Population health profile of the Perth and Hills Division of General Practice

Population Profile Series: No. 100

PHIDU

November 2005

PHIDU

Australian Government

Australian Institute of Health and Welfare

THE UNIVERSITY OF ADELAIDE AUSTRALIA

Copyright

National Library of Australia Cataloguing in Publication entry

Population health profile of the Perth and Hills Division of General Practice.

Bibliography.
ISBN 0 7308 9508 4.

1. Public health - Western Australia - Perth - Statistics. 2. Health status indicators - Western Australia - Perth - Statistics. 3. Health service areas - Western Australia - Perth. 4. Perth (W.A.) - Statistics, Medical. I. Public Health Information Development Unit (Australia). II. Australia. Dept. of Health and Ageing. III. Australian Institute of Health and Welfare. (Series: Population profile series, 1833-0452; no. 100).

362.1099411

ISSN 1833-0452 Population Profile Series

Public Health Information Development Unit, The University of Adelaide
A Collaborating Unit of the Australian Institute of Health and Welfare

This profile was produced by PHIDU, the Public Health Information Development Unit at The University of Adelaide, South Australia. The work was funded under a grant from the Australian Government Department of Health and Ageing. The views expressed in this profile are solely those of the authors and should not be attributed to the Department of Health and Ageing or the Minister for Health and Ageing.

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

Suggested citation:

PHIDU. (2005) *Population health profile of the Perth and Hills Division of General Practice.* Population Profile Series: No. 100. Public Health Information Development Unit (PHIDU), Adelaide.

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

PHIDU, The University of Adelaide, South Australia 5005
Phone: 08-8303 6237 or e-mail: PHIDU@publichealth.gov.au

This publication, the maps and supporting data, together with other publications on population health, are available from the PHIDU website (www.publichealth.gov.au).

Published by Public Health Information Development Unit, The University of Adelaide

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

Population health profile
of the *Perth and Hills Division of General Practice*

Introduction

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

Contents

The profile includes a number of tables, maps and graphs to profile population health in the Division and provides comparisons with other areas (eg. Perth and Australia). Specific topics covered include:

- a socio-demographic profile (pages 2-6);
- GP workforce data (page 7);
- immunisation rates (page 7);
- rates of premature death (page 8); and
- estimates of the prevalence of selected chronic diseases and risk factors (pages 9-13).

Key indicators

Location: Western Australia

Division number: 601

Population‡:	**No.**	**%**
Total	310,383	
65+	34,859	11.2%
<25	106,022	34.2%
Indigenous	6,058	2.0%

Disadvantage score[1]: 1010

GP services per head of population:

Division‡	3.7
Australia	4.7

Population per FTE GP:

Division‡	1,530
Australia	1,403

Premature death rate[2]:

Division‡	281.3
Australia	290.4

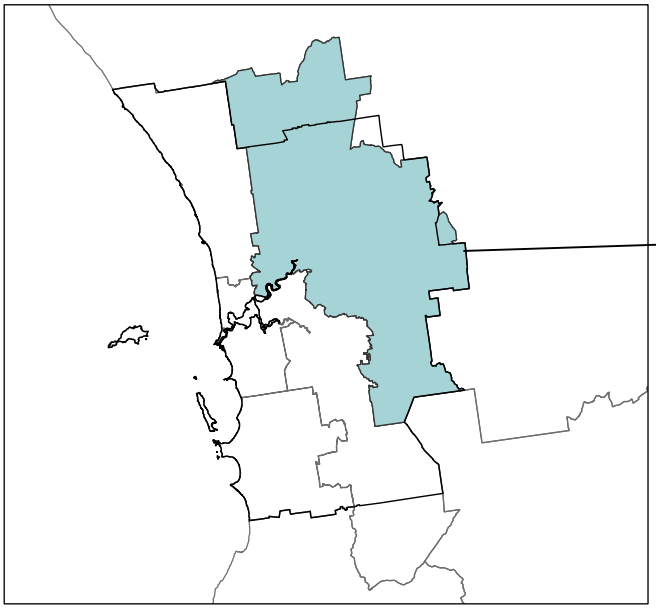
[1] **Numbers above 1000 (the index score for Australia) indicate the Division is relatively advantaged**

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

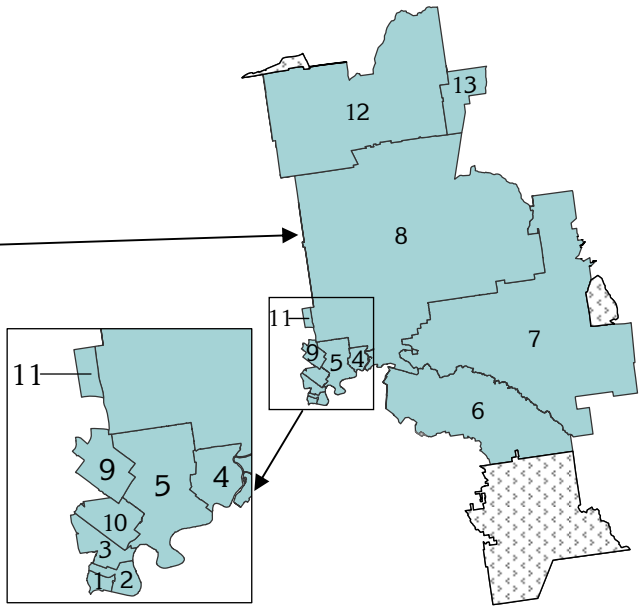
‡ **See note "Data converters and mapping" re calculation of Division Total**

Perth and Hills Division of General Practice

Perth Divisions of General Practice



Perth and Hills DGP by SLA



Perth Divisions of General Practice
Perth Statistical Division

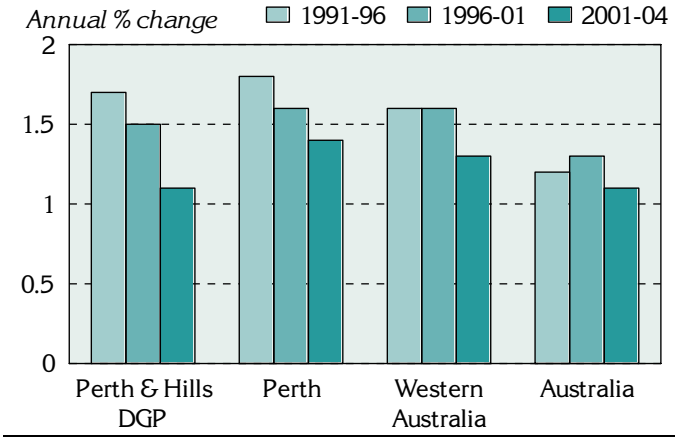
* **Map legend: see, page 6**

Socio-demographic profile

Population

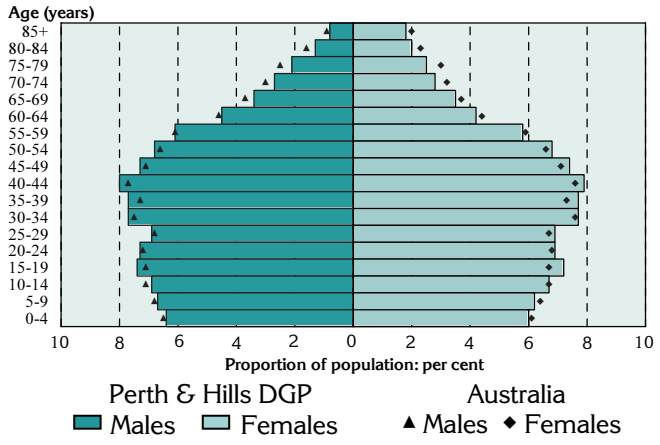
The Perth and Hills Division had an Estimated Resident Population of 319,548 at 30 June 2004.

Figure 1: Annual population change, Perth and Hills DGP‡, Perth, 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 increased by 1.7% on average each year, lower than for Perth (1.8%) and higher than for Western Australia (1.6%). From 1996 to 2001, the annual growth in the Division was 1.5%, marginally lower than for both Perth and Western Australia (1.6%). The Division's growth rate from 2001 to 2004 (1.1%) was slightly lower than the annual increases for Perth (1.4%) and Western Australia (1.3%).

Figure 2: Population in Perth and Hills DGP‡ and Australia, by age and sex, 2004



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

- at younger ages – marginally lower proportions of male children aged 0 to 14 years and female children (aged 5 to 9 years);
- from 15 to 19 years – slightly higher proportions of both males and females; and
- from 35 to 54 years – marginally higher proportions of males and females; and
- at older ages – from age 60, slightly lower proportions at all age groups.

Table 1: Population by age, Perth and Hills DGP‡ and Australia, 2004

Age group (years)	Perth and Hills DGP		Australia	
	No.	%	No.	%
0-14	62,258	19.5	3,978,751	19.8
15-24	45,387	14.2	2,762,769	13.8
25-44	97,046	30.4	5,881,048	29.3
45-64	78,250	24.5	4,864,037	24.2
65-74	19,978	6.3	1,374,792	6.8
75-84	12,514	3.9	934,505	4.7
85+	4,115	1.3	295,602	1.5
Total	**319,548**	**100.0**	**20,091,504**	**100.0**

As shown in the age-sex pyramid above, the Perth and Hills DGP had a marginally higher proportion of the population aged 25 to 44 years (30.4%) compared to Australia as a whole (with 29.3%) (Table 1). Conversely, the proportions of the Division's population aged 65 years and over were slightly lower compared to Australia.

The Perth and Hills DGP comprised 13.0% of people born in predominantly non-English speaking countries and resident in Australia for five years or more (Table 2), higher than the proportion in Perth (11.7%). Recent arrivals (those resident in Australia for less than five years) from non-English speaking countries comprised 2.1% of the Division's population (compared with 2.6% in Perth).

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

Data Sources: see 'Data sources and limitations' at end of report

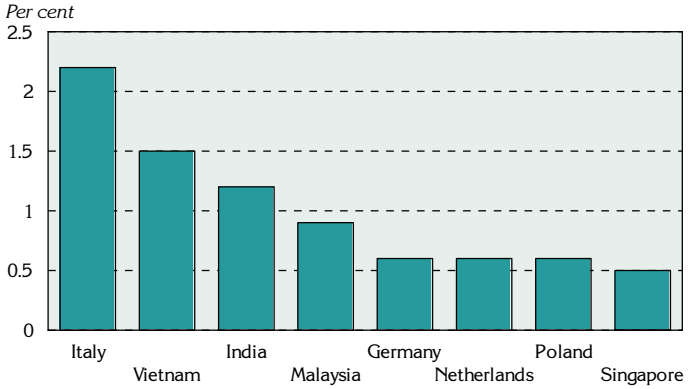
Of these residents, 2.4% had poor proficiency in English (determined when people aged five years and over born overseas in predominantly non-English speaking countries reported in the Census speaking another language and speaking English 'not well' or 'not at all'), compared to lower proportions in Perth (1.9%) and Western Australia (1.5%) and a higher proportion in Australia (2.4%).

Table 2: Non-English speaking born, Perth and Hills DGP, Perth, Western Australia and Australia, 2001

People born in predominantly non-English speaking countries	Perth & Hills DGP		Perth		Western Australia		Australia	
	No.	%	No.	%	No.	%	No.	%
Resident in Australia for five years or more	38,685	13.0	159,996	11.7	175,201	9.6	2,019,410	10.8
Resident in Australia for less than five years	6,172	2.1	34,707	2.6	37,012	2.0	408,074	2.2
Poor proficiency in English[1]	6,764	2.4	23,996	1.9	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, Perth and Hills DGP, 2001



Australian-born people comprised 69.4% of the Division's population, just below the Australian figure of 72.6%. Of the 14.8% of people from English speaking countries, 11.1% were from the UK and Eire. The major birthplaces of the non-English speaking population include Italy (2.2%); Vietnam (1.5%); India (1.2%); Malaysia (0.9%); Germany, The Netherlands and Poland (all 0.6%); and Singapore (0.5%).

Socioeconomic status

The indicators presented in this section describe geographic variations in the distribution of the population for a number of key socioeconomic influences, which impact on the health and wellbeing of populations.

Perth and Hills DGP had the same proportion of single parent families compared to Perth as a whole (10.9%).

The proportion of Aboriginal and Torres Strait Islanders in the Division (2.0%) was above that in Perth (1.6%) (Figure 4, Table 3).

Full-time secondary school education participation of 16 year olds living in the Division (73.0%) was just below the rate for Perth (74.5%).

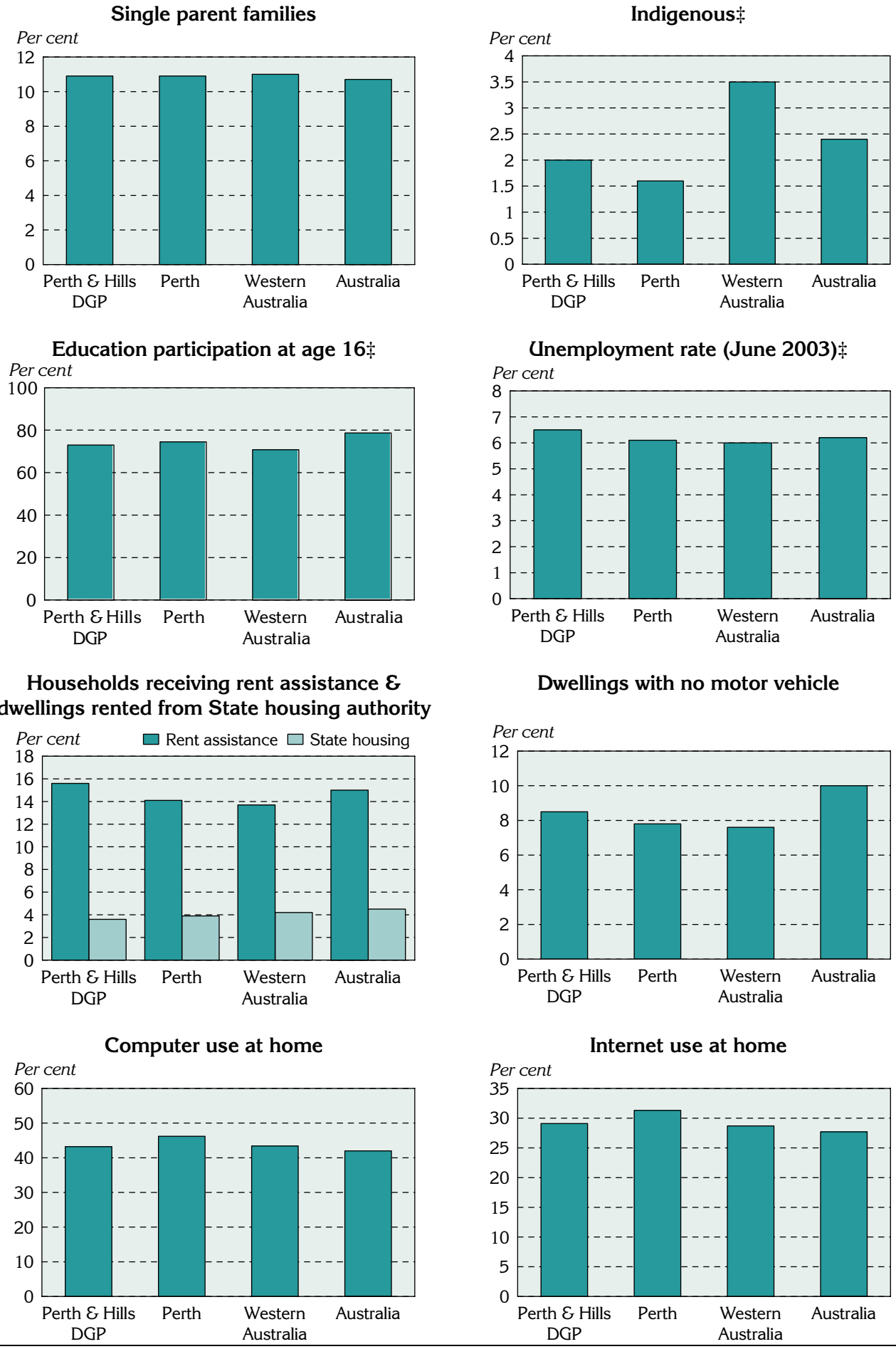
A slightly higher proportion of the Division's households received rent assistance from Centrelink (15.6%, compared to 14.1% for Perth), and there was a similar rate of dwellings rented from the State housing authority (3.6%, compared to 3.9%). The proportion of dwellings with no access to a motor vehicle (8.5%) was slightly higher than that for Perth (7.8%) and for Western Australia (7.6%).

The Division had slightly lower proportions of the population who reported using, at home, a computer (43.8%, compared to 46.2% for Perth), and the Internet (29.1%, compared to 31.3%).

These socioeconomic indicators show the Division to comprise a population of average levels of socioeconomic status when compared with Perth: see also the note on page 5 (Summary of socioeconomic ranking).

Figure 4: Socio-demographic indicators, Perth and Hills DGP, Perth, Western Australia and Australia, 2001

Note the different scales



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

Data Sources: see 'Data sources and limitations' at end of report

Table 3: Socio-demographic indicators, Perth and Hills DGP, Perth, Western Australia and Australia, 2001

Indicator	Perth & Hills DGP		Perth		Western Australia		Australia	
	No.	%	No.	%	No.	%	No.	%
Single parent families	8,574	10.9	38,887	10.9	52,889	11.0	529,969	10.7
Indigenous‡	6,180	2.0	22,073	1.6	65,932	3.5	458,261	2.4
Full-time secondary school education at age 16‡	3,211	73.0	15,431	74.5	19,758	70.8	130,198	78.7
Households: rent assistance	17,110	15.6	69,423	14.1	90,407	13.7	1,006,599	15.0
Dwellings rented from the State housing authority	4,129	3.6	20,177	3.9	29,399	4.2	317,171	4.5
Dwellings: no motor vehicle	9.695	8.5	40,088	7.8	53,102	7.6	708,073	10.0
Computer use at home	130,029	43.8	612,156	46.2	794,456	43.4	7,881,983	42.0
Internet use at home	86,434	29.1	418,815	31.3	525,212	28.7	2,019,410	27.7

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

The unemployment rate in the Perth and Hills DGP of 6.5%, was slightly higher than the rates for Perth (6.1%) and Western Australia (6.0%) (Figure 4, Table 4). The labour force participation rate (74.9%) was similar to those for Perth (75.2%) and Western Australia (76.3%) and the female labour force participation rate (69.7%) was also consistent with those for Perth and Western Australia (70.1% and 69.2%).

Table 4: Unemployment and labour force participation, Perth and Hills DGP, Perth, Western Australia and Australia, 2003

Labour force indicators	Perth & Hills DGP		Perth		Western Australia		Australia	
	No.	%	No.	%	No.	%	No.	%
Unemployment rate ‡	10,664	6.5	45,455	6.1	61,017	6.0	623,791	6.2
Labour force participation‡	163,337	74.9	743,644	75.2	1,015,487	76.3	10,038,147	75.2
Female labour force participation (2001)	53,723	69.7	244,179	70.1	323,030	69.2	3,306,521	69.7

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

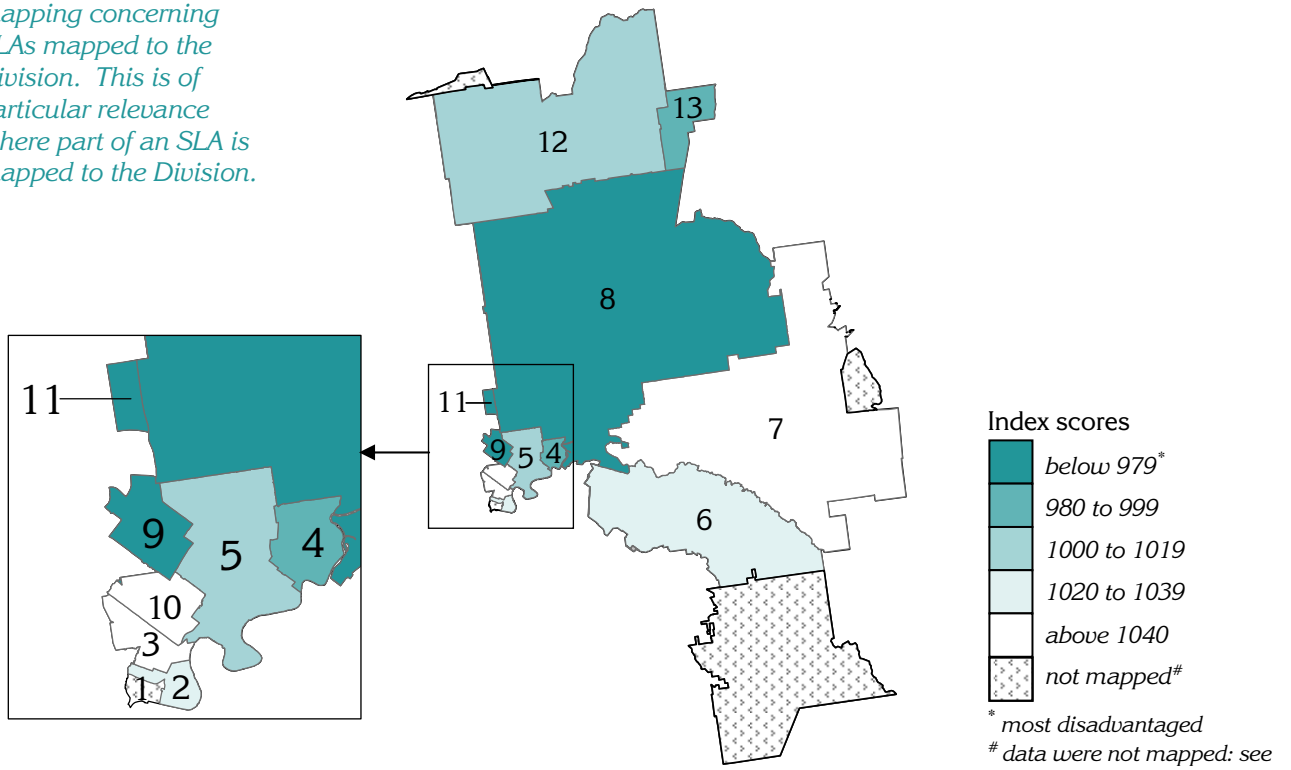
Summary of the socioeconomic ranking of the Perth and Hills DGP

Following the 2001 Census, the Australian Bureau of Statistics (ABS) produced four socioeconomic indexes for areas (SEIFA) which describe various aspects of the socioeconomic profile of populations in areas. The scores for these indexes for each Statistical Local Area (SLA) or part SLA in Perth and Hills DGP are shown in the supporting information, Table 9, page 18: SLAs are described on page 19.

The Perth and Hills DGP area's SEIFA Index of Relative Socio-Economic Disadvantage (IRSD) score is 1010, just (1.0%) above the score for Australia (1000) and below that for Perth (1017); this highlights the near-average socioeconomic status profile of the Perth and Hills DGP population. However, there are marked variations in the IRSD within the Division at the SLA level (Map 1).

Map 1: Index of Relative Socio-Economic Disadvantage by SLA, Perth and Hills 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.



* most disadvantaged

\# data were not mapped: see note under 'Methods' re Data converters and mapping.

Alphabetical key to Statistical Local Areas, Perth & Hills DGP, 2001

Bassendean	4	Stirling - Central	9
Bayswater	5	Stirling - South-Eastern	10
Chittering	12	Swan	8
Kalamunda	6	Toodyay	13
Mundaring	7	Vincent	3
Perth - Inner	1	Wanneroo - South	11
Perth - Remainder	2		

Data Sources: see 'Data sources and limitations' at end of report

General medical practitioner (GP) supply

A total of 207.6 full-time equivalent (FTE) GPs and 243.6 full-workload equivalent (FWE[1]) GPs worked in the Division in 2003/04 (Table 5). Of the FWE GPs, 27.6% were female, and 32.8% 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 1,530 people per GP (calculated on the average Estimated Resident Population (ERP) as at 30 June 2003 and 2004), to 1,467 people per GP (calculated on the 1 August 2001 Census count – all people counted in the Division on Census night, including visitors from Australia and overseas). The rates of population per FWE GP were lower, ranging from 1,250 (calculated on the Census count) to 1,304 (calculated on the ERP). When calculated on the estimated day-time population, the rates were 12.5% above those calculated on the Usual Resident Population (usual residents of the Division counted in Australia on Census night), reflecting the net movement of people into the Division during the day for employment.

Based on the ERP, the rates of population per GP in Perth and Hills DGP differed little from the rate for Western Australia, indicating a similar level of provision of GP services in the Division. The rates of population per GP were higher than the rates for Australia.

Table 5: Population per GP in Perth and Hills DGP, Western Australia and Australia, 2003/04

Population measure	Population	GPs		Population per GP	
		FTE	FWE	FTE	FWE
Perth and Hills DGP					
Census count (adjusted)*	304,547	207.6	243.6	1,467	1,250
Usual Resident Population (URP) (adjusted)*	304,972	..	..	1,469	1,252
Estimated Resident Population (ERP)	317,727	..	..	1,530	1,304
Day-time population (estimated on URP)* ‡	343,064	..	..	1,652	1,408
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 92.5% of children in the Division in 2002 were fully immunised at age one, marginally lower than the Australian proportion of 94.2%. Immunisation by provider type for children between the ages of 0 to 6 is shown in Table 6. The proportion of children in the Division who were immunised by a general practitioner was 85.6%, compared to 70.0% for Australia, with 5.9% immunised at a community health centre or by a community health worker, 4.7% at a local government council, and 3.1% at a public hospital.

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

Provider	Perth & Hills DGP	Australia
	%	%
General practitioner	85.6	70.0
Local government council	4.7	16.6
Community health centre/ worker	5.9	9.8
Public hospital	3.1	2.1
Aboriginal health service/ worker	0.7	0.9
Other*	0.0	0.6
Total: Per cent	**100.0**	**100.0**
Number	**47,302**	**3,843,610**

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

[1] 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

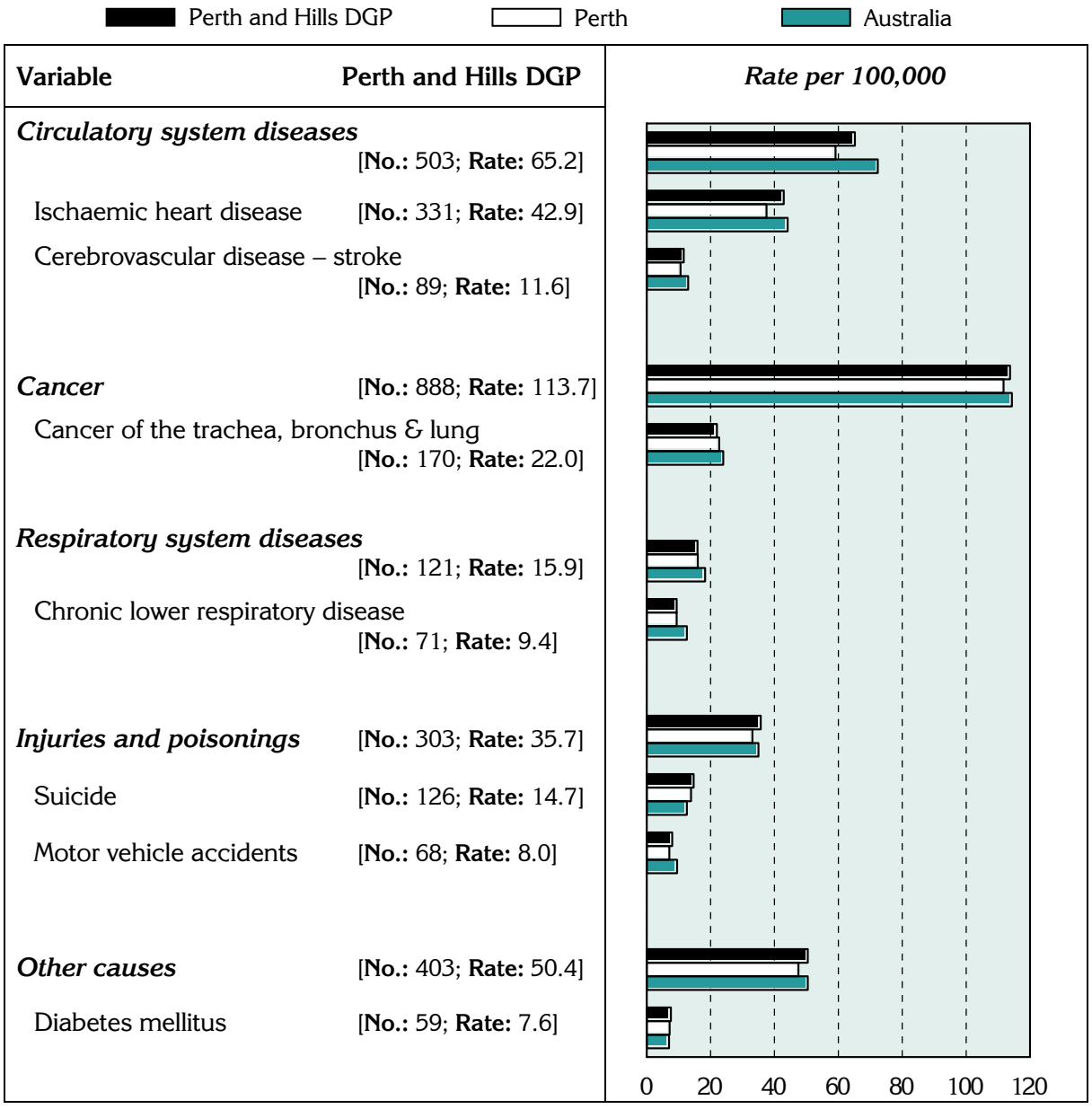
Deaths at ages below 75 years are used as an indicator of health status, as they largely reflect premature deaths, given the current levels of life expectancy in Australia.

The 'all causes' death rate in the Division at ages 0 to 74 years (281.3 deaths per 100,000 population) is higher than for Perth (267.7) but lower than for Australia (290.4): the rates have been age standardised to allow for comparisons between areas, regardless of differences in age profiles between the Division and Australia.

The major causes of premature mortality in the Division, as for Perth and Australia as a whole, are cancer and diseases of the circulatory system (Figure 5). Death rates in the Division for the major conditions and selected causes shown were lower than those for Australia, with the exceptions of injuries and poisonings, and the 'other causes' group (both with rates very close to those for Australia). Conversely, rates were generally higher than those for Perth, apart from cancer of the trachea, bronchus and lung (lower) and respiratory system diseases (the same). The data on which the following chart is based are in Table 12.

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

Indirectly age standardised rate per 100,000 population



* '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

Data Sources: see 'Data sources and limitations' at end of report

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 SLAs within the Division: note that the estimates have been predicted from self-reported data, and are not based on clinical records or physical measures. The chronic diseases and risk factors are those for which sufficiently reliable estimates can be made for the Division from national survey data. The process by which the estimates have been made, and details of their limitations, are described in the Notes section, pages 15-16. The data on which the following charts are based are in Table 13.

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 respiratory system diseases, injuries and osteoporosis (females), similar numbers or relatively more people in Perth and Hills DGP reported having the listed conditions than in Australia as a whole (Figure 6): that is, the prevalence rates per 1,000 population were higher.

Prevalence estimates: self-reported health‡

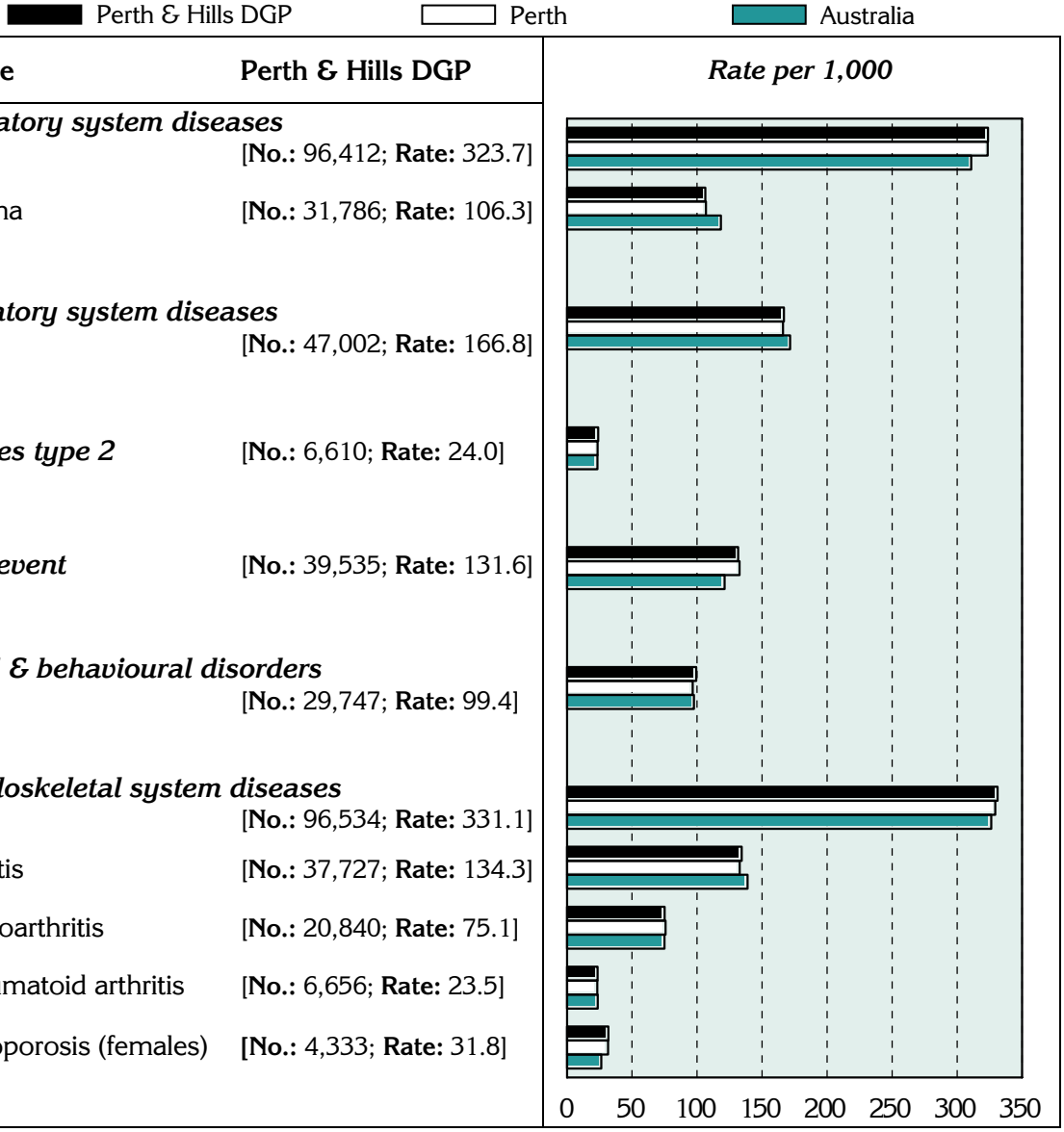
The NHS includes two measures of self-reported health. One is the Kessler Psychological Distress Scale–10 items (K–10). This is a scale of non-specific psychological distress based on 10 questions about negative emotional states in the four weeks prior to interview, asked of respondents 18 years and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

The population of the Division aged 18 years and over is estimated to have a similar rate of people with very high psychological distress levels as measured by the K–10 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, Perth and Hills DGP‡, Perth and Australia, 2001

Indirectly age standardised rate per 1,000 population

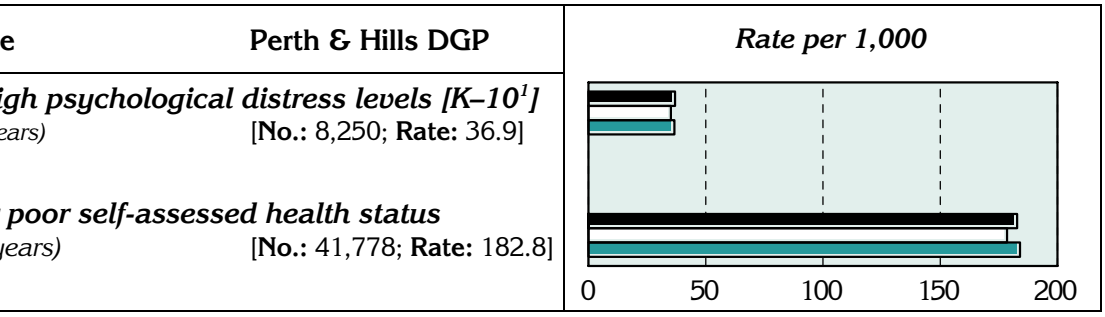


* 'No.' is a weighted estimate of the number of people in Perth & Hills DGP reporting each chronic condition and is derived from synthetic predictions from the 2001 NHS

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

Figure 7: Estimates* of measures of self-reported health, Perth and Hills DGP‡, Perth and Australia, 2001

Indirectly age standardised rate per 1,000 population



* 'No.' is a weighted estimate of the number of people in Perth & Hills 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

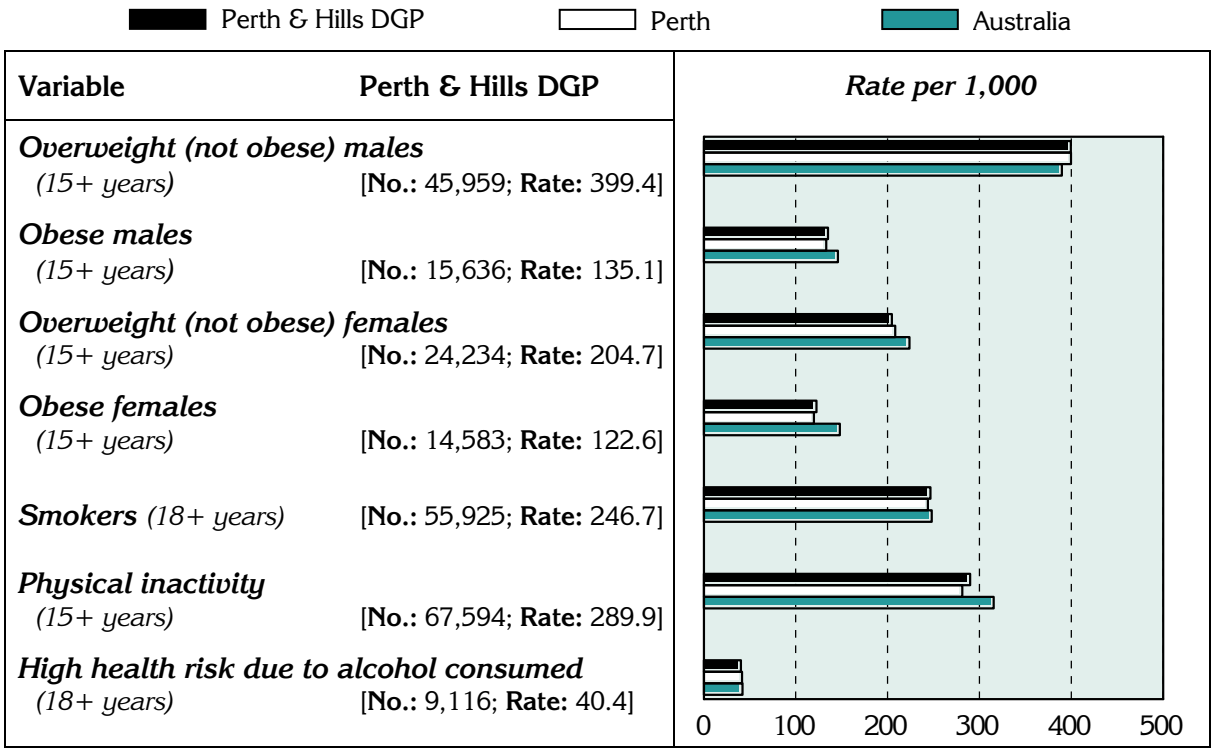
Data Sources: see 'Data sources and limitations' at end of report

Prevalence estimates: risk factors‡

The lower rates (when compared with the Australian population) for all of the selected risk factors except overweight in males (Figure 8) are consistent with the socioeconomic status profile of the area.

Figure 8: Estimates* of selected risk factors, Perth and Hills DGP‡, Perth and Australia, 2001

Indirectly age standardised rate per 1,000 population



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

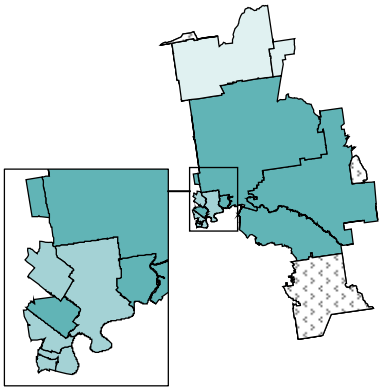
‡ See note under 'Data converters and mapping' re calculation of Division totals

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).

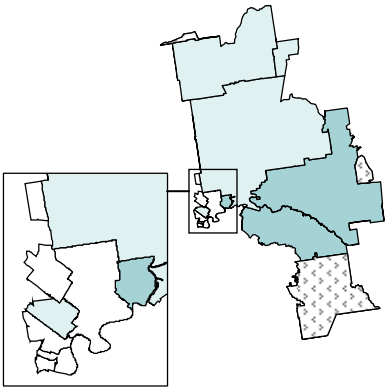
In the following maps, users should note that the estimates shown for part SLAs in the Division (see Table 11, page 19, for per cent of SLA population in the Division) represent the estimates for the whole SLA, and not just the part shown. However, SLAs with a small proportion of their population in 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, Perth and Hills DGP, 2001

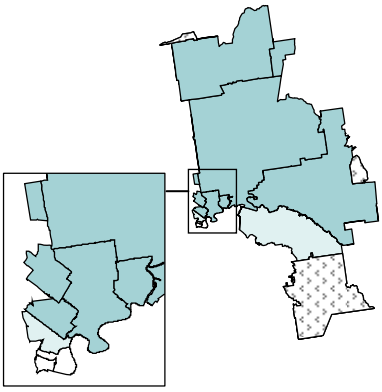
Respiratory system diseases



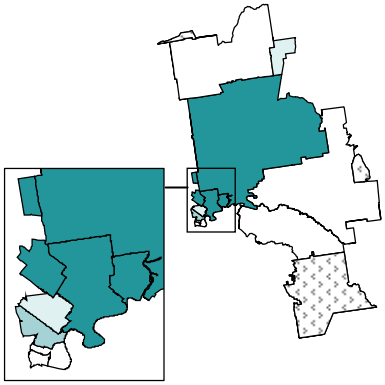
***Respiratory system diseases:* Asthma**



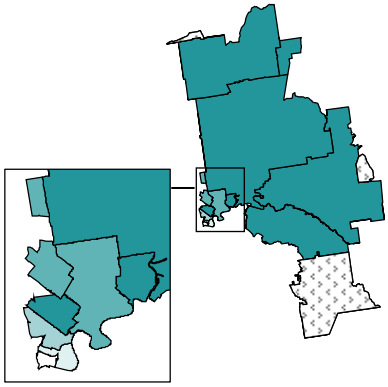
Circulatory system diseases



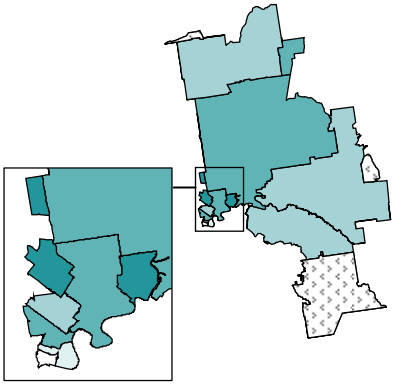
Diabetes type 2



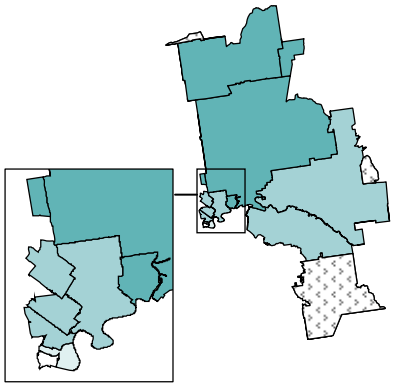
Injury event



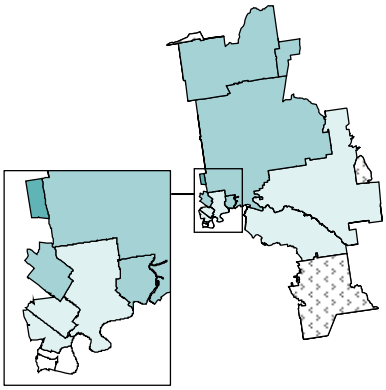
Mental & behavioural disorders



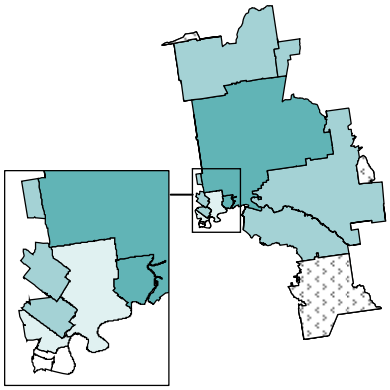
Musculoskeletal system diseases



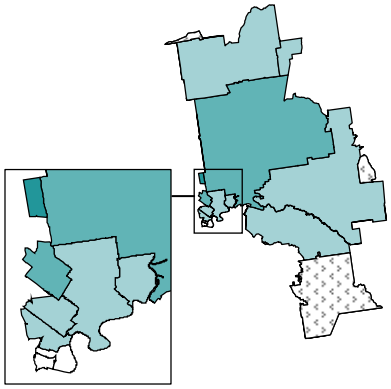
***Musculoskeletal system diseases:* Arthritis**



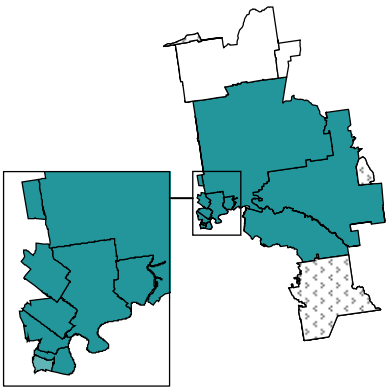
***Arthritis:* Osteoarthritis**



***Arthritis:* Rheumatoid arthritis**



Osteoporosis (females)



Per cent difference from Australian average

- *10% or more above*
- *5% to less than 10% above*
- *within 5% of the average*
- *5% to less than 10% below*
- *10% or more below*
- *not mapped#*

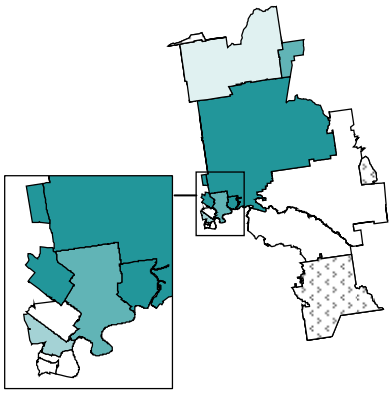
* *The estimates are synthetic predictions of the prevalence of these conditions: see Notes on the data.*

\# *Data not mapped: see Notes on the data.*

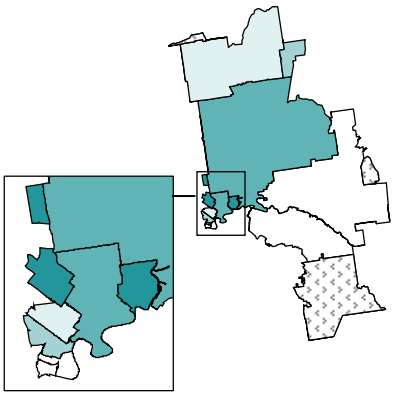
Data Sources: see 'Data sources and limitations' at end of report

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

Very high psychological distress levels [K–10[1]] (18+ years)



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



Per cent difference from Australian average

- *10% or more above*
- *5% to less than 10% above*
- *within 5% of the average*
- *5% to less than 10% below*
- *10% or more below*
- *not mapped#*

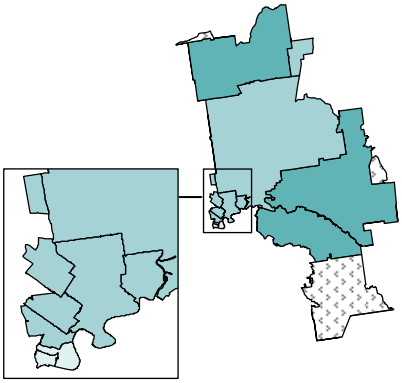
[1] **Kessler 10**

* *The estimates are synthetic predictions of the prevalence of these conditions: see Notes on the data.*

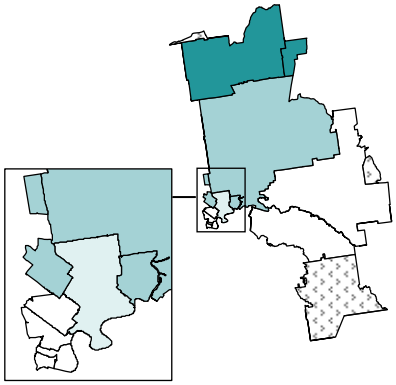
\# *Data not mapped: see Notes on the data.*

Map 4: Estimates* of selected risk factors by SLA, Perth and Hills DGP, 2001

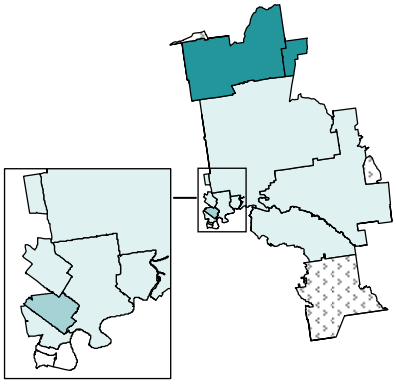
Overweight (not obese) males (15+ years)



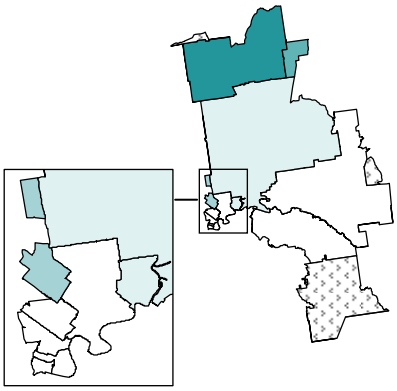
Obese males (15+ years)



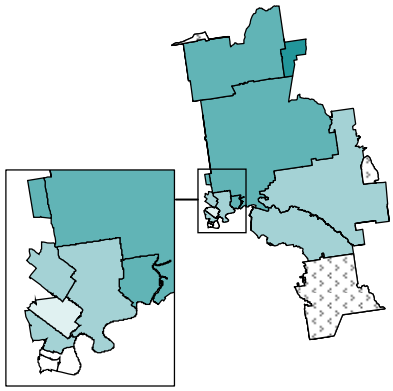
Overweight (not obese) females (15+ years)



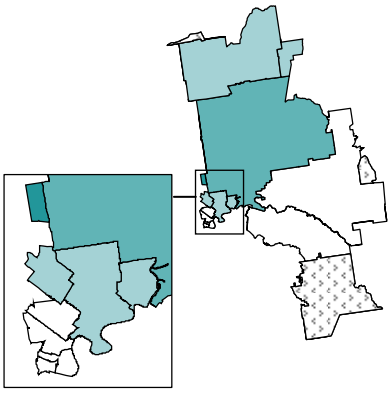
Obese females (15+ years)



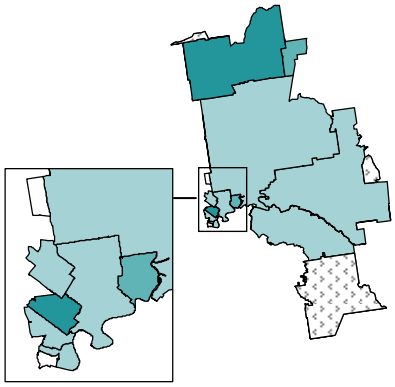
Smokers (18+ years)



Physical inactivity (15+ years)



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



Per cent difference from Australian average

- *10% or more above*
- *5% to less than 10% above*
- *within 5% of the average*
- *5% to less than 10% below*
- *10% or more below*
- *not mapped#*

* *The estimates are synthetic predictions of the prevalence of these conditions: see Notes on the data.*

\# *Data not mapped: see Notes on the data.*

Notes on the data

Data sources and limitations

General

Unless stated otherwise, references to 'Perth' relate to the Perth Statistical Division.

Data sources

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

Table 7: Data sources

Section	Source
Key indicators	
GP services per head of population	GP services data supplied by Department of Health and Ageing, 2003/04 Population data: Estimated Resident Population, ABS, mean of 30 June 2003 and 30 June 2004 populations
Socio-demographic profile	
Figures 1 and 2; Table 1	Estimated Resident Population, ABS, 30 June for the periods shown
Tables 2, 3 and 4; Figures 3 and 4	Data were extracted by postal area from the ABS Population Census 2001[1], except for the following indicators: - *Indigenous* – Experimental estimates of Aboriginal and Torres Strait Islander people, ABS 2001 (unpublished) - *Full-time secondary education participation at age 16* – Census 2001 (unpublished) - *Households receiving rent assistance* – Centrelink, December Quarter 2001 (unpublished) - *Unemployment rate / Labour force participation* – extracted from *Small Area Labour Markets Australia*, June Quarter 2003, Department of Employment and Workplace Relations
Map 1; Table 9	ABS SEIFA package, Census 2001
General medical practitioner (GP) supply	
Table 5	GP data supplied by Department of Health and Ageing, 2003/04 Population estimates used in calculating the population per GP rates are the: - Census count[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 (URP) 2001 (unpublished); and 2001 Census URP, scaled to 2003/04 - Estimated Resident Population, ABS, June 2003/2004
Immunisation	
Text comment: 1 year olds	National Centre for Immunisation Research and Surveillance, 2002
Table 6	Australian Childhood Immunisation Register, Health Insurance Commission, 2003/04 (unpublished)
Premature mortality	
Figure 5; Table 12	ABS Deaths, 2000 to 2002
Chronic diseases and associated risk factors[4]	
Figures 6, 7 and 8; Maps 2, 3 and 4; Table 13	Estimated from 2001 National Health Survey (NHS), ABS (unpublished)

[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**
[4] **See notes below**

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 8 includes notes relevant to this data.

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

Indicator	Notes on the data
Estimates of chronic disease and injury (Figure 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	- Respondents estimated average daily alcohol consumption in the seven days prior to interview (based on number of days and quantity consumed). Alcohol risk levels were grouped according to NHMRC risk levels for harm in the long term, with 'high risk' defined as a daily consumption of more than 75 ml for males and 50 ml for females

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

Methods

Synthetic estimates

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

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

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

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

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

Premature deaths

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

Data converters and mapping

Conversion to Division of data available by postcode

The allocation of postcodes to Divisions was undertaken using information from the Department of Health and Ageing's web site, which shows the proportion of a postcode in a Division (Table 10).

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 11.

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 defined[1] as:

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

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

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

[1] **"The role of general practice in population health – A Joint Consensus Statement of the General Practice Partnership Advisory Council and the National Public Health Partnership Group" (Joint Advisory Group on General Practice and Population Health 2001)**
[2] **As defined in the Strategic Framework for Aboriginal and Torres Strait Islander Health**

SEIFA scores

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

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

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

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

Table 9: SEIFA scores by SLA, Perth and Hills DGP, 2001

SLA code	SLA name (& per cent of SLA in the Division)		Index score			
			Disadvantage	Advantage	Economic Resources	Education & Occupation
50350	Bassendean	(100.0)	989	984	971	990
50420	Bayswater	(100.0)	1001	1005	987	1013
51680	Chittering	(63.7)	1015	956	959	940
54200	Kalamunda	(97.8)	1035	1020	1018	1002
56090	Mundaring	(100.0)	1043	1029	1012	1024
57081	Perth - Inner	(100.0)	na	na	na	na
57082	Perth - Remainder	(66.9)	1031	1102	1055	1145
57914	Stirling - Central	(21.5)	964	972	958	986
57916	Stirling - South-Eastern	(100.0)	1080	1116	1073	1139
58050	Swan	(100.0)	979	972	989	953
58330	Toodyay	(21.00)	995	51	925	965
58570	Vincent	(60.5)	876	912	946	910
58767	Wanneroo - South	(21.8)	933	939	964	920

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

Statistical geography of the Perth and Hills DGP

The Perth and Hills DGP covers 3,227 square kilometres, based on 2001 SLA data.

The postcodes in the Division (as per the Department of Health and Ageing web site) are shown below (Table 10).

Table 10: Postcodes in Perth and Hills DGP, 2004

Postcode	Per cent of postcode population in the Division*	Postcode	Per cent of postcode population in the Division*	Postcode	Per cent of postcode population in the Division*
6000	100	6058	100	6072	100
6003	100	6059	100	6073	100
6004	100	6062	100	6074	100
6006	100	6063	100	6076	100
6050	100	6064	25	6081	100
6051	100	6066	100	6082	100
6052	100	6067	100	6083	100
6053	100	6068	100	6084	100
6054	100	6069	100	6090	100
6055	100	6070	100	6556	100
6056	100	6071	100	6558	100
6057	100				

* **Proportions are approximate**

Source: 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, some Local Government Areas (LGAs) have been split into SLAs. For example, the LGA of Stirling has two SLAs, Central (17% of which is estimated to be in this Division) and South-Eastern (wholly in the Division). These SLAs, and all or parts of the SLAs listed in Table 11 comprise the Division.

Table 11: SLAs in Perth and Hills 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
50350	Bassendean	100.0	14,049
50420	Bayswater	100.0	56,447
51680	Chittering	63.7	2,111
54200	Kalamunda	97.8	48,993
56090	Mundaring	100.0	35,484
57081	Perth - Inner	100.0	1,156
57082	Perth - Remainder	66.9	6,221
57914	Stirling - Central	21.5	21,655
57916	Stirling - South-Eastern	100.0	16,080
58050	Swan	100.0	91,506
58330	Toodyay	21.0	890
58570	Vincent	60.5	16,091
58767	Wanneroo - South	21.8	8,865

* **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**

Supporting data

The data used in Figure 5 to illustrate the rates of premature mortality in the Division are shown below in Table 12.

Table 12: Deaths before 75 years of age by major condition group and selected cause, Perth and Hills DGP‡, Perth and Australia, 2000-02*

Indirectly age standardised rate per 100,000 population

Variable	Perth and Hills DGP‡		Perth		Australia	
	No.	Rate	No.	Rate	No.	Rate
Circulatory system diseases	503	65.2	2,046	59.1	38,357	72.3
Ischaemic heart disease	331	42.9	1,297	37.5	23,364	44.1
Cerebrovascular disease – stroke	89	11.6	366	10.6	6,920	13.0
Cancer	888	113.7	3,903	111.7	60,603	114.3
Cancer of the trachea, bronchus & lung	170	22.0	785	22.7	12,715	24.0
Respiratory system diseases	121	15.9	550	16.0	9,726	18.3
Chronic lower respiratory disease	71	9.4	322	9.4	6,657	12.6
Injuries and poisonings	303	35.7	1,250	33.1	18,573	35.0
Suicide	126	14.7	527	13.9	6,706	12.6
Motor vehicle accidents	68	8.0	271	7.1	5,014	9.5
Other causes	403	50.4	1,692	47.5	26,735	50.4
Diabetes mellitus	59	7.6	250	7.2	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 data used to illustrate the prevalence estimates of chronic disease (Figure 6), measures of self-reported health (Figure 7), and selected risk factors (Figure 8), are shown in Table 13 below.

Table 13: Estimates of chronic disease and associated risk factors, Perth and Hills DGP‡, Perth and Australia, 2001

Indirectly age standardised rate per 1,000 population

Variable	Perth and Hills DGP‡	Perth	Australia
Chronic disease and injury (Figure 6)			
Respiratory system diseases	323.7	323.5	310.8
Asthma	106.3	106.8	118.3
Circulatory system diseases	166.8	166.1	171.5
Diabetes type 2	24.0	23.5	23.4
Injury event	131.6	132.7	121.2
Mental & behavioural disorders	99.4	96.6	97.6
Musculoskeletal system diseases	331.1	329.4	326.2
Arthritis	134.3	132.8	138.8
- Osteoarthritis	75.1	75.7	74.9
- Rheumatoid arthritis	23.5	23.2	23.6
Osteoporosis (females)	31.8	31.5	26.4
Measures of self-reported health (Figure 7)			
Very high psychological distress levels (18+ years)	36.9	35.1	36.6
Fair or poor self-assessed health status (15+ years)	182.8	178.5	184.0
Risk factors (Figure 8)			
Overweight (not obese) males (15+ years)	399.4	399.5	389.7
Obese males (15+ years)	135.1	133.2	145.9
Overweight (not obese) females (15+ years)	204.7	208.3	223.9
Obese females (15+ years)	122.6	119.8	148.0
Smokers (18+ years)	246.7	243.9	248.0
Physical inactivity (15+ years)	289.9	281.3	315.5
High health risk due to alcohol consumed (18+ years)	40.4	41.7	42.1

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

References

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

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

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

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

Acknowledgements

Funding for these profiles was provided by the Population Health Division of the Department of Health and Ageing (DoHA). Assistance, by way of comment on the profiles and assistance in obtaining some datasets, has also been received from the Primary Care Division of the DoHA, the ABS and the ACIR.

Further developments and updates

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

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

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

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

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

PHIDU contact details

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

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