

Population health profile of the Central Wheatbelt

Division of General Practice

Population Profile Series: No. 113

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Population health profile of the *Central Wheatbelt Division of General Practice*

Introduction

This profile has been designed to provide a description of the population of the Central Wheatbelt 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 23.

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 Western Australia and Australia). Specific topics covered include:

- a socio-demographic profile (pages 2-6);
- GP workforce data (page 9);
- immunisation rates (page 9);
- rates of premature death (page 10); and
- estimates of the prevalence of chronic disease and selected risk factors (pages 11-15).

Key indicators

Location: Western Australia

Division number: 615

Population‡:	No.	%
Total	47,690	
65+	6,330	13.3%
<25	15,430	32.4%
Indigenous	2,206	4.5%

Disadvantage score¹: 979

GP services per head of population:

Division‡	3.3
Australia	4.7

Population per FTE GP:

Division‡	1,764
Australia	1,403

Premature death rate¹:

Division‡	291.0
Australia	290.4

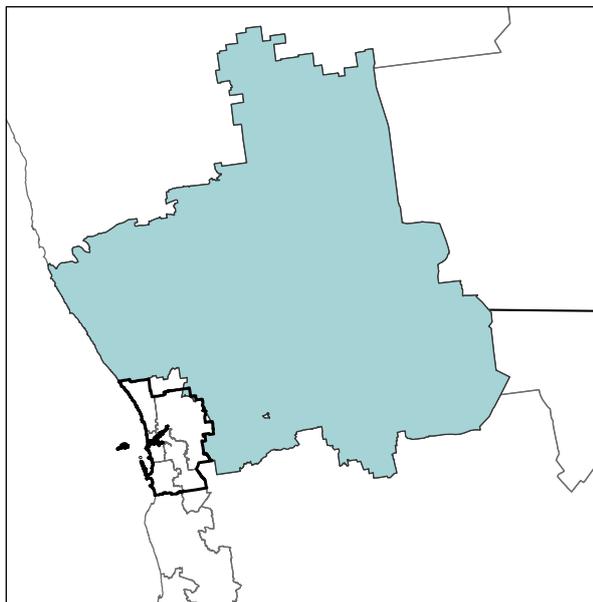
¹ Numbers below 1000 (the index score for Australia) indicate the Division is relatively disadvantaged

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

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

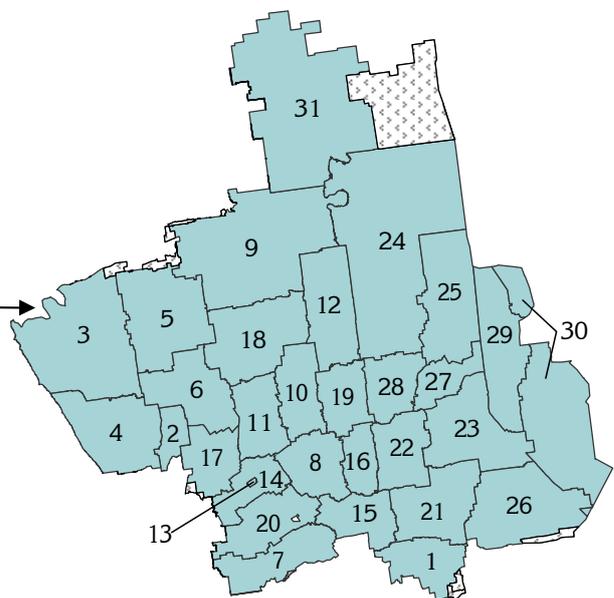
Central Wheatbelt Division of General Practice

WA Divisions of General Practice



— WA Divisions of General Practice
 — Perth Statistical Division

Central Wheatbelt DGP by SLA



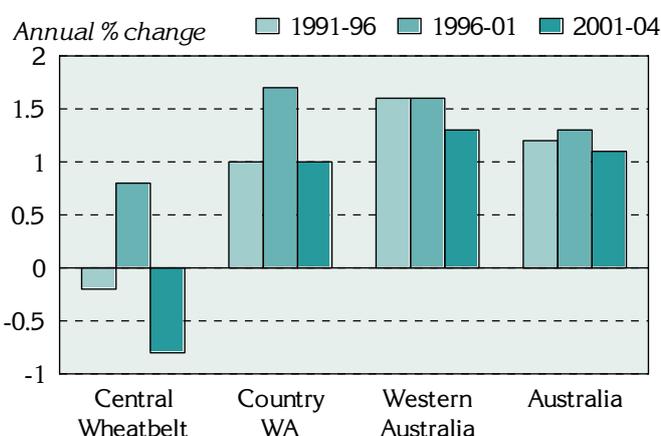
Map legend: see page 6

Socio-demographic profile

Population

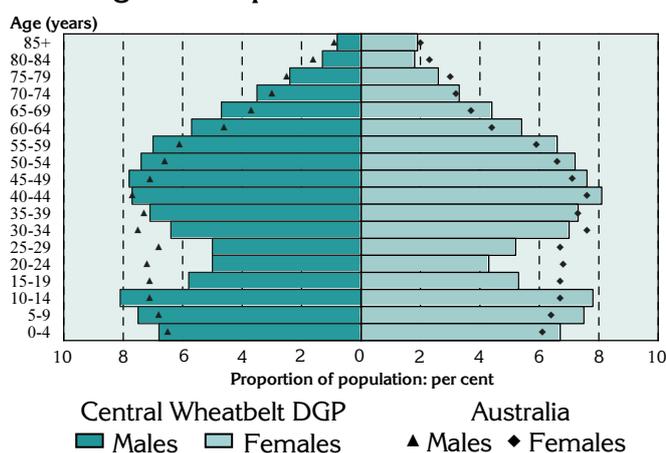
The Central Wheatbelt Division had an Estimated Resident Population of 47,690 at 30 June 2004.

Figure 1: Annual population change, Central Wheatbelt DGP‡, country Western Australia¹, Western Australia and Australia, 1991 to 1996, 1996 to 2001 and 2001 to 2004



Over the five years from 1991 to 1996, the Division's population decreased by 0.2% on average each year, compared to increases in country Western Australia (1.0%) and Western Australia (1.6%). From 1996 to 2001, the population increased by 0.8%, half the growth rate in country Western Australia (1.7%) and Western Australia (1.6%). From 2001 to 2004, the Division's population declined by 0.8% each year compared to increases in country Western Australia (1.0%) and Western Australia (1.3%).

Figure 2: Population in Central Wheatbelt DGP‡ and Australia, by age and sex, 2004



The most notable differences in the age distribution of the Division's population (when compared to Australia overall) are:

- at younger ages – higher proportions of children aged 0 to 14 years;
- from 15 to 34 years – lower proportions of males and females;
- from 40 to 74 years – higher proportions of males (from 45 years) and females (to 69 years); and
- at the oldest ages – slightly lower proportions of males and females.

Table 1: Population by age, Central Wheatbelt DGP‡ and Australia, 2004

Age group (years)	Central Wheatbelt DGP		Australia	
	No.	%	No.	%
0-14	10,592	22.2	3,978,751	19.8
15-24	4,838	10.1	2,762,769	13.8
25-44	12,857	27.0	5,881,048	29.3
45-64	13,073	27.4	4,864,037	24.2
65-74	3,785	7.9	1,374,792	6.8
75-84	1,909	4.0	934,505	4.7
85+	636	1.3	295,602	1.5
Total	47,690	100.0	20,091,504	100.0

As shown in the age-sex pyramid above, the Central Wheatbelt DGP had relatively more children than Australia as a whole, with 22.2% at ages 0 to 14 years (compared to 19.8% for Australia) (Table 1). The proportions of the Division's population aged 15 to 44 years (10.1% and 27.0%) were lower than for Australia (13.8% and 29.3%), while there were more people in the 45 to 74 year age groups (27.4% and 7.9%) compared to Australia (24.2% and 6.8%).

The Central Wheatbelt DGP comprised 3.1% of people born in predominantly non-English speaking countries and resident in Australia for five years or more (Table 2), slightly less than in country Western Australia (3.7%). Recent arrivals (resident in Australia for less than five years) from non-English speaking countries comprised 0.4% of the population, also lower than in country Western Australia (0.5).%

¹References to 'country Western Australia' relate to Western Australia excluding the Perth Statistical Division

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

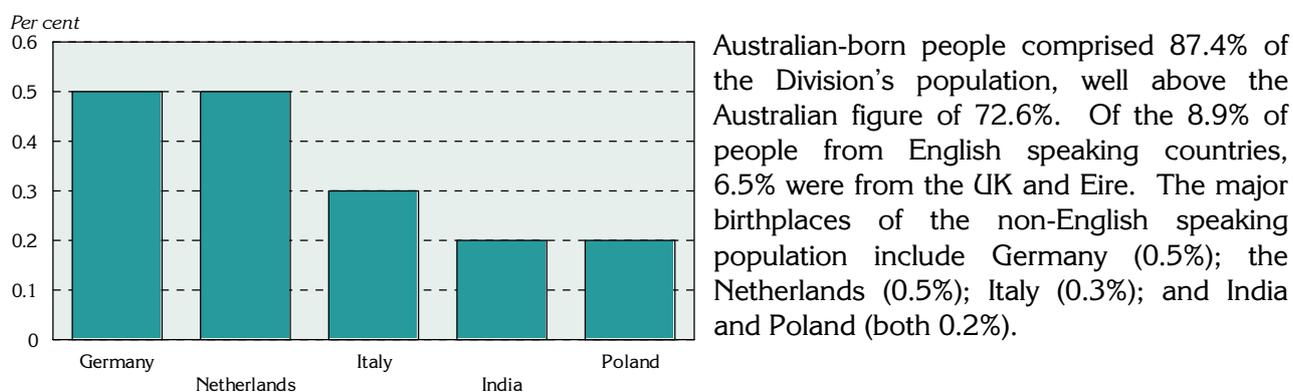
Of these residents, 0.2% had poor proficiency in English (determined when people aged five years and over born overseas in predominantly non-English speaking countries reported in the Census speaking another language and speaking English 'not well' or 'not at all'), a lower proportion than country Western Australia (0.3%) or Australia as a whole (2.4%).

Table 2: Non-English speaking born, Central Wheatbelt DGP, country Western Australia, Western Australia and Australia, 2001

People born in predominantly non-English speaking countries	Central Wheatbelt DGP		Country Western Australia		Western Australia		Australia	
	No.	%	No.	%	No.	%	No.	%
Resident in Australia for five years or more	1,451	3.1	118,205	3.7	175,201	9.6	2,019,410	10.8
Resident in Australia for less than five years	177	0.4	2,305	0.5	37,012	2.0	408,074	2.2
Poor proficiency in English ¹	87	0.2	1,393	0.3	25,389	1.5	425,399	2.4

¹ Calculated on persons aged 5 years and over who reported speaking another language and speaking English 'not well' or 'not at all'

Figure 3: Major non-English speaking birthplaces, Central Wheatbelt DGP, 2001



Socioeconomic status: Total population

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.

The Central Wheatbelt DGP had a notably lower proportion of single parent families (8.6%) compared to country Western Australia as a whole (11.2%) (Figure 4, Table 3).

There were just under half the level of Aboriginal and Torres Strait Islanders in the Division (4.5%) as in country Western Australia (8.6%).

Full-time secondary school education participation of 16 year olds living in the Division (60.6%) was similar to that for country Western Australia (60.2%).

A markedly lower proportion of the Division's households received rent assistance from Centrelink (8.8%) compared to country Western Australia (12.8%), and there were also a markedly lower proportion of dwellings rented from the State housing authority (3.6%, compared to 5.0%). The proportion of dwellings with no access to a motor vehicle (5.7%) was also below that for country Western Australia (7.1%).

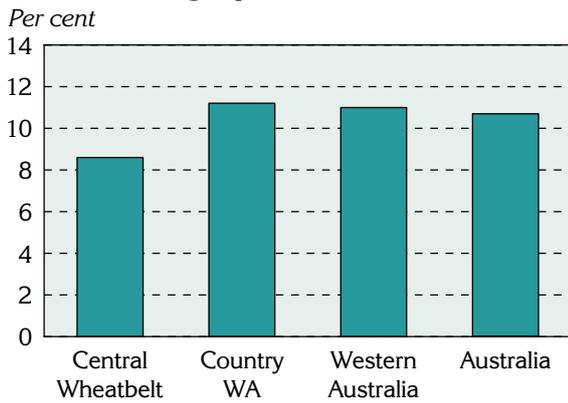
The Division had similar proportions of the population who reported using, at home, a computer (37.6%) and the Internet (20.7%) compared to country Western Australia (36.0% and 21.6%).

These socioeconomic indicators show the Division to comprise a population of near-average socioeconomic status: see also the note on page 5 (Summary of socioeconomic ranking).

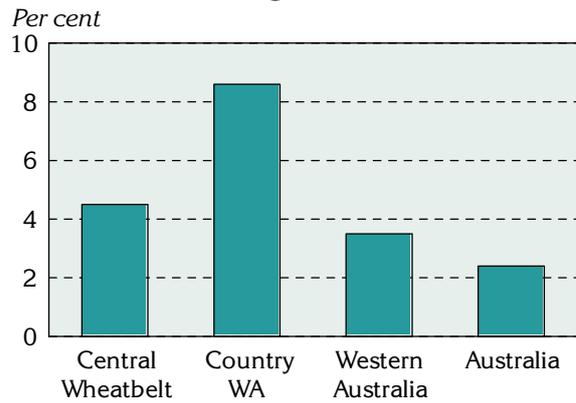
Figure 4: Socio-demographic indicators, Central Wheatbelt DGP, country Western Australia, Western Australia and Australia, 2001

Note the different scales

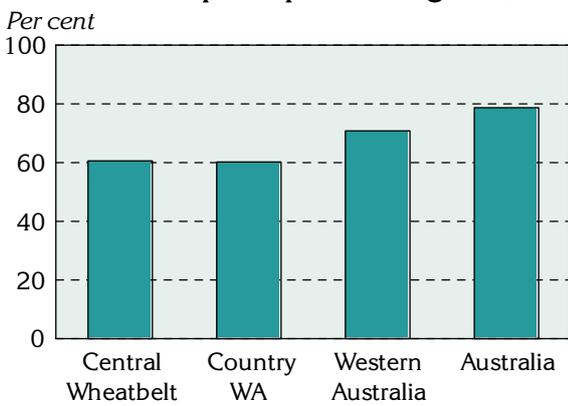
Single parent families



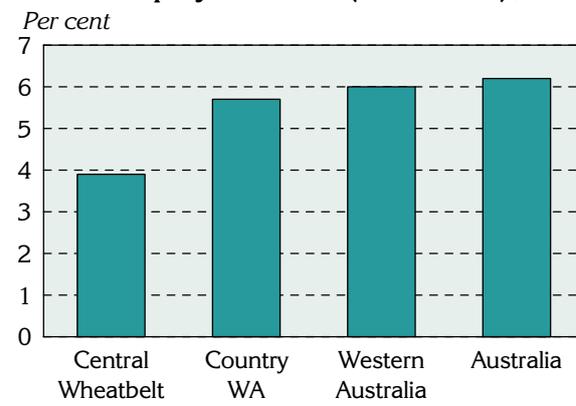
Indigenous‡



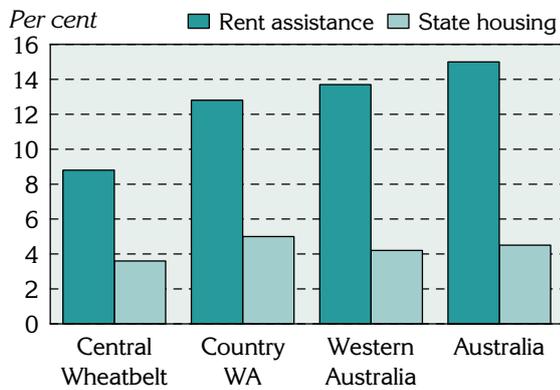
Education participation at age 16‡



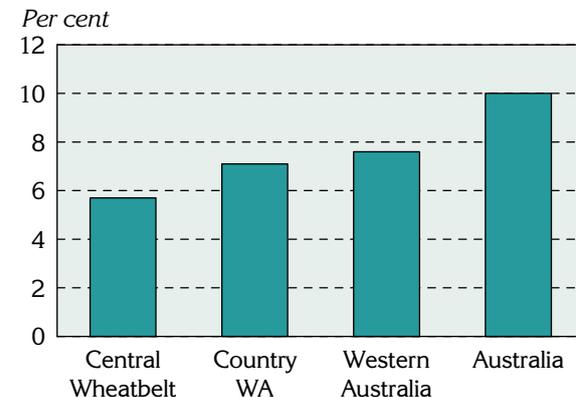
Unemployment rate (June 2003)‡



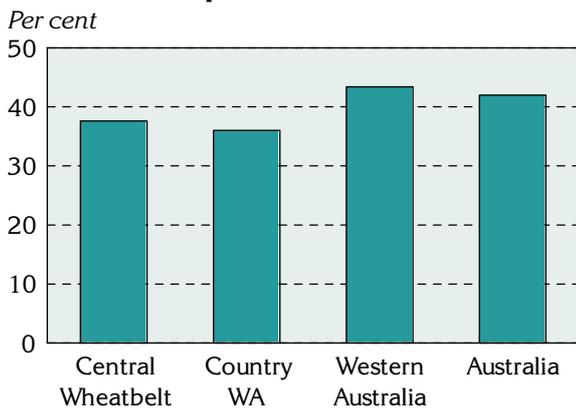
Households receiving rent assistance & Dwellings rented from State housing authority



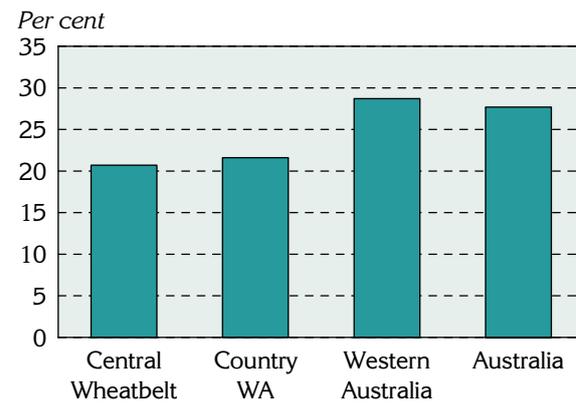
Dwellings with no motor vehicle



Computer use at home



Internet use at home



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

Table 3: Socio-demographic indicators, Central Wheatbelt DGP, country Western Australia, Western Australia and Australia, 2001

Indicator	Central Wheatbelt DGP		Country Western Australia		Western Australia		Australia	
	No.	%	No.	%	No.	%	No.	%
Single parent families	1,065	8.6	14,002	11.2	52,889	11.0	529,969	10.7
Indigenous‡	2,206	4.5	43,859	8.6	65,932	3.5	458,261	2.4
Full-time secondary school education at age 16‡	364	60.6	4,327	60.2	19,758	70.8	130,198	78.7
Households: rent assistance	1442	8.8	20,984	12.8	90,407	13.7	1,006,599	15.0
Dwellings rented from State housing authority	653	3.6	9,222	5.0	29,399	4.2	317,171	4.5
Dwellings: no motor vehicle	1,029	5.7	13,014	7.1	53,102	7.6	708,073	10.0
Computer use at home	17,305	37.6	182,300	36.0	794,456	43.4	7,881,983	42.0
Internet use at home	9,706	20.7	106,397	21.6	525,212	28.7	2,019,410	27.7

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

The unemployment rate of 3.9% in the Central Wheatbelt DGP was markedly lower than the rates in country Western Australia (5.7%) and Western Australia (6.0%) (Figure 4, Table 4). The labour force participation rate (86.0%) was notably higher than those for country Western Australia (79.3%) and Western Australia (76.3%), and the female labour force participation rate (67.0%) was consistent with that for country Western Australia (66.8%), and slightly lower than that for Western Australia (69.2%).

Table 4: Unemployment and labour force participation, Central Wheatbelt DGP, country Western Australia, Western Australia and Australia, 2003

Labour force indicators	Central Wheatbelt DGP		Country Western Australia		Western Australia		Australia	
	No.	%	No.	%	No.	%	No.	%
Unemployment rate ‡	1,055	3.9	15,562	5.7	61,017	6.0	623,791	6.2
Labour force participation‡	27,099	86.3	271,843	79.3	1,015,487	76.3	10,038,147	75.2
Female labour force participation (2001)	7,282	67.0	78,851	66.8	323,030	69.2	3,306,521	69.7

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

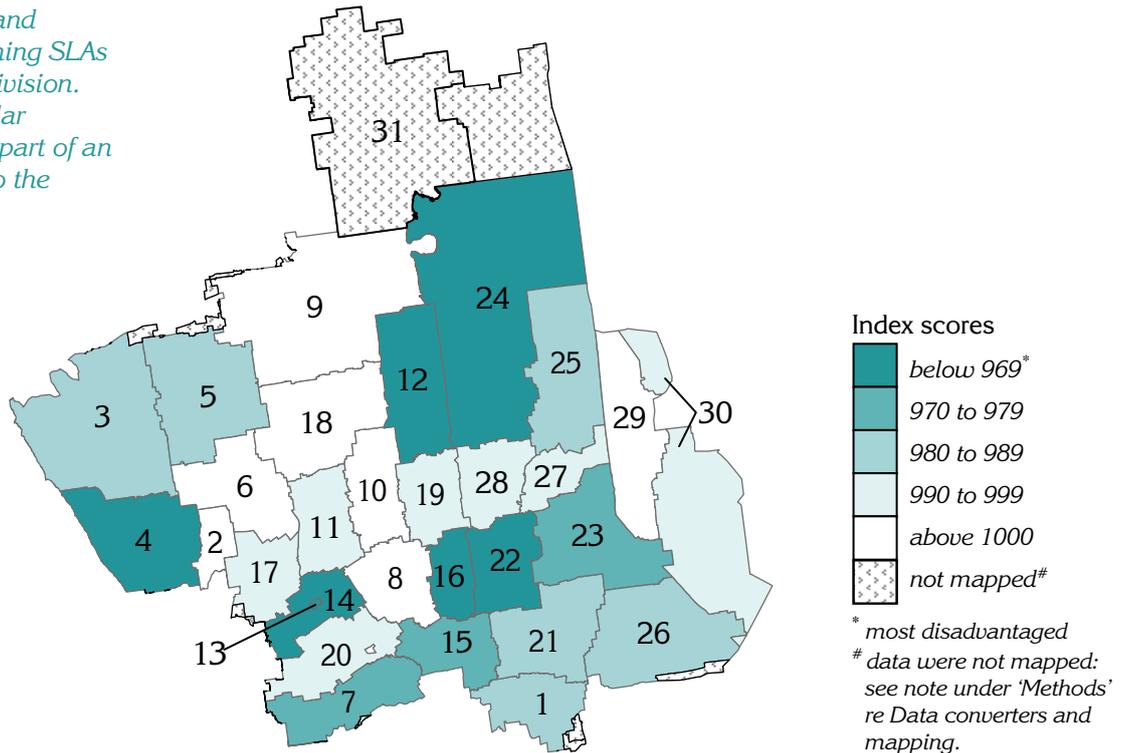
Summary of the socioeconomic ranking of the Central Wheatbelt DGP

Following the 2001 Census, the Australian Bureau of Statistics (ABS) produced four socio-economic 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 Central Wheatbelt DGP are shown in the supporting information Table 16, page 24: SLAs are described on page 25.

The Central Wheatbelt DGP area's SEIFA Index of Relative Socio-Economic Disadvantage (IRSD) score is 979, marginally (2.1%) below the average score for Australia (1000), but above that for country Western Australia (966); this highlights the relatively lower socioeconomic status profile of the Division's population. Variations in the IRSD within the Division are shown in Map 1 at the SLA level.

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

See note under 'Methods' 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.



Alphabetical key to Statistical Local Areas, Central Wheatbelt DGP, 2001

Beverley	7	Narembeen	26
Bruce Rock	21	Northam (Town)	13
Chittering	2	Northam (Shire)	14
Corrigin	1	Nungarin	27
Cunderdin	8	Quairading	15
Dalwallinu	9	Tammin	16
Dandaragan	3	Toodyay	17
Dowerin	10	Trayning	28
Gingin	4	Victoria Plains	6
Goomalling	11	Westonia	29
Kellerberrin	22	Wongan-Ballidu	18
Koorda	12	Wyalkatchem	19
Merredin	23	Yalgoo	31
Moora	5	Yilgarn	30
Mount Marshall	24	York	20
Mukinbudin	25		

Socioeconomic status: Indigenous population

At the 2001 Census, 4.5% of the population of the Central Wheatbelt DGP were estimated to be of Aboriginal or Torres Strait Islander origin, just over half the proportion for country Western Australia (8.6%).

The largest Indigenous populations were in the SLAs of Northam (an estimated 599 people, 27.2% of the Indigenous population in the Division), Moora (304 people, 13.8%), and Merredin (192 people, 8.7%).

Table 5: Population by Indigenous status*, SLAs in Central Wheatbelt DGP‡, 2001

Statistical Local Area	Indigenous		Non-Indigenous		Total	
	No.	%	No.	%	No.	%
Northam	599	27.2	5,974	12.8	6,573	13.4
Moora	304	13.8	2,390	5.1	2,694	5.5
Merredin	192	8.7	3,576	7.6	3,768	7.7
Kellerberrin	108	4.9	1,108	2.4	1,216	2.5
York	106	4.8	3,127	6.7	3,233	6.6
Quairading	101	4.6	901	1.9	1,002	2.0
Dalwallinu	89	4.0	1,793	3.8	1,882	3.8
Beverley	63	2.9	1,510	3.2	1,573	3.2
Toodyay	60	2.7	3,152	6.7	3,212	6.6
Tammin	60	2.7	381	0.8	441	0.9
Northam	57	2.6	3,613	7.7	3,670	7.5
Bruce Rock	52	2.4	1,075	2.3	1,127	2.3
Wongan-Ballidu	52	2.4	1,541	3.3	1,593	3.3
Goomalling	46	2.1	920	2.0	966	2.0
Dandaragan	46	2.1	1,505	3.2	1,551	3.2
Other	272	12.3	14,188	30.3	14,460	29.5
Total	2,206	100.0	46,755	100.0	48,961	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

The proportion of Indigenous single parent families in the Division (25.2%) was just below the Indigenous rate for country Western Australia (27.4%), but was more than three times that of the Division's non-Indigenous population (8.0%) (Table 6).

Two fifths (40.9%) of Indigenous 16 year olds living in the Division were involved in full-time secondary school education, notably higher than the Indigenous participation rate in country Western Australia (32.2%), but below the two thirds (65.5%) of the Division's non-Indigenous 16 year olds.

The proportion of the Indigenous population who lived in dwellings rented from the State housing authority (33.7%) was marginally higher than the rate for the Indigenous population in country Western Australia (30.6%), but more than ten times that of the Division's non-indigenous population (2.8%).

The proportion of the Indigenous population in Central Wheatbelt DGP who reported using a computer at home (9.8%) was higher than the rate for the Indigenous population in country Western Australia (8.4%), but one quarter the rate of the Division's non-Indigenous population (40.6%).

The rate of home Internet use by the Indigenous population in the Division (3.2%) was similar to the Indigenous rate for country Western Australia (3.3%), but only one seventh that of the Division's non-Indigenous population (22.7%).

Table 6: Socio-demographic indicators, Central Wheatbelt DGP‡, country Western Australia and Australia, 2001*

Indicator	Central Wheatbelt DGP‡		Country WA		Australia	
	No.	%	No.	%	No.	%
Population						
- Indigenous	2,206	4.5	11,480	8.6	58,261	2.4
- Non-Indigenous	46,755	95.5	263,033	91.4	18,952,407	97.6
Single parent families						
- Indigenous	118	25.2	2,376	27.4	26,587	25.8
- Non-Indigenous	961	8.0	11,626	10.0	503,382	10.4
Full-time secondary school education at age 16						
- Indigenous	17	40.9	245	32.2	5,997	50.5
- Non-Indigenous	321	65.5	4,006	66.9	327,055	80.3
Dwellings rented from State housing authority						
- Indigenous	175	33.7	2,726	30.6	23,974	20.8
- Non-Indigenous	447	2.8	6,193	4.1	284,502	4.5
People who used a computer at home						
- Indigenous	193	9.8	3,239	8.4	73,636	18.0
- Non-Indigenous	17,144	40.6	305,279	68.8	7,761,390	44.1
People who used the Internet at home						
- Indigenous	62	3.2	1,273	3.3	35,384	8.6
- Non-Indigenous	9,571	22.7	106,585	24.0	5,135,445	29.2

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

Central Wheatbelt DGP's Indigenous unemployment rate (25.0%) was notably higher than the Indigenous rate for country Western Australia (15.1%), and four times that of the non-Indigenous population (6.2%) (Table 7). 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 substantially higher 41.2%, but notably lower than the 'real' Indigenous unemployment rate of 51.9% in country Western Australia.

The Indigenous labour force participation rate (50.5%) was lower than for country Western Australia (53.9%), and two thirds that of the Division's non-Indigenous population (74.2%). The Indigenous female labour force participation rate (40.9%) was lower than for Indigenous females in country Western Australia (46.6%), and notably lower than the rate for the Division's non-Indigenous population (68.8%).

Table 7: Unemployment and labour force participation, Central Wheatbelt DGP‡, country Western Australia and Australia

Labour force indicators	Central Wheatbelt DGP‡		Country WA		Australia	
	No.	%	No.	%	No.	%
Unemployment rate						
- Indigenous	134	25.0	1,815	15.1	24,930	20.0
- Non-Indigenous	1,257	6.2	15,100	6.8	624,337	7.3
Labour force participation (incl. CDEP as employed)						
- Indigenous	539	50.5	12,022	53.9	124,517	52.4
- Non-Indigenous	20,273	74.2	220,520	74.5	8,609,525	72.9
Female labour force participation (incl. CDEP as employed)						
- Indigenous	204	40.9	4,913	46.6	52,981	46.6
- Non-Indigenous	7,477	68.8	82,997	69.7	3,564,409	69.8
Indigenous unemployment rate						
- excluding CDEP	134	25.0	1,815	15.1	24,930	20.0
- CDEP	88	16.3	4,420	36.8	17,662	14.2
- Total (including CDEP)	222	41.3	6,235	51.9	42,592	34.2

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

General medical practitioner (GP) supply

A total of 27.3 full-time equivalent (FTE) GPs and 28.5 full-workload equivalent (FWE²) GPs worked in the Division in 2003/04 (Table 8). Of the FWE GPs, 23.4% were female, and 17.9% were over 55 years of age (compared to 26.1% and 27.8%, respectively, for Western Australia).

Apart from the day-time population, the rates of population per FTE GP varied, depending on the population measure used, from a high of 1,764 people per GP (calculated on the average Estimated Resident Population (ERP) as at 30 June 2003 and 2004) to a low of 1,656 people per GP (calculated on 1 August 2001 Census count – all people counted in the Division on Census night, including visitors from Australia and overseas). The rates of the population per FWE GP were lower, ranging from 1,585 (calculated on the Census count) to 1,689 (calculated on the ERP). When calculated on the estimated day-time population, the rates of population in the Division were marginally (5.0%) below those calculated on 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 Division were higher than the rates for Western Australia and Australia, indicating a lower level of provision of GP services.

Table 8: Population per GP in Central Wheatbelt DGP, Western Australia and Australia, 2003/04

Population measure	Population	GPs		Population per GP	
		FTE	FWE	FTE	FWE
Central Wheatbelt DGP					
Census count (adjusted)*	45,176	27.3	28.5	1,656	1,585
Usual Resident Population (URP)(adjusted)*	46,055	..	..	1,688	1,616
Estimated Resident Population (ERP)	48,136	..	..	1,764	1,689
Day-time population (estimated on URP)* ‡	43,768	..	..	1,604	1,535
Western Australia (ERP)	1,966,076	1,284	1,450	1,531	1,356
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 92.1% of children in the Division in 2002 were fully immunised at age one, below the Australian proportion of 94.2%.

Immunisation by provider type for children between the ages of 0 to 6 is shown in Table 9. Nearly four fifths (79.8%) were immunised at a community health centre, or by a community health worker, with 17.8% by provided by a general practitioner (compared to 70% for Australia).

Table 9: Childhood immunisation at ages 0 to 6 by provider type, Central Wheatbelt DGP and Australia, 2003/04

Provider	Central Wheatbelt	Australia
	%	%
General practitioner	17.8	70.0
Local government council	0.0	16.6
Community health centre/ worker	79.8	9.8
Public hospital	2.4	2.1
Aboriginal health service/ worker	0.0	0.9
Other*	0.0	0.6
Total: Per cent	100.0	100.0
Number	9,505	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.

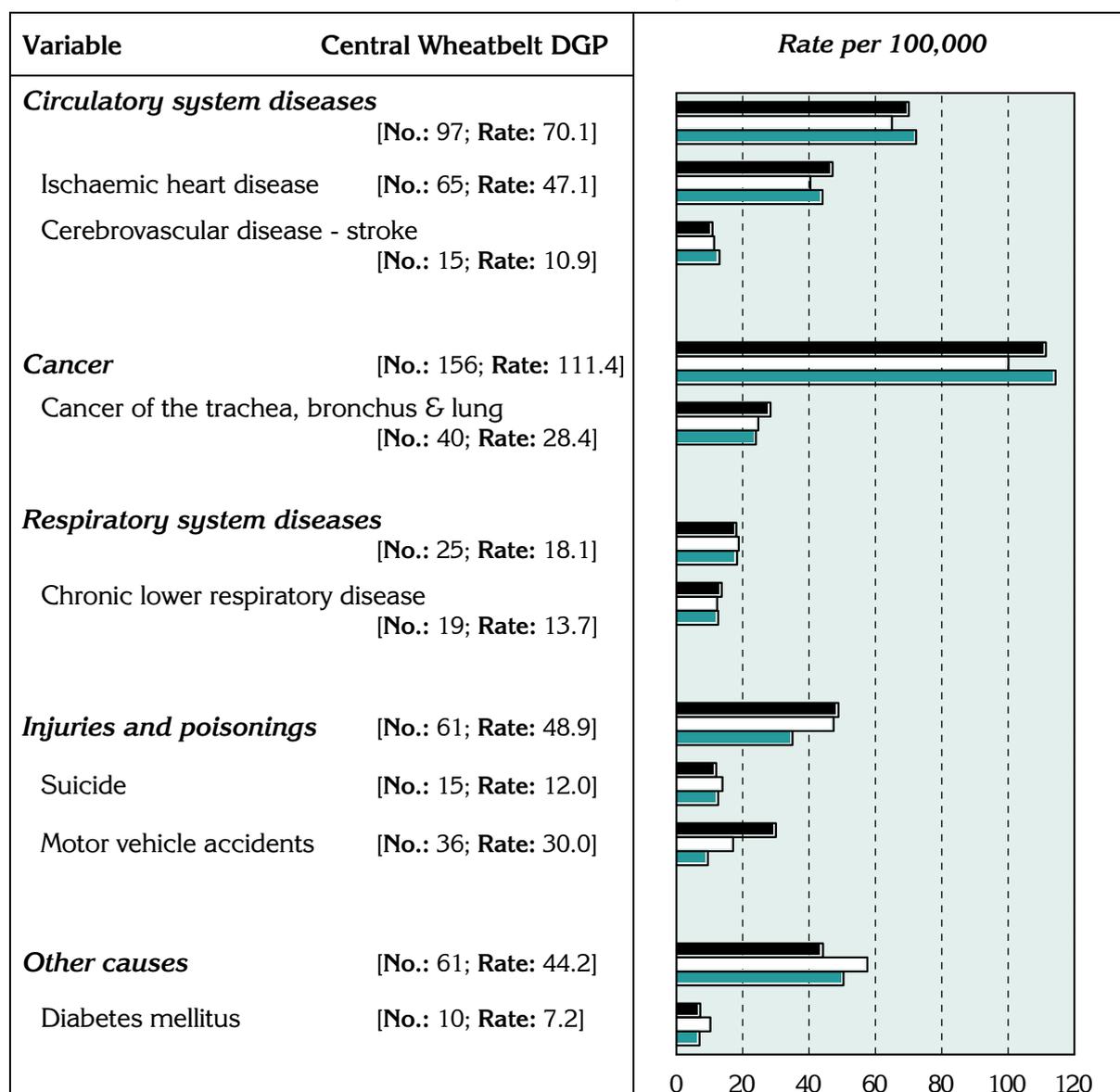
The 'all causes' death rate in the Division at ages 0 to 74 years (291.0 deaths per 100,000 population) is slightly higher than for country Western Australia (289.1), and Australia (290.4): the rates have been age standardised to allow for comparisons between areas, regardless of differences in age profiles between the Division and Australia.

The major causes of premature mortality in the Division, as for country Western Australia and Australia as a whole, are cancer and diseases of the circulatory system (Figure 5). Death rates for the major causes of circulatory system diseases, cancer, and injuries and poisonings are higher than those for country Western Australia, while rates for respiratory diseases and the 'other causes' group are lower. Death rates for ischaemic heart disease, cancer of the trachea, bronchus and lung, and injuries and poisonings are higher than the Australian rates, while rates for the other major conditions and selected causes are similar or lower. The data on which the following charts are based are in Table 18.

Figure 5: Deaths before 75 years of age by major condition group and selected cause, Central Wheatbelt DGP‡, country Western Australia and Australia, 2000-02*

Indirectly age standardised rate per 100,000 population

■ Central Wheatbelt □ Country WA ■ 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 process by which the estimates have been made, and details of their limitations, are described in the Notes section, page 21-22. The data on which the following charts are based are in Table 19.

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 circulatory system diseases, injuries and musculoskeletal system diseases, similar proportions, or fewer people in the Central Wheatbelt DGP reported having any of the listed conditions compared to Australia as a whole (Figure 6), that is, the prevalence rates per 1,000 population were similar or lower.

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.

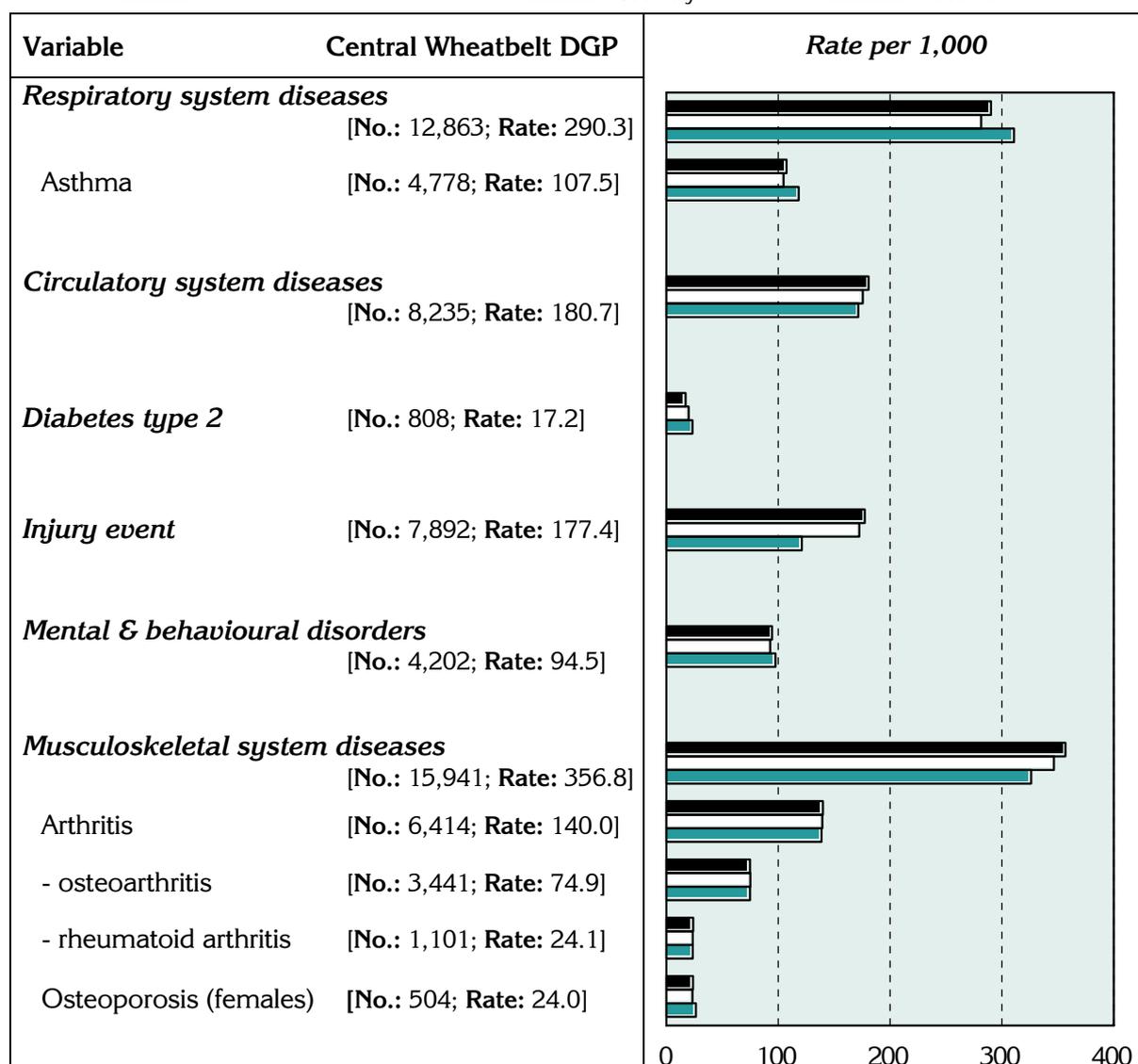
The population of the Division aged 18 years and over is estimated to have a similar proportion with very high psychological distress levels as measured by the K–10 compared to Australia as a whole (Figure 7). The proportion of the population aged 15 years and over estimated to have reported their health as ‘fair’ or ‘poor’ is also consistent with the national average.

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

Figure 6: Estimates* of chronic disease and injury, Central Wheatbelt DGP‡, country Western Australia and Australia, 2001

Indirectly age standardised rate per 1,000 population

Central Wheatbelt DGP Country WA Australia



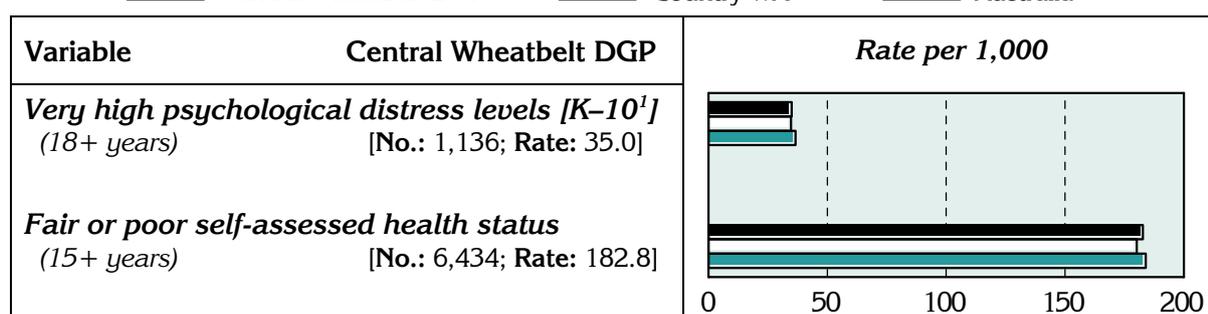
* 'No.' is a weighted estimate of the number of people in Central Wheatbelt DGP reporting each chronic condition and is derived from synthetic predictions from the 2001 NHS

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

Figure 7: Estimates* of measures of self-reported health, Central Wheatbelt DGP‡, country Western Australia and Australia, 2001

Indirectly age standardised rate per 1,000 population

Central Wheatbelt DGP Country WA Australia



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

¹ Kessler 10

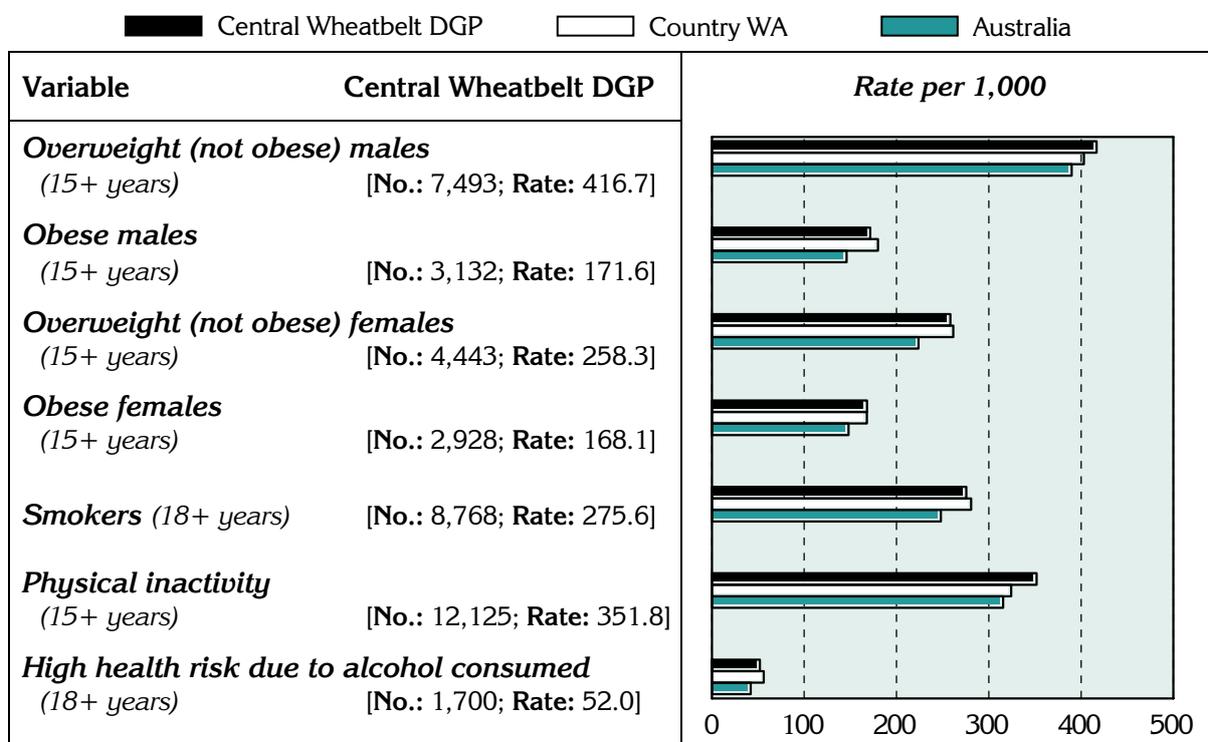
‡ See note under 'Data converters and mapping' re calculation of Division totals

Prevalence estimates: risk factors‡

The relatively higher rates (when compared with the Australian population) for all of the selected risk factors (Figure 8) are consistent with the socioeconomic status profile of the area.

Figure 8: Estimates* of selected risk factors, Central Wheatbelt DGP‡, country Western Australia and Australia, 2001

Indirectly age standardised rate per 1,000 population



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

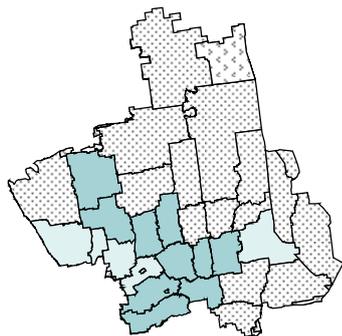
‡ See note under 'Data converters and mapping' re calculation of Division totals

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).

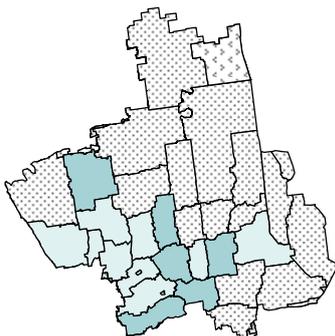
In the following maps, users should note that the estimates shown for part SLAs in the Division (see Table 17, page 25, for per cent of SLA population in the Division) represent the estimates for the whole SLA, and not just the part shown. However, SLAs with only a small proportion of their population 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, Central Wheatbelt DGP, 2001

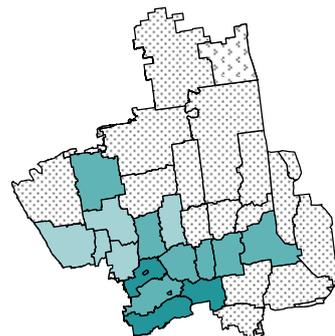
Respiratory system diseases



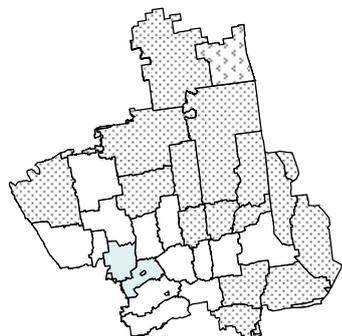
Respiratory system diseases: Asthma



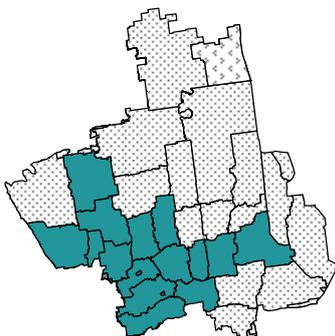
Circulatory system diseases



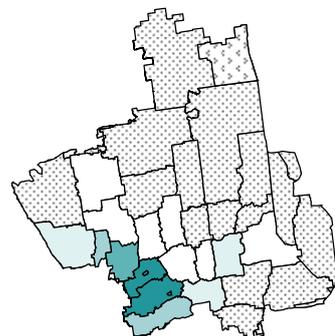
Diabetes type 2



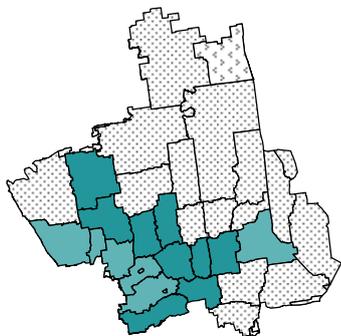
Injury event



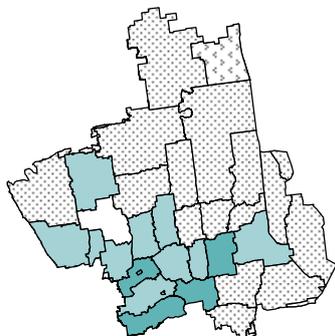
Mental & behavioural disorders



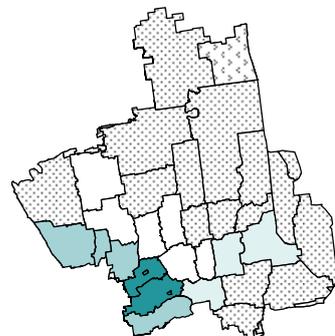
Musculoskeletal system diseases



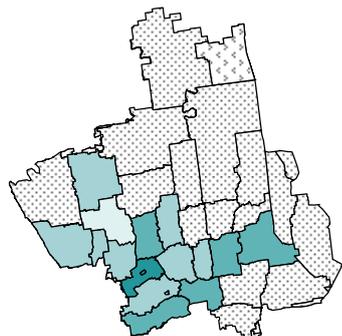
Musculoskeletal system diseases: Arthritis



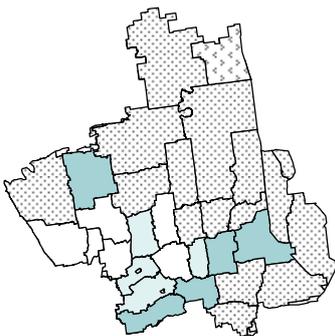
Arthritis: Osteoarthritis



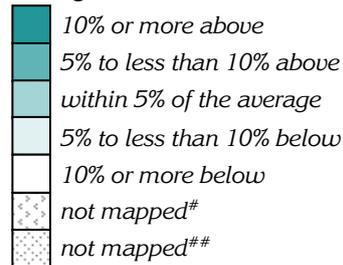
Arthritis: Rheumatoid arthritis



Osteoporosis (females)



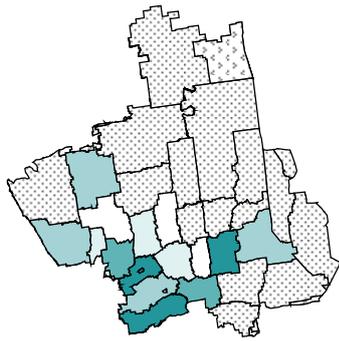
Per cent difference from Australian average



* 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

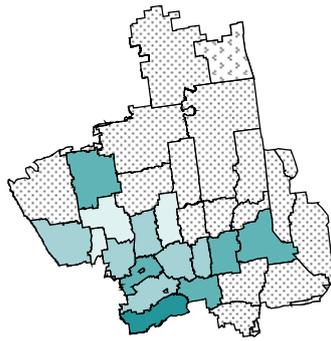
Map 3: Estimates* of measures of self-reported health by SLA, Central Wheatbelt DGP, 2001

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

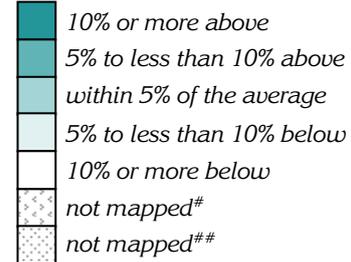


¹ Kessler 10

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



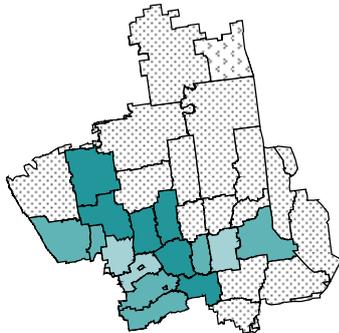
Per cent difference from Australian average



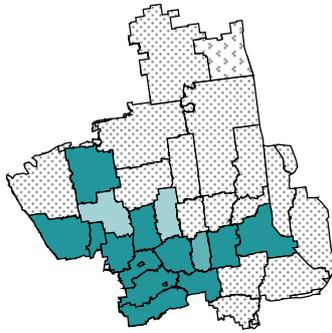
* See Notes on the data re these estimates.
 # Data not mapped: see 'Data converters and mapping' section under Notes on the data.
 ## Estimates not available for remote areas

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

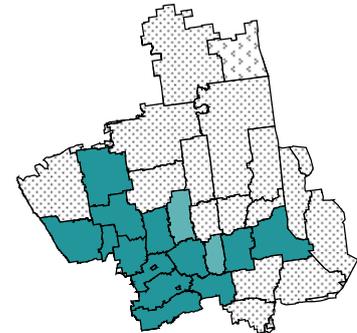
Overweight (not obese) males (15+ years)



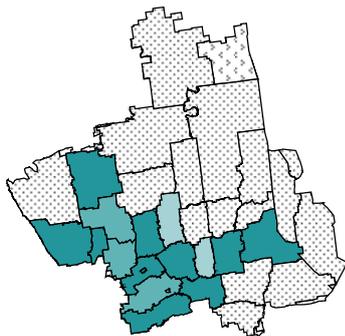
Obese males (15+ years)



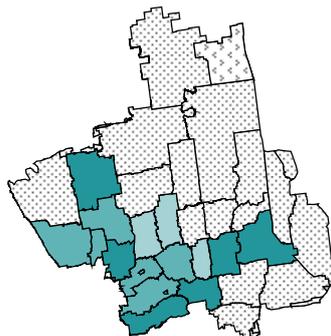
Overweight (not obese) females (15+ years)



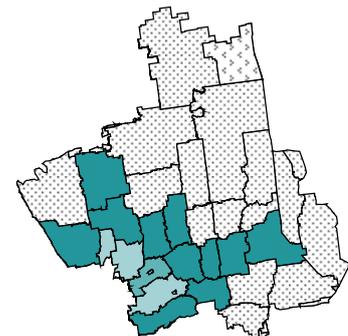
Obese females (15+ years)



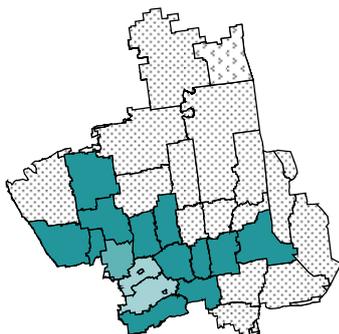
Smokers (18+ years)



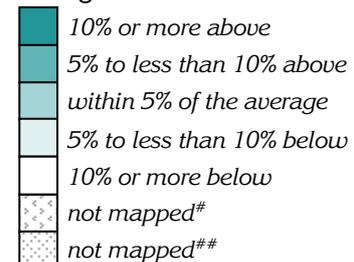
Physical inactivity (15+ years)



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

Health and wellbeing of Aboriginal and Torres Strait Islanders in remote areas

Background

Estimates of the prevalence of chronic diseases and risk factors are not available for the remote areas in this Division. However, given the relatively high proportion of Indigenous population, some data available from the 2002 National Aboriginal and Torres Strait Islander Social Survey and the 2001 National Health Survey have been included in this profile. These data provide a description of aspects of the health and wellbeing of Aboriginal and Torres Strait Islander people living in remote areas; in some cases they also allow for a comparison of aspects of the health of Indigenous and non-Indigenous populations and, in others, for a comparison of people living in remote and non-remote areas. More detailed disaggregations than those shown here (eg. for the non-Indigenous population in remote areas) were not available from these surveys.

Remote areas in this context cover 86.4% of Australia's land mass; and, while they comprise just 3.0% of the total population, a large proportion (28.0%) of the Indigenous population lives in these areas. The Central Wheatbelt Division is classed as partly Remote under the ARIA+ remoteness classification (see *Notes on the data*, page 21); under this classification approximately 21.0% of the Division's population lives in areas classed as Remote. The majority of the population lives in areas classed as Moderately Accessible (approximately 41.0%) or Accessible (38.0%).

Although these data can provide a guide to average levels of health and wellbeing in the Division, they should not be read to say that Indigenous health and wellbeing in the Central Wheatbelt DGP is the same as is shown by these data. Clearly, the large area of Australia covered by this term 'remote' is very diverse in nature: it includes a range of population groups, living in a range of situations, from urban to rural to isolated communities. Other data are available from a variety of sources (including State and Territory health agencies) and those of relevance to Divisions could be included in subsequent editions of the profiles.

National Aboriginal and Torres Strait Islander Social Survey and Health Survey

The data in this section are from the ABS publications 2001 National Health Survey and National Aboriginal and Torres Strait Islander Social Survey, Australia, 2002 (or were provided by the ABS as special data extractions from data in this survey). The data are self-reported and are not based on clinical records or physical measures.

Just over half (54.2%) of the Indigenous population in the remote areas of Australia reported speaking an Indigenous language. Those in the lowest income group were almost two and a half times more likely (than those in the three highest income groups) to do so: for ease of reading, these income groups are referred to in the text below as 'low' and 'high'. The difference in this characteristic between people in remote and non-remote areas is over six times (6.3). Note that almost one quarter (23.6%) of Aboriginal and Torres Strait Islander people in the remote areas did not have an income defined, so were not included in the comparisons by income group. For almost all of the characteristics in Table 10, the outcome for those where an income was not defined showed poorer health, or greater disadvantage, than those for whom income was available. For example, Indigenous people living in remote areas and for whom an income was not available were 37% more likely (than those reporting an income) to speak an Indigenous language (a rate ratio of 1.37).

The information in Table 10 has been restricted to show the rate (proportion) for the remote areas only, and the rate ratios between income groups and the remote and non-remote areas: the data from which the rate ratios have been calculated are available on the PHIDU web site.

Table 10: Summary characteristics of Aboriginal and Torres Strait Islander people, by remoteness and income group, Australia, 2002

Characteristic	Remote areas	Low income cf. with high income (RR*)		Remote cf. with non-remote (RR**)
	Per cent	Remote	Non-remote	
Family and culture				
Able to get support in time of crisis from outside household	86.9	0.99	0.93	0.95
At least one stressor experienced in last 12 months	85.5	1.09	1.03	1.06
Speaks an Indigenous language	54.2	2.45	1.69	6.30
Health and disability				
Self-assessed health status				
Excellent/very good	44.2	0.94	0.66	1.00
Fair/poor	20.0	1.25	2.34	0.82
Disability or long term health condition	35.4	1.30	1.64	0.96
Risk behaviour/characteristic				
Current daily smoker	50.4	1.16	1.66	1.05
Risky/high risk alcohol consumption in last 12 months	16.8	0.81	0.97	1.16
Educational attainment				
Has a post-school qualification	18.1	0.36	0.47	0.57
Does not have a post-school qualification				
Completed Year 12	9.0	0.72	0.31	0.83
Completed Year 10 or Year 11	27.8	0.97	1.34	1.01
Completed Year 9 or below, or did not attend	45.1	2.06	3.01	1.51
Total with no post-school qualification	81.9	1.35	1.44	1.20
Employment				
Employed: CDEP				
Non-CDEP	19.2	0.11	0.12	0.48
Total employed	51.7	0.39	0.17	1.17
Unemployed	5.9	4.52	3.38	0.35
Not in the labour force	42.5	3.91	4.99	1.09
Financial stress				
Unable to raise \$2,000 in a week for something important	73.0	2.02	3.55	1.54
Law and justice				
Victim of physical, threatened violence in last 12 months	22.7	0.89	1.82	0.91
Transport access				
Can easily get to the places needed	65.6	0.74	0.71	0.91
Cannot, or often has difficulty, getting to places needed	16.6	3.96	3.31	1.69
Mobility				
Moved dwellings in last 12 months	27.2	0.80	1.26	0.84
Information technology				
Used computer in last 12 months	34.4	0.45	0.63	0.54
Accessed the Internet in last 12 months	21.6	0.37	0.50	0.45

* RR is ratio of the rate for the 20% of the Indigenous population with the lowest income to the rate for the 60% with the highest income

** RR is ratio of the rate for the Indigenous population in the remote areas compared to that in the non-remote areas

Source: ABS 2002 NATSIS, 2002 (unpublished data)

The relevance of the measure of self-reported health for Aboriginal and Torres Strait Islander people has been questioned. For example, while 20% of Aboriginal and Torres Strait Islander people in the remote areas reported their health to be fair or poor, this was 18% fewer than in the non-remote areas, a finding that would not appear to be supported by other data.

Despite this result, there is a variation within the remote areas, with low income Aboriginal and Torres Strait Islander people 25% more likely than those with a high income to report their health as fair, or poor (a rate ratio of 1.25).

In the remote areas, disability and smoking (reported by 35.4% and 50.4%, respectively) show a relationship with disadvantage (higher rates in low, compared with high, income groups), but risky/high risk levels of alcohol consumption over the previous 12 months do not. However, reported rates of alcohol consumption at high-risk levels (reported by 16.8%) are 16% higher in remote than in non-remote areas.

Similarly, there is a clear association for Aboriginal and Torres Strait Islander people between high levels of educational attainment and income. For example, Aboriginal and Torres Strait Islander people in the low income group were more likely to report having no post-school qualifications (i.e. no qualification beyond secondary school) (35% higher for low income than high income groups); and those in remote areas 20% higher compared with those in non-remote areas.

Not surprisingly, the employment rate (including CDEP) is extremely strongly related to income levels, with 61% fewer in the low income group having employment (a rate ratio of 39%) in remote areas: conversely, four and a half times the number in the low income group are unemployed, compared with the high income group. Similarly, striking differentials apply in the non-remote areas.

The impact of disadvantage among Aboriginal and Torres Strait Islander people in remote areas is evident in a number of the remaining variables, with almost three quarters (73.0%) unable to raise \$2,000 in a week for something important, two-thirds (65.6%) reporting difficulty with transport and high proportions reporting lack of access to a computer and the Internet.

Reporting by Aboriginal and Torres Strait Islander people of selected long-term conditions (Table 11) is generally higher in remote than non-remote areas; the differentials for a number of conditions are even larger between the Indigenous and non-Indigenous populations. The impacts on the Indigenous community of diabetes and circulatory problems/ diseases are examples of these differences. The situation is similar for health-related actions, with the notable exception of doctor consultations, which are 11% lower in remote areas than non-remote areas for the Indigenous population; however, the Indigenous population across Australia as a whole reported more doctor consultations than did the non-Indigenous population.

Table 11: Summary health characteristics, by Indigenous status and remoteness, Australia, 2001
Age standardised rates (as per cent)

Health characteristic	Indigenous		RR*	Non-Indigenous	RR**
	Remote	Non-remote		Total	
Selected long-term conditions					
Diabetes	16	9	1.78	3	3.67
Eye/sight problems	38	49	0.78	51	0.90
Ear/hearing problems	17	18	0.94	14	1.29
Circulatory problems/diseases	24	18	1.33 [#]	17 [#]	1.12 [#]
Asthma	15	18	0.83	12	1.42
Back problems	21	22	0.95 [#]	21 [#]	1.05
No long-term condition	29	20	1.45 [#]	22 [#]	1.00
Health-related actions¹					
Admitted to hospital	21	19	1.11	12	1.67
Visited casualty/outpatients	9	5	1.80	3	2.00
Doctor consultation (GP and/or specialist)	24	27	0.89 [#]	24 [#]	1.13
Dental consultation	7	5	1.40 [#]	6 [#]	0.83
Consultation with other health professional	27	16	1.69	13	1.38
Day(s) away from work/study	11	9	1.22 [#]	10 [#]	1.00

* RR is ratio of % in remote to % in non-remote for the Indigenous population

** RR is ratio of % Indigenous to % non-Indigenous

[#] Difference between total Indigenous and non-Indigenous data is not statistically significant

¹ Hospital admissions relate to the 12 months prior to interview. All other health-related actions relate to the two weeks prior to interview

Source: ABS 2001 NHS Cat. No. 4714.0, Table 1

Details of the immunisation status of adult Australians are not available from administrative sources (as are children's immunisations) so self-reported data again provide the only picture of the characteristics of the population groups who are immunised against various conditions (Table 12).

Aboriginal and Torres Strait Islander people living in remote areas were 67% more likely than those living in non-remote areas to have reported having a vaccination for influenza in last 12 months; and overall (the Indigenous population living in remote and non-remote areas) were 9% more likely to have had this vaccination than the non-Indigenous population. The ratio of the rates for those reporting having a vaccination for pneumonia in last 12 months were substantially stronger, being 2.53 (more than two and a half times higher for Indigenous population in remote areas) and 1.79 (79% higher for Indigenous compared with non-Indigenous).

Table 12: Immunisation status of people aged 50 years and over, by Indigenous status and remoteness, Australia, 2001

Per cent

Immunisation status	Indigenous				Non-Indigenous	
	Remote	Non-remote	Total	RR*	Total	RR**
Influenza						
Had vaccination for influenza in last 12 months	75	45	51	1.67	47	1.09
Had vaccination for influenza but not in last 12 mths	na	11	10	..	11	1.10
Never had vaccination for influenza	16 [#]	43	37	0.37	41	0.90
Pneumonia						
Had vaccination for pneumonia in last 5 years	48	19	25	2.53	14	1.79
Had vaccination for pneumonia but not in last 5 years	na	4 [#]	3 [#]	..	1	..
Never had vaccination for pneumonia	38	75	67	0.51	84	0.80

* RR is ratio of % in remote to % in non-remote for the Indigenous population

** RR is ratio of % Indigenous to % non-Indigenous

[#] estimate has a relative standard error of between 25% to 50% and should be used with caution

Source: ABS 2001 NHS Cat. No. 4714.0, Table 19

The limited range of health information available for Aboriginal and Torres Strait Islander women living in remote areas shows that they are more likely (than Indigenous women in non-remote areas) to have breastfed their child (77% and 59%, respectively) (and also more likely than the non-Indigenous population (53%)). Lower proportions also reported not having children (Table 13).

Indigenous women are more likely to have had a Pap smear test. However, Indigenous women who reported having a Pap smear test were more likely to be living in remote than in non-remote areas (17% higher).

Table 13: Summary women's health characteristics, by Indigenous status and remoteness, Australia, 2001

Age standardised rates (as per cent)

Women's health characteristics	Indigenous				Non-Indigenous	
	Remote	Non-remote	Total	RR*	Total	RR**
Mammograms (aged 40 years and over)						
Has regular mammograms	36 [#]	45	43	0.80	46	0.93
Never had a mammogram	41	20	25	2.05	25	1.00
Pap Smear test						
Has regular Pap smear tests	56	48	50	1.17	55	0.91
Never had a Pap smear test	19	8	11	2.38	12	0.92
Breastfeeding history						
Children breastfed	77	59	63	1.31	53	1.19
Children not breastfed	4 [#]	12	11	0.33	9	1.22
Has not had children	13	15	14	0.87	29	0.48

* RR is ratio of % in remote to % in non-remote for the Indigenous population

** RR is ratio of % Indigenous to % non-Indigenous

[#] estimate has a relative standard error of between 25% to 50% and should be used with caution

Source: ABS 2001 NHS Cat. No. 4714.0, Table 22

Notes on the data

Data sources and limitations

General

References to 'country Western Australia' relate to Western Australia excluding the Perth Statistical Division.

Data sources

Table 14 details the data sources for the material presented in this profile.

Table 14: 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 and 2; Table 1 Tables 2, 3 and 4; Figures 3 and 4	Estimated Resident Population, ABS, 30 June for the periods shown Data were extracted by postal area from the ABS Population Census 2001 ¹ , except for the following indicators: - <i>Indigenous</i> – Experimental estimates of Aboriginal and Torres Strait Islander people, 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) - <i>Unemployment rate / Labour force participation</i> – extracted from <i>Small Area Labour Markets Australia</i> , June Quarter 2003, Department of Employment and Workplace Relations
Map 1; Table 16 Tables 5, 6 and 7	ABS SEIFA package, Census 2001 For all indicators, data were from the ABS Population Census 2001 (unpublished), except for the data in <i>Table 5</i> and the <i>Total population</i> figures which were based on the Experimental estimates of Aboriginal and Torres Strait Islander people, ABS 2001 (unpublished)
General medical practitioner (GP) supply	
Table 8	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 ² , ABS Population Census 2001, scaled to 2003/04 - Usual Resident Population ³ , ABS Population Census 2001, scaled to 2003/04 - Day-time population: calculated from journey to work data, ABS Population Census (JRP) 2001 (unpublished); and 2001 Census URP, scaled to 2003/04 - Estimated Resident Population, ABS, June 2003/2004
Immunisation	
Text comment: 1 year olds Table 9	National Centre for Immunisation Research and Surveillance, 2002 Australian Childhood Immunisation Register, Health Insurance Commission, 2003/04 (unpublished)
Premature mortality	
Figure 5; Table 18	ABS Deaths, 2000 to 2002
Chronic diseases and associated risk factors (see Notes Table 15)	
Figures 6, 7 and 8; Maps 2, 3 and 4; Table 19	Estimated from 2001 National Health Survey (NHS), ABS (unpublished)
National Aboriginal and Torres Strait Islander Social Survey and Health Survey	
Table 10	ABS 2002 NATSIS, 2002 (unpublished)
Tables 11,12 and 13	ABS 2001 NHS Cat. No. 4714.0 – Tables 1, 19 and 22

¹ All data extracted from Usual Residents Profile, except for data variables only released in the Basic Community Profile

² *Census count* - those counted in the Division on Census night, including tourists, business people and other visitors

³ *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

Remote areas

The Department of Health and Ageing have developed a classification of remoteness (ARIA+), subsequently amended by the ABS, which includes five area classes - Highly Accessible, Accessible, Moderately Accessible, Remote and Very Remote (a sixth category, Migratory, applies to Census data). Areas in the Remote and Very Remote classes were excluded from the 2001 National Health Survey.

Chronic diseases and associated risk factors

The data for chronic conditions and risk factors for SLAs 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 15 includes notes relevant to this data.

Table 15: Notes on estimates of chronic diseases and associated risk factors

Indicator	Notes on the data
Estimates of chronic disease and injury (Figure 6 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 7 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 8 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	- Respondent's 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 24).

[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 17.

[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 16) 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 Central Wheatbelt DGP are shown in Table 16.

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 16: SEIFA scores by SLA, Central Wheatbelt DGP, 2001

SLA code	SLA name (% per cent of SLA in the Division)	Index score				
		Disadvantage	Advantage	Economic Resources	Education & Occupation	
50560	Beverley	(100.0)	978	924	879	947
51120	Bruce Rock	(100.0)	989	944	883	967
51680	Chittering	(36.3)	1015	956	959	940
52100	Corrigin	(91.1)	986	941	884	960
52450	Cunderdin	(100.0)	1004	961	933	952
52520	Dalwallinu	(100.0)	1001	962	958	936
52590	Dandaragan	(52.8)	980	939	938	932
52940	Dowerin	(100.0)	1033	944	885	963
53570	Gingin	(100.0)	961	915	930	904
53710	Goomalling	(100.0)	996	931	913	931
54410	Kellerberrin	(100.0)	952	910	887	917
54690	Koorda	(100.0)	959	933	921	915
55460	Merredin	(100.0)	974	952	939	947
55600	Moora	(100.0)	988	951	941	949
55880	Mount Marshall	(100.0)	969	937	883	945
55950	Mukinbudin	(100.0)	981	947	911	953
56370	Narembeen	(100.0)	987	949	925	944
56650	Northam (Town)	(100.0)	943	930	938	933
56720	Northam (Shire)	(100.0)	969	926	909	939
56860	Nungarin	(100.0)	998	948	858	990
57350	Quairading	(88.3)	979	943	904	948
58190	Tammin	(100.0)	967	922	876	938
58330	Toodyay	(79.0)	995	951	925	965
58400	Trayning	(100.0)	997	931	892	938
58540	Victoria Plains	(100.0)	1002	944	906	949
59030	Westonia	(100.0)	1018	963	917	973
59310	Wongan-Ballidu	(100.0)	1004	967	930	970
59450	Wyalkatchem	(100.0)	998	936	888	950
59660	Yilgarn	(13.2)	996	984	992	943
59730	York	(100.0)	990	960	923	979

* 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

Note: Scores are not shown for SLAs in the Division with estimated populations of less than 100 (refer to Table 17)

Statistical geography of the Central Wheatbelt DGP

The Central Wheatbelt DGP covers 86,035 square kilometres.

The postcodes in the Division (all 100%) are: 6041-6044, 6302, 6304, 6368-6369, 6375-6376, 6383-6386, 6401, 6403, 6405, 6407, 6409-6415, 6417-6425, 6428, 6460-6468, 6470-6473, 6475-6477, 6479-6480, 6485, 6487-6490, 6501-6513, 6521, 6560, 6562, 6564, 6566-6569, 6571-6572, 6574-6575, 6603, 6605-6606, 6608-6609, and 6612³.

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>

Statistical Local Areas (SLAs) are defined by the Australian Bureau of Statistics to produce areas for the presentation and analysis of data. In this Division, SLAs are equivalent to local government areas. All or parts of the SLAs listed in Table 17 comprise the Division.

Table 17: SLAs in the Central Wheatbelt 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
50560	Beverley	100.0	1,582
51120	Bruce Rock	100.0	1,059
51680	Chittering	36.3	1,205
52100	Corrigin	91.1	1,076
52450	Cunderdin	100.0	1,305
52520	Dalwallinu	100.0	1,589
52590	Dandaragan	52.8	1,556
52940	Dowerin	100.0	790
53570	Gingin	100.0	4,519
53710	Goomalling	100.0	959
54410	Kellerberrin	100.0	1,151
54690	Koorda	100.0	472
55460	Merredin	100.0	3,492
55600	Moora	100.0	2,564
55880	Mount Marshall	100.0	615
55950	Mukinbudin	100.0	669
56370	Narembeen	100.0	909
56650	Northam (Town)	100.0	6,277
56720	Northam (Shire)	100.0	3,661
56860	Nungarin	100.0	271
57350	Quairading	88.3	917
58190	Tammin	100.0	438
58330	Toodyay	79.0	3,338
58400	Trayning	100.0	363
58540	Victoria Plains	100.0	930
59030	Westonia	100.0	238
59310	Wongan-Ballidu	100.0	1,497
59450	Wyalkatchem	100.0	664
59590	Yalgoo	13.5	#
59660	Yilgarn	13.2	222
59730	York	100.0	3,316

* 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

Not shown as the total population is less than 100

Supporting data

The data used in Figure 5 to illustrate the rates of premature mortality in the Division are shown below in Table 18.

Table 18: Deaths before 75 years of age by major condition group and selected cause, Central Wheatbelt DGP‡, country Western Australia, and Australia, 2000-02*

Indirectly age standardised rate per 100,000 population

Variable	Central Wheatbelt DGP‡		Country WA		Australia	
	No.	Rate	No.	Rate	No.	Rate
Circulatory system diseases	97	70.1	2,964	60.8	38,357	72.3
Ischaemic heart disease	65	47.1	1,868	38.3	23,364	44.1
Cerebrovascular disease – stroke	15	10.9	526	10.9	6,920	13.0
Cancer	156	111.4	5,330	108.3	60,603	114.3
Cancer of the trachea, bronchus& lung	40	28.4	1,136	23.3	12,715	24.0
Respiratory system diseases	25	18.1	815	16.9	9,726	18.3
Chronic lower respiratory disease	19	13.7	495	10.3	6,657	12.6
Injuries and poisonings	61	48.9	1,923	37.0	18,573	35.0
Suicide	15	12.0	725	13.9	6,706	12.6
Motor vehicle accidents	36	30.0	509	9.8	5,014	9.5
Other causes	61	44.2	2,524	50.4	26,735	50.4
Diabetes mellitus	10	7.2	397	8.1	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 and injury (Figure 6), measures of self-reported health (Figure 7), and selected risk factors (Figure 8), are shown in Table 19 below.

Table 19: Estimates of chronic disease and associated risk factors, Central Wheatbelt DGP‡, country Western Australia and Australia, 2001

Indirectly age standardised rate per 1,000 population

Variable	Central Wheatbelt DGP‡	Country WA	Australia
Chronic disease and injury (Figure 6)			
Respiratory system diseases	290.3	281.5	310.8
Asthma	107.5	104.8	118.3
Circulatory system diseases	180.7	175.6	171.5
Diabetes type 2	17.2	20.0	23.4
Injury event	177.4	172.5	121.2
Mental & behavioural disorders	94.5	92.8	97.6
Musculoskeletal system diseases	356.8	346.4	326.2
Arthritis	140.0	139.4	138.8
- Osteoarthritis	74.9	75.1	74.9
- Rheumatoid arthritis	24.1	23.7	23.6
Osteoporosis (females)	24.0	23.3	26.4
Measures of self-reported health (Figure 7)			
Very high psychological distress levels (18+ years)	35.0	34.7	36.6
Fair or poor self-assessed health status (15+ years)	182.8	180.2	184.0
Risk factors (Figure 8)			
Overweight (not obese) males (15+ years)	416.7	403.0	389.7
Obese males (15+ years)	171.6	179.9	145.9
Overweight (not obese) females (15+ years)	258.3	261.6	223.9
Obese females (15+ years)	168.1	168.0	148.0
Smokers (18+ years)	275.6	280.9	248.0
Physical inactivity (15+ years)	351.8	324.2	315.5
High health risk due to alcohol consumed (18+ years)	52.0	56.2	42.1

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

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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

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