

# Population health profile of the Rockingham Kwinana

## Division of General Practice: supplement

Population Profile Series: No. 105a

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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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Enquiries about or comments on this publication should be addressed to:

PHIDU, The University of Adelaide, South Australia 5005  
Phone: 08-8303 6236 or e-mail: [PHIDU@publichealth.gov.au](mailto:PHIDU@publichealth.gov.au)

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Contributors: Anthea Page, Sarah Ambrose, Kristin Leahy and John Glover

# Population health profile

## of the Rockingham Kwinana Division of General Practice: supplement

This profile is a supplement to the *Population health profile of the Rockingham Kwinana Division of General Practice*, dated November 2005, available from [www.publichealth.gov.au](http://www.publichealth.gov.au). This supplement includes an update of the population of the Rockingham Kwinana Division of General Practice, as well as additional indicators and aspects of the Division's socioeconomic status, use of GP services and health. The contents are:

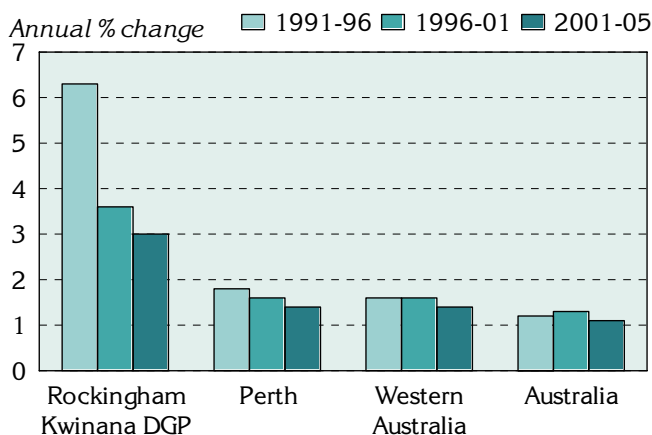
- Population [updated to June 2005]
- Additional socio-demographic indicators
- Unreferred attendances – patient flow/ GP catchment
- Additional prevalence estimates: chronic diseases and risk factors combined
- Avoidable hospitalisations: hospital admissions resulting from ambulatory care sensitive conditions
- Avoidable mortality

For further information on the way Division totals in this report have been estimated, please refer to the 'Notes on the data' section of the *Population health profile*, November 2005 ([www.publichealth.gov.au](http://www.publichealth.gov.au)).

## Population

The Rockingham Kwinana Division had an Estimated Resident Population of 113,118 at 30 June 2005.

**Figure 1: Annual population change, Rockingham Kwinana DGP, Perth, Western Australia and Australia, 1991 to 1996, 1996 to 2001 and 2001 to 2005**



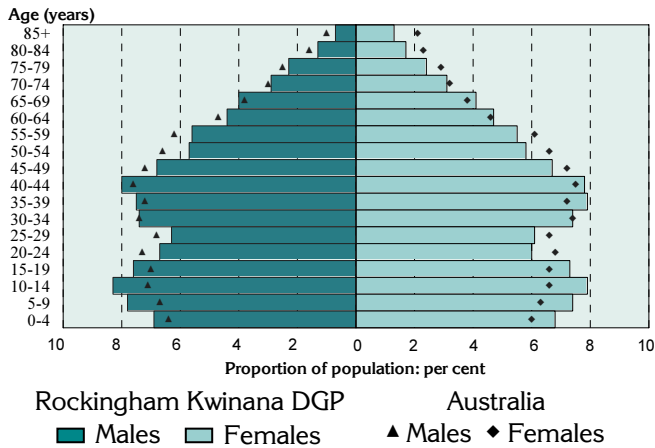
Over the five years from 1991 to 1996, the Division's population increased by 6.3% on average each year, substantially higher than in Perth (1.8%) and Western Australia (1.6%). From 1996 to 2001, the annual percentage increase in the Division was 3.6%, again much higher than for Perth (1.6%) and Western Australia (1.6%). The Division's growth rate of 3.0% for 2001 to 2005 was again more than double the annual increases for Perth and Western Australia (both 1.4%).

**Table 1: Population by age, Rockingham Kwinana DGP and Australia, 2005**

Age group (years)	Rockingham Kwinana DGP		Australia	
	No.	%	No.	%
0-14	25,521	22.6	3,978,221	19.6
15-24	15,613	13.8	2,819,834	13.9
25-44	33,006	29.2	5,878,107	28.9
45-64	25,602	22.6	4,984,446	24.5
65-74	7,939	7.0	1,398,831	6.9
75-84	4,320	3.8	954,143	4.7
85+	1,117	1.0	315,027	1.5
<b>Total</b>	<b>113,118</b>	<b>100.0</b>	<b>20,328,609</b>	<b>100.0</b>

As shown in the accompanying table and the age-sex pyramid (Figure 2), the Rockingham Kwinana DGP had relatively more children than Australia as a whole, with 22.6% at ages 0 to 14 years (compared to 19.6% for Australia) (Table 1). Conversely, the proportions of the Division's population aged 45 to 64 years, and 75 years and over were lower compared to Australia.

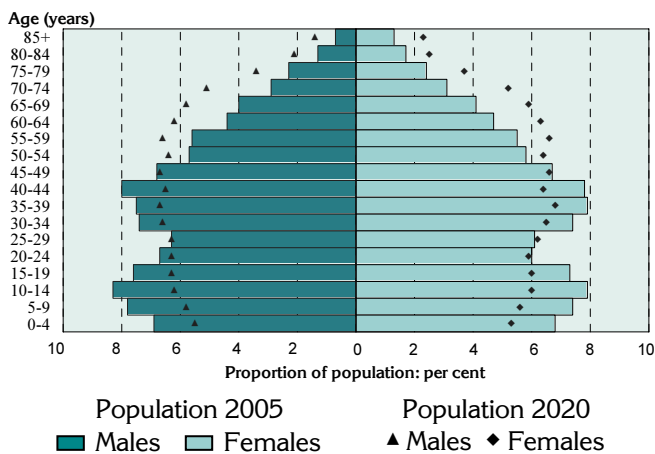
**Figure 2: Population in Rockingham Kwinana DGP and Australia, by age and sex, 2005**



The age distribution of the Division's population is similar to that for Australia overall. The most notable differences are:

- at younger ages – relatively more children aged 0 to 14 years and young people aged 15 to 19 years;
- from 20 to 29 years – relatively fewer males and females;
- from 45 to 64 years – relatively fewer males and females (to 59 years); and
- at older ages – relatively fewer males and females aged 70 years and over.

**Figure 3: Population projections for Rockingham Kwinana DGP, by age and sex, 2005 and 2020**



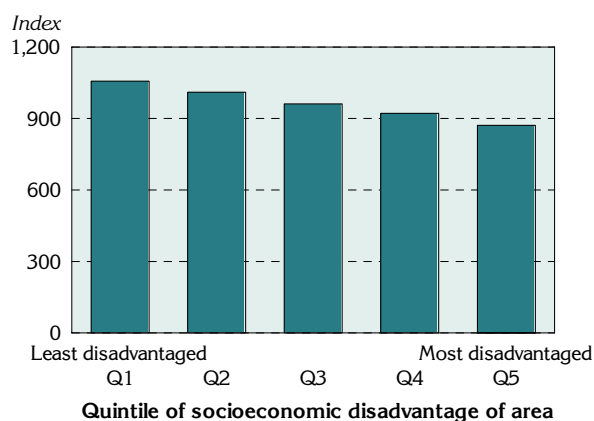
The population projections for the Division show a number of changes in age distribution, with the 2020 population projected to have:

- at younger ages – lower proportions of children, young people and young adults, aged 0 to 24 years;
- from 30 to 49 years – lower proportions of females and males; and
- from 50 years onwards – higher proportions of both males and females.

## Additional socio-demographic indicators

Please refer to the earlier *Population health profile of the Rockingham Kwinana Division of General Practice*, dated November 2005, available from [www.publichealth.gov.au](http://www.publichealth.gov.au), for other socio-demographic indicators.

**Figure 4: Index of Relative Socio-Economic Disadvantage, Rockingham Kwinana DGP, 2001**



One of four socioeconomic indexes for areas produced at the 2001 ABS Census is the Index of Relative Socio-Economic Disadvantage.

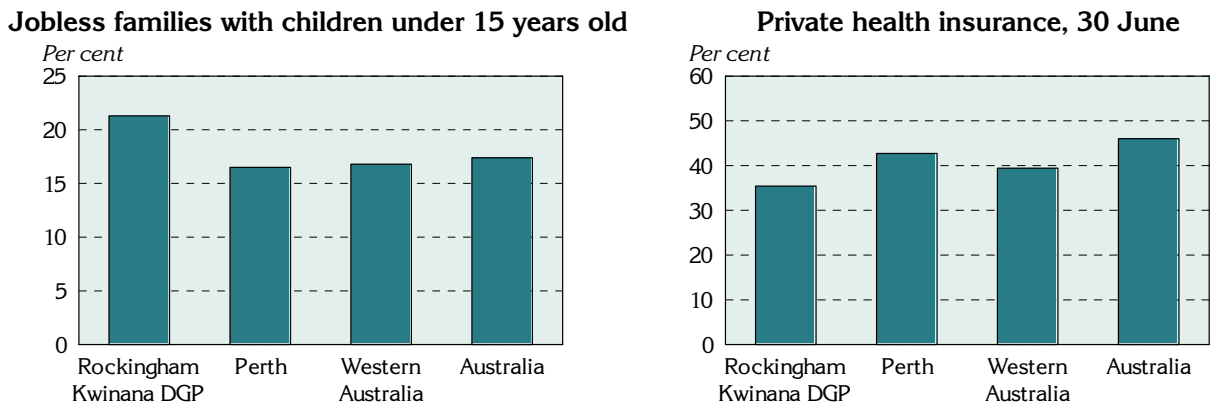
The Rockingham Kwinana DGP has an index score of 964, below the score for Australia of 1000: this score varies across the Division, from a low of 871 in the most disadvantaged areas to 1056 in the least disadvantaged areas.

Note: each 'quintile' comprises approximately 20% of the population of the Division.

A new indicator, produced for the first time at the 2001 ABS Census, shows the number of jobless families with children under 15 years of age. There were markedly more jobless families in the Rockingham Kwinana DGP (21.3%), compared to Perth as a whole (16.5%) (Figure 5, Table 2).

With the introduction of the 30% rebate for private health insurance premiums, there was a once-off registration process, providing information of the postcode and residence of those who had such insurance (these data are not available at this area level for later dates). In 2001, the Division had notably fewer people with private health insurance (35.4%), compared to Perth (42.7%) (Figure 5, Table 2).

**Figure 5: Socio-demographic indicators, Rockingham Kwinana DGP, Perth, Western Australia and Australia, 2001**

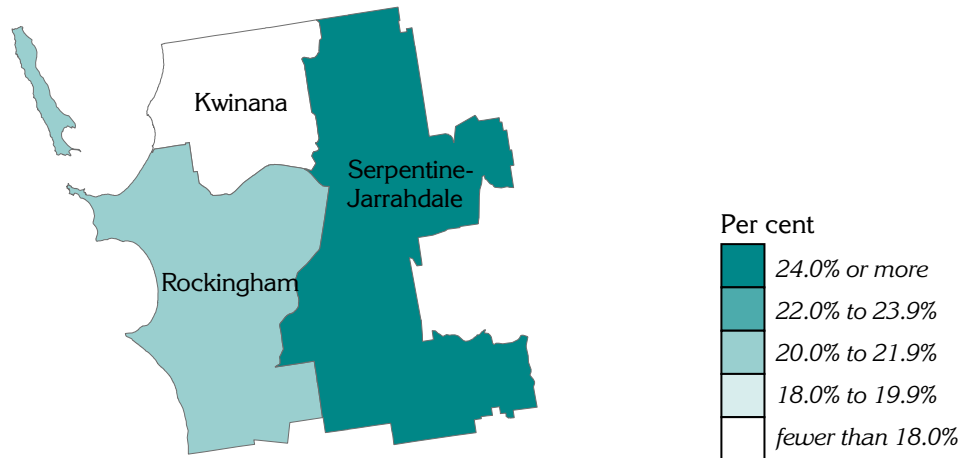


**Table 2: Socio-demographic indicators, Rockingham Kwinana DGP, Perth, Western Australia and Australia, 2001**

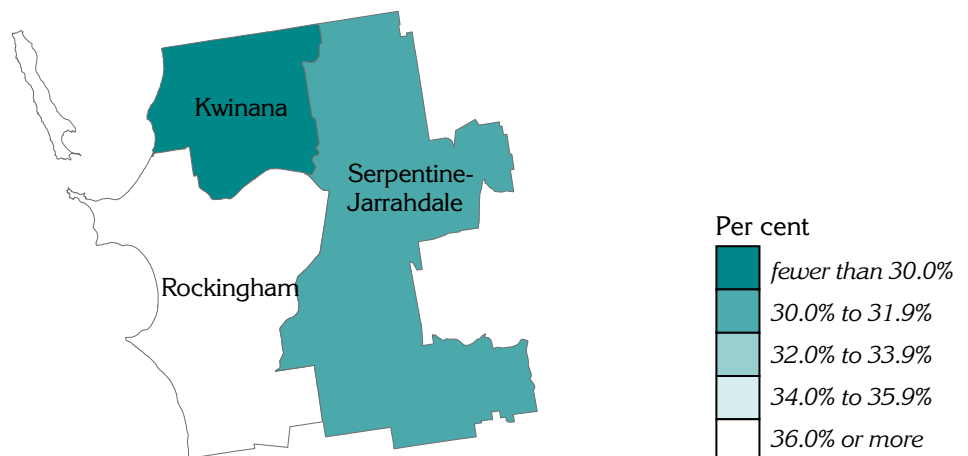
Indicator	Rockingham Kwinana DGP		Perth		Western Australia		Australia	
	No.	%	No.	%	No.	%	No.	%
Jobless families with children under 15 years old	2,565	21.3	24,254	16.5	34,396	16.8	357,563	17.4
Private health insurance (30 June)	30,983	35.4	559,922	42.7	708,743	39.4	8,671,106	46.0

Details of the distribution of jobless families (Map 1) and of the population covered by private health insurance (Map 2) are shown by Statistical Local Area (SLA) in Maps 1 and 2, respectively.

**Map 1: Jobless families with children under 15 years of age by SLA, Rockingham Kwinana DGP, 2001**



**Map 2: People covered by private health insurance by SLA, Rockingham Kwinana DGP, 30 June 2001**



## GP services to residents of the Rockingham Kwinana DGP

The following tables include information, purchased from Medicare Australia, of the movement of patients and GPs between Divisions. Note that the data only include unreferred attendances recorded under Medicare: unreferred attendances not included are those for which the cost is met by the Department of Veterans' Affairs or a compensation scheme; or are provided by salaried medical officers in hospitals, community health services or Aboriginal Medical Services, and which are not billed to Medicare. At any attendance, one or more services may have been provided.

Just over four fifths (82.0%) of all unreferred attendances to residents of Rockingham and Kwinana DGP were provided in the Division (ie. by a GP with a provider number in the Division): this represented 383,671 GP unreferred attendances (Table 3). A further 6.9% of unreferred attendances to residents were provided by GPs with a provider number in Fremantle Regional DGP, with 4.1% provided by GPs in Canning DGP.

**Table 3: Patient flow – People living<sup>1</sup> in Rockingham and Kwinana DGP by Division where attendance occurred<sup>2</sup>, 2003/04**

Division		Unreferred attendances	
Number	Name	No.	% <sup>3</sup>
606	Rockingham Kwinana DGP	383,671	82.0
605	Fremantle Regional DGP	32,066	6.9
604	Canning DGP	19,260	4.1
607	GP Down South DGP	8,305	1.8
602	GP Coastal DGP	6,155	1.3
601	Perth & Hills DGP	6,054	1.3
Other	..	12,418	2.7
<b>Total</b>	<b>..</b>	<b>467,929</b>	<b>100.0</b>

<sup>1</sup> Based on address in Medicare records

<sup>2</sup> Division of GP based on provider number

<sup>3</sup> Proportion of all unreferred attendances of patients with an address in Division 606 by Division in which attendance occurred

The majority (91.9%) of unreferred attendances provided by GPs with a provider number in Rockingham and Kwinana DGP were also to people living in the Division (ie. their Medicare address was in the Division) (Table 4). A further 2.1% of unreferred attendances by GPs in the Division were to people living in GP Down South DGP, with 1.7% to residents of Fremantle Regional DGP.

**Table 4: GP catchment – Unreferred attendances provided by GPs<sup>1</sup> in Rockingham and Kwinana DGP by Division of patient address<sup>2</sup>, 2003/04**

Division		Unreferred attendances	
Number	Name	No.	% <sup>3</sup>
606	Rockingham Kwinana DGP	383,671	91.9
607	GP Down South DGP	8,656	2.1
605	Fremantle Regional DGP	7,268	1.7
604	Canning DGP	5,152	1.2
601	Perth & Hills DGP	2,278	0.5
Other	..	10,279	2.5
<b>Total</b>	<b>..</b>	<b>417,304</b>	<b>100.0</b>

<sup>1</sup> Division of GP based on provider number

<sup>2</sup> Based on address in Medicare records

<sup>3</sup> Proportion of all unreferred attendances to GPs with a provider number in Division 606 by Division of patient address

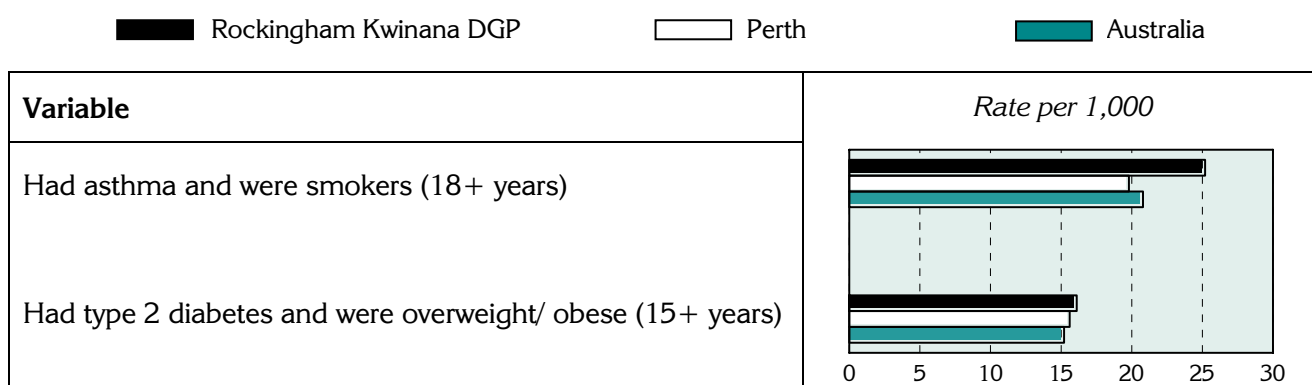
## Additional prevalence estimates: chronic diseases and risk factors combined

Please refer to the earlier *Population health profile of the Rockingham Kwinana Division of General Practice*, dated November 2005, available from [www.publichealth.gov.au](http://www.publichealth.gov.au), for the separate prevalence estimates of chronic disease; measures of self-reported health and risk factors. The process by which the estimates have been made, and details of their limitations, are also described in the 'Notes on the data' section of this earlier profile.

In this section two estimates, which combine the prevalence of selected chronic diseases with a risk factor, are shown for the Division. The measures are of people who *had asthma and were smokers*, and people who *had type 2 diabetes and were overweight or obese*: note that the estimates have been predicted from self-reported data, and are not based on clinical records or physical measures.

It is estimated that there were relatively more people in Rockingham Kwinana DGP who had asthma and were smokers, compared to Perth or Australia as a whole (Figure 6, Table 5): that is, the prevalence rates per 1,000 population were higher. The rate of people in Rockingham Kwinana DGP who had type 2 diabetes and were overweight/ obese was slightly higher compared to Perth or Australia.

**Figure 6: Estimates of selected chronic diseases and risk factors, Rockingham Kwinana DGP, Perth and Australia, 2001**



**Table 5: Estimates of selected chronic diseases and risk factors, Rockingham Kwinana DGP, Perth, Western Australia and Australia, 2001**

Variable	Rockingham Kwinana DGP		Perth		Western Australia		Australia	
	No. <sup>1</sup>	Rate <sup>2</sup>	No. <sup>1</sup>	Rate <sup>2</sup>	No. <sup>1</sup>	Rate <sup>2</sup>	No. <sup>1</sup>	Rate <sup>1</sup>
Had asthma & smoked <sup>3</sup>	2,319	25.2	27,686	19.8	38,731	21.1	397,734	20.8
Had type 2 diabetes & were overweight/ obese <sup>4</sup>	1,406	16.1	19,421	15.6	25,290	15.0	283,176	15.2

<sup>1</sup> No. is a weighted estimate of the number of people in Rockingham Kwinana DGP reporting these chronic conditions/ with these risk factors and is derived from synthetic predictions from the 2001 NHS

<sup>2</sup> Rate is the indirectly age-standardised rate per 1,000 population

<sup>3</sup> Population aged 18 years and over

<sup>4</sup> Population aged 15 years and over



## Avoidable hospitalisations: hospital admissions resulting from ambulatory care sensitive conditions

The rationale underlying the concept of avoidable hospitalisations is that timely and effective care of certain conditions, delivered in a primary care setting, can reduce the risk of hospitalisation. Admissions to hospital for these ambulatory care sensitive (ACS) conditions can be avoided in three ways. Firstly, for conditions that are usually preventable through immunisation or nutritional intervention, disease can be prevented almost entirely. Secondly, diseases or conditions that can lead to rapid onset problems, such as dehydration and gastroenteritis, can be treated. Thirdly, chronic conditions, such as congestive heart failure, can be managed to prevent or reduce the severity of acute flare-ups to avoid hospitalisation.

This measure does not include other aspects of avoidable morbidity, namely potentially preventable hospitalisations (hospitalisations resulting from diseases preventable through population based health promotion strategies, e.g. alcohol-related conditions; and most cases of lung cancer) and hospitalisations avoidable through injury prevention (e.g. road traffic accidents).

For information on the ambulatory care sensitive conditions and ICD codes included in the analysis in this section, please refer to the *Atlas of Avoidable Hospitalisations in Australia: ambulatory care-sensitive conditions*, available from [www.publichealth.gov.au](http://www.publichealth.gov.au).

In 2001 to 2002, the 2,891 admissions from ambulatory care sensitive (ACS) conditions accounted for 8.9% of all admissions in the Rockingham Kwinana DGP (Table 6, Figure 7), consistent with the proportions for both Western Australia (8.8) and Australia (8.7%).

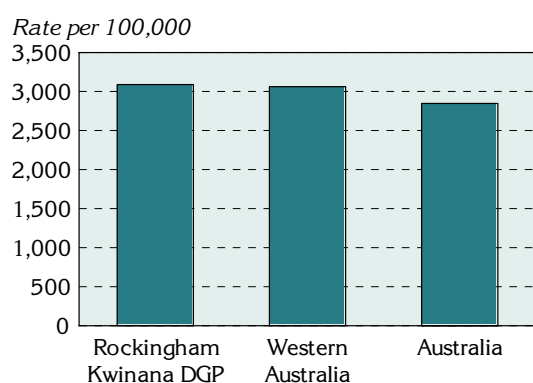
**Table 6: Avoidable<sup>1</sup> and unavoidable hospitalisations, Rockingham Kwinana DGP, Western Australia, and Australia, 2001/02**

Category	Rockingham Kwinana DGP			Western Australia			Australia		
	No.	Rate <sup>2</sup>	%	No.	Rate <sup>2</sup>	%	No.	Rate <sup>2</sup>	%
Avoidable <sup>1</sup>	2,891	3,090.0	8.9	55,102	3,062.4	8.8	552,786	2,847.5	8.7
Unavoidable	29,564	31,260.1	91.1	568,402	31,010.0	91.2	5,818,199	29,970.7	91.3
<b>Total</b>	<b>32,455</b>	<b>34,349.0</b>	<b>100.0</b>	<b>623,504</b>	<b>34,070.5</b>	<b>100.0</b>	<b>6,370,985</b>	<b>32,818.2</b>	<b>100.0</b>

<sup>1</sup> Admissions resulting from ACS conditions

<sup>2</sup> Rate is the indirectly age-standardised rate per 100,000 population

**Figure 7: Avoidable hospitalisations<sup>1</sup>, Rockingham Kwinana DGP, Western Australia and Australia, 2001/02**



The rate of avoidable hospitalisations in Rockingham Kwinana DGP (3,090.0 admissions per 100,000 population) is consistent with that for Western Australia (3,062.4) and above that for Australia (2,847.5).

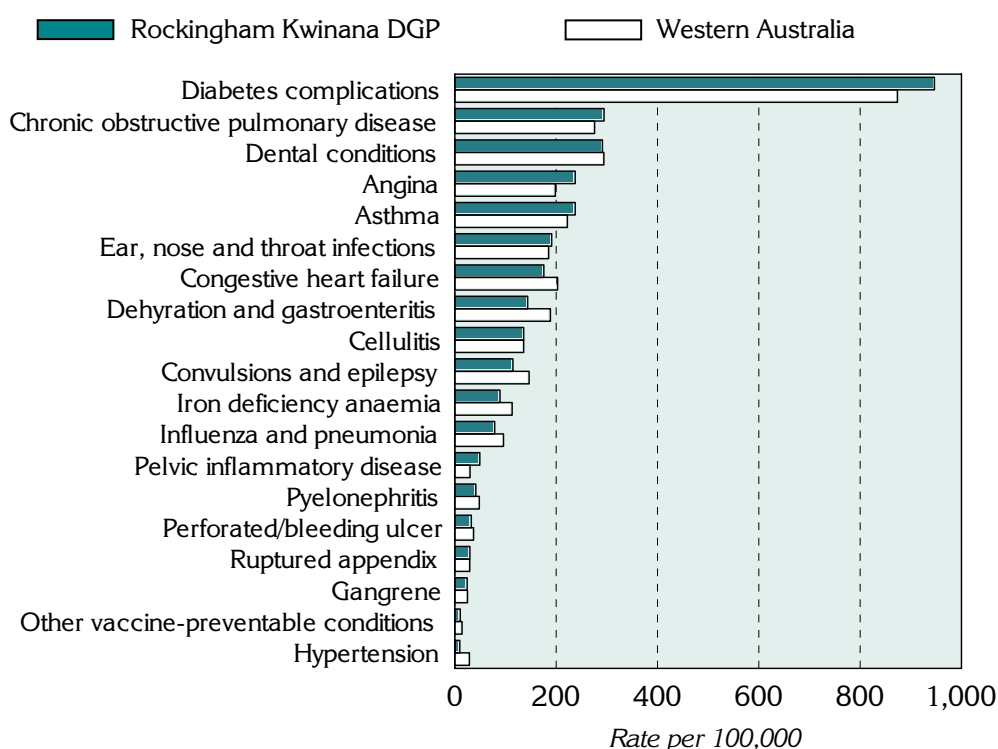
<sup>1</sup> Admissions resulting from ACS conditions

Diabetes complications, chronic obstructive pulmonary disease and dental conditions were the three conditions with the highest rates of avoidable hospitalisations in the Rockingham Kwinana DGP (Figure 8, Table 7).

Table 7 shows the number, rate and proportion of avoidable hospitalisations, for the individual ACS conditions, as well as the vaccine-preventable; acute; and chronic sub-categories. The majority of avoidable hospitalisations are attributable to chronic health conditions. The predominance of hospitalisations for chronic conditions in this period can be primarily attributed to the large number of admissions for diabetes complications. Dental conditions and, ear, nose and throat infections, have the highest rates of avoidable hospitalisations for the acute conditions.



**Figure 8: Avoidable hospitalisations<sup>1</sup> by condition, Rockingham Kwinana DGP and Western Australia, 2001/02**



<sup>1</sup> Admissions resulting from ACS conditions: excludes nutritional deficiencies as less than ten admissions

**Table 7: Avoidable hospitalisations<sup>1</sup> by condition, Rockingham Kwinana DGP, Western Australia and Australia, 2001/02**

Sub-category/ condition	Rockingham Kwinana DGP		Western Australia		Australia	
	No.	Rate <sup>2</sup>	No.	Rate <sup>2</sup>	No.	Rate <sup>2</sup>
<b>Vaccine-preventable</b>	<b>86</b>	<b>89.7</b>	<b>2,018</b>	<b>110.7</b>	<b>16,573</b>	<b>85.4</b>
Influenza and pneumonia	75	78.7	1,743	96.2	13,021	67.1
Other vaccine preventable	11	11.0	275	14.5	3,552	18.3
<b>Chronic<sup>3</sup></b>	<b>1,801</b>	<b>1,991.7</b>	<b>33,628</b>	<b>1,915.6</b>	<b>352,545</b>	<b>1,816</b>
Diabetes complications	855	946.5	15,323	873.6	141,345	728.1
Iron deficiency anaemia	79	89.3	2,009	113.4	16,451	84.7
Hypertension	9	10.0	510	29.0	6,354	32.7
Congestive heart failure	140	175.9	3,400	202.9	42,447	218.6
Angina	208	237.8	3,452	198.5	49,963	257.4
Chronic obstructive pulmonary disease	260	294.4	4,707	275.9	54,853	282.6
Asthma	250	237.8	4,227	222.3	41,009	211.3
<b>Acute</b>	<b>1,057</b>	<b>1,055.1</b>	<b>21,021</b>	<b>1,121.4</b>	<b>200,913</b>	<b>1,035</b>
Dehydration and gastroenteritis	132	143.9	3,443	188.7	37,766	194.5
Convulsions and epilepsy	117	114.8	2,779	146.7	31,137	160.4
Ear, nose and throat infections	207	191.4	3,550	185.3	32,075	165.2
Dental conditions	307	291.4	5,623	294.3	43,667	224.9
Perforated/bleeding ulcer	28	32.6	645	37.1	5,795	29.9
Ruptured appendix	30	29.7	566	29.4	3,866	19.9
Pyelonephritis	40	41.7	914	48.7	7,386	38.0
Pelvic inflammatory disease	48	49.3	577	30.2	6,547	33.7
Cellulitis	127	135.9	2,484	135.9	28,204	145.3
Gangrene	21	24.4	440	25.1	4,470	23.0
<b>Total avoidable hospitalisations<sup>4</sup></b>	<b>2,891</b>	<b>3,090.0</b>	<b>55,102</b>	<b>3,062.4</b>	<b>552,786</b>	<b>2,847.5</b>

<sup>1</sup> Admissions resulting from ACS conditions

<sup>2</sup> Rate is the indirectly age-standardised rate per 100,000 population

<sup>3</sup> Excludes nutritional deficiencies as less than ten admissions

<sup>4</sup> Sub-category and condition numbers and rates do not add to the reported total avoidable admissions: five conditions (influenza & pneumonia, other vaccine preventable, diabetes complications, ruptured appendix and gangrene) are counted in 'any diagnosis', so may be included in more than one condition group

## Avoidable mortality

Avoidable and amenable mortality comprises those causes of death that are potentially avoidable at the present time, given available knowledge about social and economic policy impacts, health behaviours, and health care (the latter relating to the subset of amenable causes).

For information on the avoidable and amenable mortality conditions and ICD codes included in the analysis in this section, please refer to the *Australian and New Zealand Atlas of Avoidable Mortality*, available from [www.publichealth.gov.au](http://www.publichealth.gov.au).

Over two thirds (70.7%) of all deaths in Rockingham Kwinana DGP at ages 0 to 74 years over the period 1997 to 2001 are considered to be avoidable, consistent with the proportion for Perth (70.6%) (Table 8). However, the rate in the Division is higher than that in Perth, a differential of 1.12.

Deaths amenable to health care (amenable mortality, a subset of avoidable mortality) accounted for 27.8% of all deaths at ages 0 to 74 years in Rockingham Kwinana DGP, compared to 28.1% in Perth.

**Table 8: Avoidable and unavoidable mortality (0 to 74 years) by area, Rockingham Kwinana DGP, Perth, Western Australia and Australia, 1997 to 2001**

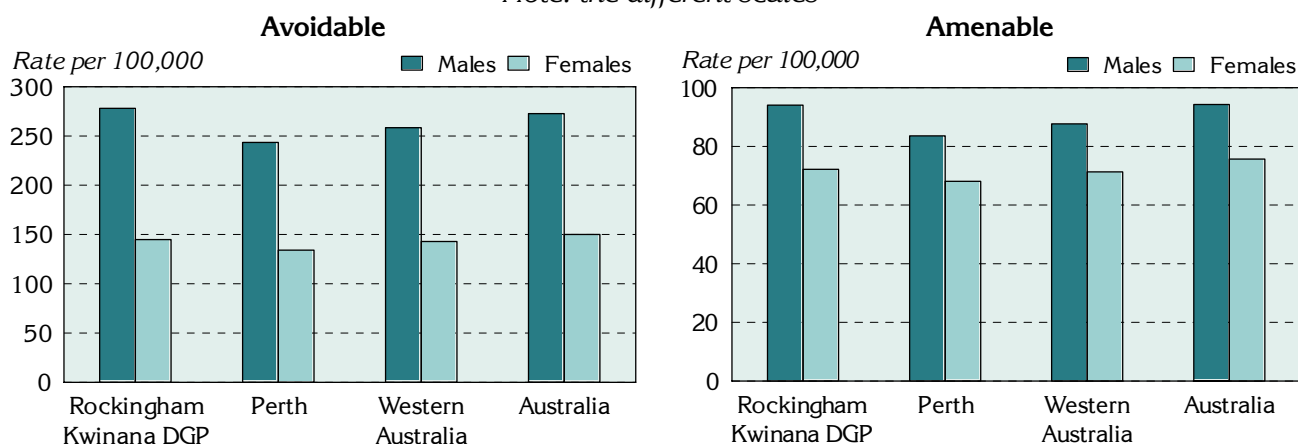
Mortality category	Rockingham Kwinana DGP		Perth		Western Australia		Australia	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>
Avoidable	939	211.9	11,480	189.1	16,602	201.0	189,845	211.8
% of total	<b>70.7</b>	..	<b>70.6</b>	..	<b>71.2</b>	..	<b>71.5</b>	..
(Amenable)	(370)	(83.3)	(4,574)	(75.9)	(6,517)	(79.6)	(76,249)	(85.1)
(% of total)	<b>(27.8)</b>	(..)	<b>(28.1)</b>	(..)	<b>(28.0)</b>	(..)	<b>(28.7)</b>	(..)
Unavoidable	389	87.6	4,783	79.3	6,708	81.6	75,582	84.3
% of total	<b>29.3</b>	..	<b>29.4</b>	..	<b>28.8</b>	..	<b>28.5</b>	..
<b>Total mortality</b>	<b>1,329</b>	<b>299.5</b>	<b>16,263</b>	<b>268.4</b>	<b>23,310</b>	<b>282.6</b>	<b>265,427</b>	<b>296.1</b>
%	<b>100.0</b>	..	<b>100.0</b>	..	<b>100.0</b>	..	<b>100.0</b>	..

<sup>1</sup> Rate is the indirectly age-standardised rate per 100,000 population

Rates of avoidable mortality were higher for males than for females in each of the comparator areas. Rockingham Kwinana DGP's rate of avoidable mortality for males was 278.0 deaths per 100,000 males, higher than the rate of 144.8 for females. Similarly, the rate of amenable mortality for males in the Division was higher, 94.1, compared to 72.2, for females, a rate ratio of 1.30 (Figure 9, Table 9).

**Figure 9: Avoidable and amenable mortality by sex (0 to 74 years), Rockingham Kwinana DGP, Perth, Western Australia and Australia, 1997 to 2001**

*Note: the different scales*



**Table 9: Avoidable and amenable mortality (0 to 74 years) by sex, Rockingham Kwinana DGP, Perth, Western Australia and Australia, 1997 to 2001**

Mortality category and sex	Rockingham Kwinana DGP		Perth		Western Australia		Australia	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>
<b>Avoidable</b>								
Males	627	278.0	7,424	243.4	10,850	258.3	123,026	272.6
Females	313	144.8	4,056	134.1	5,752	142.9	66,819	150.1
<b>Total</b>	<b>939</b>	<b>211.9</b>	<b>11,480</b>	<b>189.1</b>	<b>16,602</b>	<b>201.0</b>	<b>189,845</b>	<b>211.8</b>
<b>Rate ratio-M:F<sup>2</sup></b>	..	<b>1.92**</b>	..	<b>1.82**</b>	..	<b>1.81**</b>	..	<b>1.82**</b>
<b>Amenable</b>								
Males	213	94.1	2,516	83.6	3,646	87.7	42,568	94.3
Females	156	72.2	2,058	68.1	2,871	71.3	33,681	75.7
<b>Total</b>	<b>370</b>	<b>83.3</b>	<b>4,574</b>	<b>75.9</b>	<b>6,517</b>	<b>79.6</b>	<b>76,249</b>	<b>85.1</b>
<b>Rate ratio-M:F<sup>2</sup></b>	..	<b>1.30*</b>	..	<b>1.23**</b>	..	<b>1.23**</b>	..	<b>1.25**</b>

<sup>1</sup> Rate is the indirectly age-standardised rate per 100,000 population

<sup>2</sup> Rate ratio (M:F) is the ratio of male to female rates; rate ratios differing significantly from 1.0 are shown with \* p <0.05; \*\* p <0.01

Another way of measuring premature mortality is to calculate the number of years of life lost (YLL)<sup>1</sup>, which takes into account the years a person could have expected to live at each age of death based on the average life expectancy at that age.

The numbers of YLL for Rockingham Kwinana DGP, Perth, Western Australia and Australia over the period of analysis are shown in Table 10 by mortality category. However, given the substantial variation in the populations of these areas, a comparison of the proportion of YLL for each area is also shown.

YLL from avoidable mortality accounted for 71.1% of total YLL (0 to 74 years) for Rockingham Kwinana DGP, consistent with the 71.0% for Perth. The proportion of YLL from amenable mortality of 27.1% for Rockingham Kwinana DGP was also consistent with the level in Perth.

**Table 10: Years of life lost from avoidable mortality (0 to 74 years), Rockingham Kwinana DGP, Perth, Western Australia and Australia, 1997 to 2001**

Mortality category	Rockingham Kwinana DGP		Perth		Western Australia		Australia	
	No.	% of total	No.	% of total	No.	% of total	No.	% of total
Avoidable	16,673	71.1	204,435	71.0	300,008	71.7	3,327,375	71.9
(Amenable)	(6,352)	(27.1)	(78,352)	(27.2)	(113,010)	(27.0)	(1,298,430)	(28.0)
Unavoidable	6,791	28.9	83,597	29.0	118,618	28.3	1,303,289	28.1
<b>Total</b>	<b>23,464</b>	<b>100.0</b>	<b>288,033</b>	<b>100.0</b>	<b>418,625</b>	<b>100.0</b>	<b>4,630,664</b>	<b>100.0</b>

<sup>1</sup> Years of life lost were calculated using the remaining life expectancy method (this provides an estimate of the average time a person would have lived had he or she not died prematurely). The reference life table was the Coale and Demeny Model Life Table West level 26 female (for both males and females), with the YLL discounted to net present value at a rate of 3 per cent per year.

In each of the areas in Table 11, the majority of avoidable mortality at ages 0 to 74 years occurred in the 65 to 74 year age group (Table 11), with 1,351.4 deaths per 100,000 population in the Rockingham Kwinana Division. The 45 to 64 year age group accounted for the next highest rate of avoidable death in all of the comparators, with a rate 294.7 in the Rockingham Kwinana Division.

**Table 11: Avoidable and amenable mortality by age, Rockingham Kwinana DGP, Perth, Western Australia and Australia, 1997 to 2001**

Mortality category and age (years)	Rockingham Kwinana DGP		Perth		Western Australia		Australia	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>
<b>Avoidable</b>								
0-14	31	27.2	352	25.9	548	27.9	5,669	28.8
15-24	40	61.9	517	49.7	826	60.7	7,045	52.8
25-44	135	90.0	1,596	75.9	2,479	85.3	24,356	83.9
45-64	298	294.7	3,828	257.4	5,546	275.2	64,282	304.9
65-74	435	1,351.4	5,187	1254.8	7,203	1282.7	88,493	1,358.1
<b>Total</b>	<b>939</b>	<b>211.9</b>	<b>11,480</b>	<b>189.1</b>	<b>16,602</b>	<b>201.0</b>	<b>189,845</b>	<b>211.8</b>
<b>Amenable</b>								
0-24	26	13.7	301	13.0	454	13.8	5,083	15.4
25-44	36	24.1	371	17.6	594	20.5	5,946	20.5
45-64	127	125.0	1,675	112.7	2,381	118.5	27,464	130.3
65-74	181	564.2	2,228	538.5	3,088	550.9	37,756	579.4
<b>Total</b>	<b>370</b>	<b>83.3</b>	<b>4,574</b>	<b>75.9</b>	<b>6,517</b>	<b>79.6</b>	<b>76,249</b>	<b>85.1</b>

<sup>1</sup> Rate is the indirectly age-standardised rate per 100,000 population

Table 12 shows the number and age-standardised death rate by selected major condition group and selected causes included in the avoidable mortality classification.

The highest rates of avoidable mortality for the selected major condition groups in the Rockingham Kwinana DGP were for cancer, with a rate of 72.0 deaths per 100,000 population, and cardiovascular diseases, 63.6 deaths per 100,000 population (Table 12, Figure 10). For the selected causes within the condition groups, the two major causes of avoidable mortality were ischaemic heart disease and lung cancer, with rates of 47.2 per 100,000 population and 25.3 per 100,000, respectively.

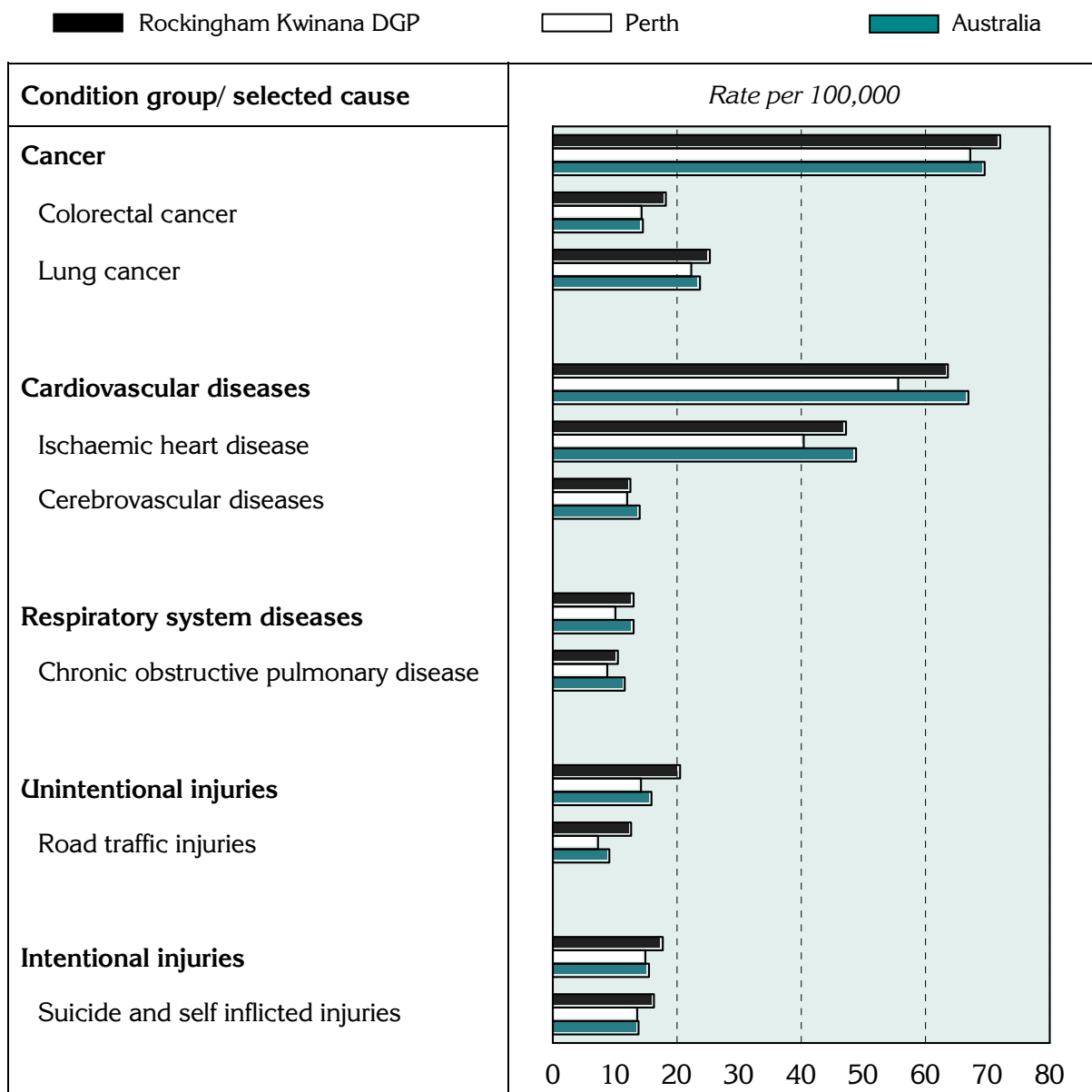
**Table 12: Avoidable mortality (0 to 74 years) by major condition group and selected cause, Rockingham Kwinana DGP, Perth, Western Australia and Australia, 1997 to 2001**

Condition group/ selected cause	Rockingham Kwinana DGP		Perth		Western Australia		Australia	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>
<b>Cancer</b>	<b>317</b>	<b>72.0</b>	<b>4,043</b>	<b>67.2</b>	<b>5,531</b>	<b>67.8</b>	<b>62,338</b>	<b>69.5</b>
Colorectal cancer	80	18.2	854	14.3	1,189	14.6	13,008	14.5
Lung cancer	112	25.3	1,327	22.3	1,842	22.8	21,208	23.7
<b>Cardiovascular diseases</b>	<b>280</b>	<b>63.6</b>	<b>3,294</b>	<b>55.6</b>	<b>4,750</b>	<b>58.9</b>	<b>59,945</b>	<b>66.9</b>
Ischaemic heart disease	208	47.2	2,394	40.4	3,469	42.9	43,712	48.8
Cerebrovascular diseases	55	12.5	711	12.0	1,000	12.5	12,558	14.0
<b>Respiratory system diseases</b>	<b>58</b>	<b>13.0</b>	<b>593</b>	<b>10.1</b>	<b>871</b>	<b>11.0</b>	<b>11,612</b>	<b>13.0</b>
Chronic obstructive pulmonary disease	46	10.5	510	8.8	748	9.5	10,395	11.6
<b>Unintentional injuries</b>	<b>92</b>	<b>20.5</b>	<b>923</b>	<b>14.2</b>	<b>1,549</b>	<b>17.5</b>	<b>14,224</b>	<b>15.9</b>
Road traffic injuries	57	12.6	479	7.3	918	10.3	8,138	9.1
<b>Intentional injuries</b>	<b>79</b>	<b>17.7</b>	<b>968</b>	<b>14.9</b>	<b>1,412</b>	<b>15.9</b>	<b>13,891</b>	<b>15.5</b>
Suicide and self inflicted injuries	73	16.3	884	13.6	1,270	14.3	12,393	13.8

<sup>1</sup> Rate is the indirectly age-standardised rate per 100,000 population

Rates in the Division for the condition groups and selected causes were generally above those for Australia and, in particular, for Perth: the exceptions were cardiovascular diseases, ischaemic heart disease and cerebrovascular diseases (Figure 10).

**Figure 10: Avoidable mortality (0 to 74 years) by major condition group and selected cause, Rockingham Kwinana DGP, Perth and Australia, 1997 to 2001**



# Notes on the data

## Data sources and limitations

### General

References to 'Perth' relate to the Perth Statistical Division.

### Data sources

Table 13 details the data sources for the material presented in this profile.

**Table 13: Data sources**

Section	Source
<b>Population</b>	
Figures 1 and 2; Table 1	Estimated Resident Population, ABS, 30 June for the periods shown
Figure 3	Estimated Resident Population, ABS, 30 June 2005; Population Projections, ABS, 30 June 2020 (unpublished) <sup>1</sup>
<b>Additional socio-demographic indicators</b>	
Figure 4	ABS SEIFA package, Census 2001
Table 2; Figure 5; Map 1	Jobless families, ABS, 2001 (unpublished)
Table 2; Figure 5; Map 2	Private health insurance, from Hansard
<b>GP services – patient flow/ GP catchment</b>	
Tables 3 and 4	Medicare Australia, 2003/04
<b>Additional prevalence estimates: chronic diseases and risk factors combined</b>	
Figure 6; Table 5	Estimated from 2001 National Health Survey (NHS), ABS (unpublished)
<b>Avoidable hospitalisations: hospital admissions resulting from ambulatory care sensitive conditions</b>	
Tables 6 and 7; Figures 7 and 8	National Hospital Morbidity Database at Australian Institute of Health & Welfare, 2001/02; data produced in HealthWIZ by Prometheus Information (not available in public release dataset)
<b>Avoidable mortality</b>	
Tables 8, 9, 10, 11 and 12; Figures 9 and 10	ABS Deaths 1997-2001; data produced in HealthWIZ by Prometheus Information (not available in public release dataset)

<sup>1</sup> The projected population at June 2020 is based on the 2002 ERP. As such, it is somewhat dated, and does not take into account more recent demographic trends: it is however the only projection series available at the SLA level for the whole of Australia.

## Methods

For background information on the additional prevalence estimates presented in this profile, please refer to the 'Notes on the data' section of the *Population health profile*, November 2005 ([www.publichealth.gov.au](http://www.publichealth.gov.au)).

Please also refer to the November 2005 profile for information on the data converters.

## Mapping

In some Divisions the maps may include a very small part of an SLA which has not been allocated any population; or has a population of less than 100 or has less than 1% of the SLAs total population; or there were less than five cases (ie. jobless families, people with health insurance): these areas are mapped with a pattern.

## Statistical geography of the Rockingham Kwinana DGP

For information on the postcodes in the Division, please refer the Department of Health and Ageing website <http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pcd-programs-divisions-divspc.htm>; also included in table format in the 'Notes on the data' section of the *Population health profile*, November 2005 ([www.publichealth.gov.au](http://www.publichealth.gov.au)).

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 the same as Local Government Areas (LGAs). Rockingham Kwinana DGP comprises all of the SLAs of Kwinana, and Rockingham, and part of Serpentine - Jarrahdale (Table 14).

**Table 14: SLAs and population in Rockingham Kwinana DGP, 2005 on 2001 boundaries**

SLA code	SLA name	Per cent of the SLA's population in the Division*	Estimate of the SLA's 2005 population in the Division
54830	Kwinana	100.0	23,407
57490	Rockingham	100.0	85,035
57700	Serpentine-Jarrahdale	36.3	4,676

\* 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

## Acknowledgements

Funding for these profiles was provided by the Population Health Division of the Department of Health and Ageing (DoHA).

## Further developments and updates

When the re-aligned boundaries are released and DoHA have made known their geographic composition, PHIDU will examine the need to revise and re-publish these profiles (*Population health profile*, dated November 2005, and the *Population health profile: supplement*, dated March 2007).

## 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](mailto:PHIDU@publichealth.gov.au)