001 National Health Survey: summary of results*. Australia. (ABS Cat. No. 4364.0). Canberra: ABS.

National Public Health Partnership (NPHP) (2001). *Preventing Chronic Disease: A Strategic Framework*. Melbourne, Victoria.

Thacker S, Stroup D & Rothenberg R (1995). Public health surveillance for chronic conditions: a scientific basis for decisions. *Statistics in Medicine* 14: 629-641.

World Health Organization (2002). *The World Health Report 2002: Reducing Risks, Promoting Healthy Life*. Geneva: World Health Organization.

Acknowledgements

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Further developments and updates

Subject to agreement and funding, a number of developments could be undertaken:

- Details of hospitalisations potentially avoidable through ambulatory care interventions are currently being prepared and will be forwarded to Divisions (and posted on the PHIDU web site) when they are available. Other enhancements will be considered as appropriate datasets become available.

The profiles could be updated as the data are updated. For example:

- Population estimates, avoidable hospitalisations, immunisation, and GP activity and workforce data – annually;
- Chronic disease estimates – three-yearly;
- Census data – five-yearly.

Any developments would be informed by consultation, including with Divisions.

PHIDU contact details

For general comments, data issues or enquiries re information on the web site, please contact PHIDU:

Phone: 08-8303 6236 or e-mail: PHIDU@publichealth.gov.au