Population health profile of the Northern Rivers Division of General Practice

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

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

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Population health profile
of the *Northern Rivers Division of General Practice*

Introduction

This profile has been designed to provide a description of the population of the Northern Rivers 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 19.

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. New South Wales and Australia). Specific topics covered include:

- a socio-demographic profile (pages 2-5);
- GP workforce data (page 8);
- immunisation rates (page 8);
- rates of premature death (page 9); and
- estimates of the prevalence of chronic disease and selected risk factors (pages 10-14).

Key indicators

Location: New South Wales

Division number: 225

Population‡:	**No.**	**%**
Total	161,309	
65+	26,088	16.2%
<25	52,015	32.2%
Indigenous	5,531	3.5%

Disadvantage score[1]: 958

GP services per head of population:

Division‡	4.0
Australia	4.7

Population per FTE GP:

Division‡	1,434
Australia	1,403

Premature death rate[2]:

Division‡	272.4
Australia	290.4

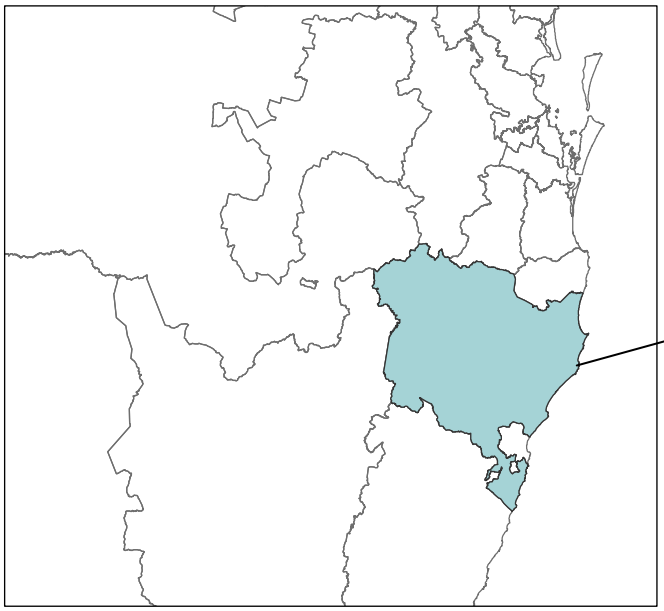
[1] **Numbers below 1000 (the index score for Australia) indicate the Division is relatively disadvantaged**

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

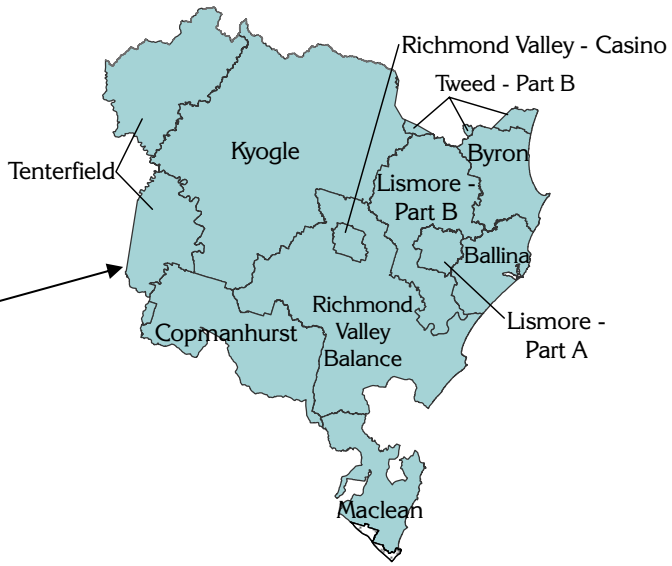
‡ **See note "Data converters and mapping" re calculation of Division Total**

Northern Rivers Division of General Practice

NSW Divisions of General Practice



Northern Rivers DGP by SLA

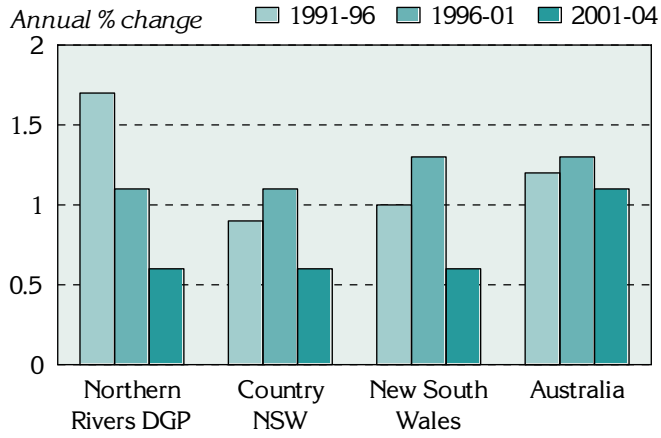


Sociodemographic profile

Population

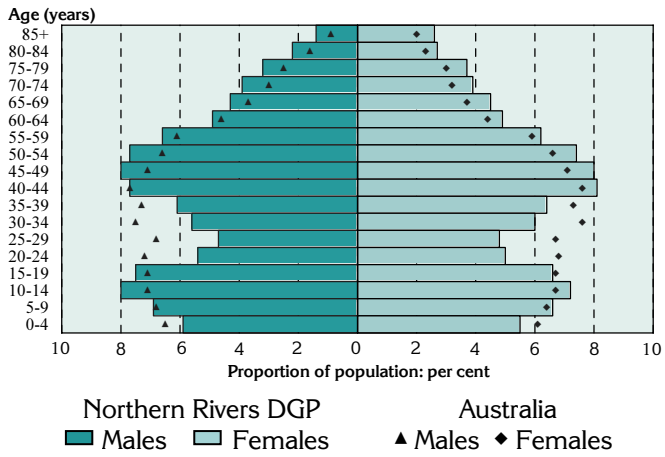
The Northern Rivers DGP had an Estimated Resident Population of 161,309 at 30 June 2004.

Figure 1: Annual population change, Northern Rivers DGP‡, country New South Wales[1], New South Wales 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, higher than for country New South Wales (0.9%), New South Wales (1.0%), and Australia (1.2%). From 1996 to 2001, the annual percentage increase in the Division was 1.1%, similar to country New South Wales (1.2%), New South Wales (1.3%) and Australia (1.2%). The annual growth rate from 2001 to 2004 was a lower 0.6%, equal to the rate for country New South Wales and New South Wales, and lower than for Australia (1.1%).

Figure 2: Population in Northern Rivers 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 - a lower proportion of children aged 0 to 4 years, and higher proportions of males at ages 10 to 19 years, and females 10 to 14 years;
- from 20 to 39 years - lower proportions - perhaps moving away to continue education, or to seek employment opportunities; and
- at 40 years and over - higher proportions of males (from 45 years) and females.

Table 1: Population by age, Northern Rivers DGP‡ and Australia, 2004

Age group (years)	Northern Rivers		Australia	
	No.	%	No.	%
0-14	32,377	20.1	3,978,751	19.8
15-24	19,638	12.2	2,762,769	13.8
25-44	39,802	24.7	5,881,048	29.3
45-64	43,403	26.9	4,864,037	24.2
65-74	13,367	8.3	1,374,792	6.8
75-84	9,526	5.9	934,505	4.7
85+	3,195	2.0	295,602	1.5
Total	**161,309**	**100.0**	**20,091,504**	**100.0**

As shown in the age-sex pyramid above, the Northern Rivers DGP had lower proportions of the population aged 15 to 24 years (12.2%), and 25 to 44 years (24.7%), compared to Australia as a whole (with 13.8%, and 29.3%). The 45 years and over age groups all had notably higher proportions than Australia.

The Northern Rivers DGP comprised 2.9% of people born in predominantly non-English speaking countries and resident in Australia for five years or more (Table 2), lower than in country New South Wales (4.1%) and New South Wales (12.7%). Recent arrivals (those resident in Australia for less than five years) from non-English speaking countries comprised 0.4% of the Division's population, similar to country New South Wales (0.5%), and lower than for New South Wales (2.9%).

[1]References to 'country New South Wales' relate to New South Wales excluding the Sydney Statistical Division

‡ **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 non-English born residents aged five years and over, 0.2% had poor proficiency in English (determined when people 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 in country New South Wales (0.6%) and New South Wales (3.2%).

Table 2: Non-English speaking born, Northern Rivers DGP, country New South Wales, New South Wales and Australia, 2001

People born in predominantly non-English speaking countries	Northern Rivers DGP		Country New South Wales		New South Wales		Australia	
	No.	%	No.	%	No.	%	No.	%
Resident in Australia for five years or more	4,373	2.9	97,983	4.1	803,824	12.7	2,019,410	10.8
Resident in Australia for less than five years	608	0.4	12,392	0.5	182,972	2.9	408,074	2.2
Poor proficiency in English[1]	268	0.2	13,587	0.6	189,874	3.2	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'**

Major non-English speaking birthplaces, Northern Rivers DGP, 2001

Australian-born people comprised 90.9% of the Division's population, well above the Australian figure of 72.6%. Of the 5.7% of people from English speaking countries, 3.7% were from the UK and Eire. The major birthplaces of the non-English speaking population include Germany (0.5%), Italy (0.4%), The Netherlands (0.3%), and the Philippines (0.2%); all other birthplaces of non-English speaking populations represented 0.1% or less of the Division's population.

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 Northern Rivers DGP had a higher proportion of single parent families (14.9%) compared to country New South Wales as a whole (11.7%), and a similar proportion of Aboriginal and Torres Strait Islanders (3.5%, compared to 3.7%) (Figure 3, Table 3).

Full-time secondary school education participation of 16 year olds living in the Division (76.6%) was slightly higher than that for country New South Wales (73.4%).

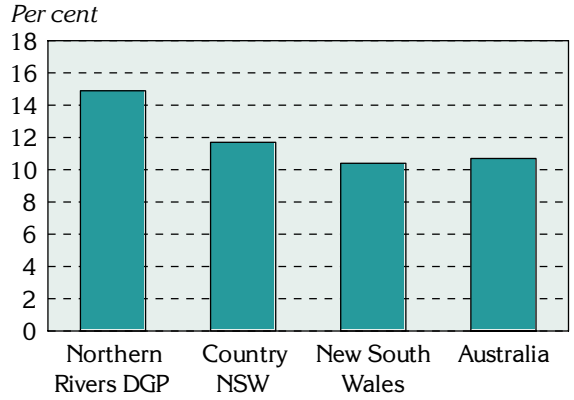
A notably higher proportion of the Division's households received rent assistance from Centrelink (27.2%) compared to country New South Wales (18.3%), but there were fewer dwellings rented from the State housing authority (2.8%, compared to 4.6%). The proportion of dwellings with no access to a motor vehicle (10.1%) was similar to that for country New South Wales (10.2%).

The Division had similar proportions of the population who reported using, at home, a computer (36.1%) and the Internet (22.4%), compared to country New South Wales (37.0% and 22.2%).

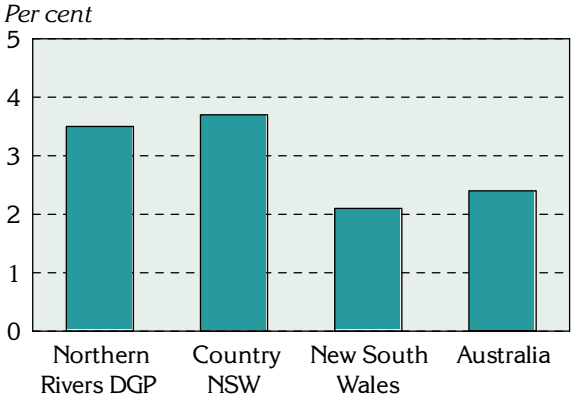
Figure 3: Socio-demographic indicators, Northern Rivers DGP, country New South Wales, New South Wales and Australia, 2001

Note the different scales

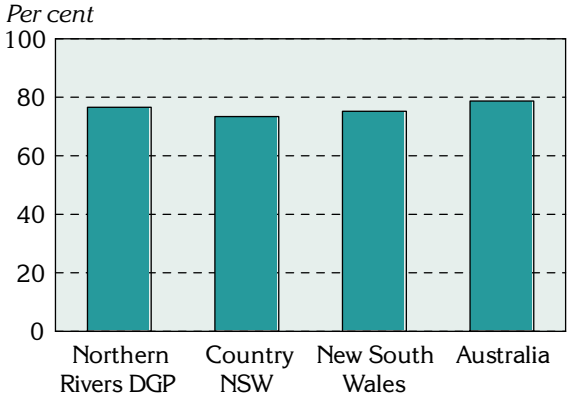
Single parent families



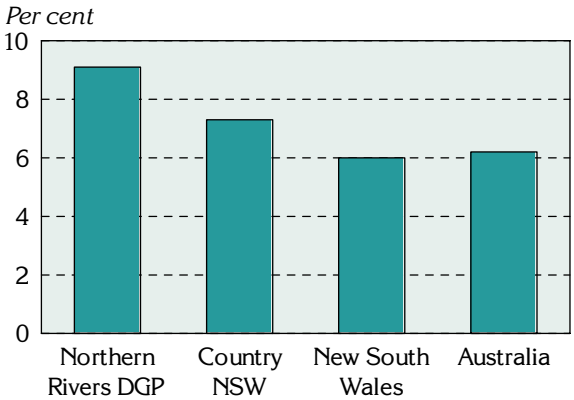
Indigenous‡



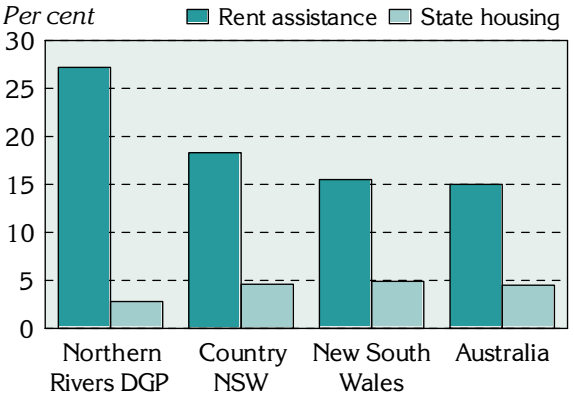
Education participation at age 16‡



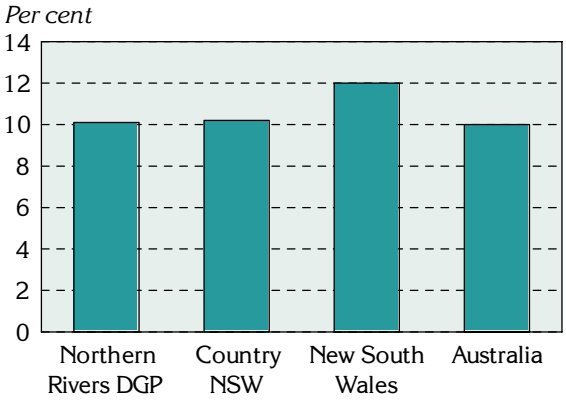
Unemployment rate (June 2003)‡



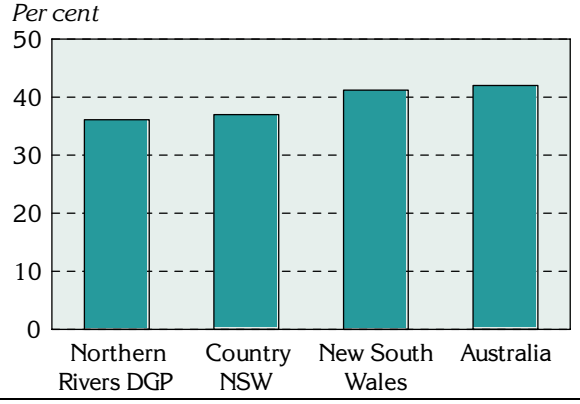
Households receiving rent assistance & Dwellings rented from State housing authority



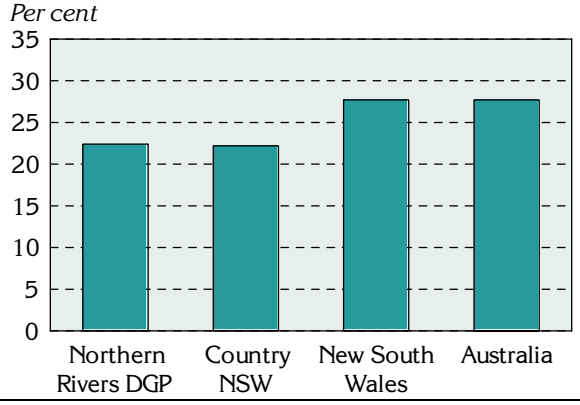
Dwellings with no motor vehicle



Computer use at home



Internet use at home



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

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

Table 3: Sociodemographic indicators, Northern Rivers DGP, country New South Wales, New South Wales and Australia, 2001

Indicator	Northern Rivers		Country NSW		NSW		Australia	
	No.	%	No.	%	No.	%	No.	%
Single parent families‡	6,064	14.9	73,805	11.7	172,199	10.4	529,969	10.7
Indigenous‡	5,531	3.5	91,036	3.7	134,886	2.1	458,261	2.4
Full-time secondary school education at age 16	1,808	76.6	24,254	73.4	65,205	75.2	130,198	78.7
Households: rent assistance	15,587	27.2	156,074	18.3	343,540	15.5	1,006,599	15.0
Dwellings rented from the State housing authority	1,681	2.8	41,406	4.6	114,130	4.9	317,171	4.5
Dwellings: no motor vehicle	6,133	10.1	92,576	10.2	280,434	12.0	708,073	10.0
Computer use at home	55,614	36.1	874,207	37.0	2,600,257	41.2	7,881,983	42.0
Internet use at home	34,090	22.4	523,994	22.2	1,751,626	27.7	2,019,410	27.7

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

The unemployment rate of 9.1% in Northern Rivers DGP was higher than the rates for country New South Wales (7.3%), and New South Wales (6.0%) (Figure 3 and Table 4). The labour force participation rate (72.5%) was consistent with that for country New South Wales (72.3%), and lower than New South Wales (74.6%), while the and female labour force participation rate (65.0%) was lower than for country New South Wales and New South Wales (66.8% and 69.0%).

Table 4: Unemployment and labour force, Northern Rivers DGP, country New South Wales, New South Wales and Australia, 2003

Labour force indicators	Northern Rivers		Country NSW		NSW		Australia	
	No.	%	No.	%	No.	%	No.	%
Unemployment rate ‡	6,771	9.1	83,231	7.3	198,946	6.0	623,791	6.2
Labour force participation‡	74,089	72.5	1,142,496	72.3	3,331,064	74.6	10,038,147	75.2
Female labour force participation (2001)	23,057	65.0	361,345	66.8	1,093,243	69.0	3,306,521	69.7

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

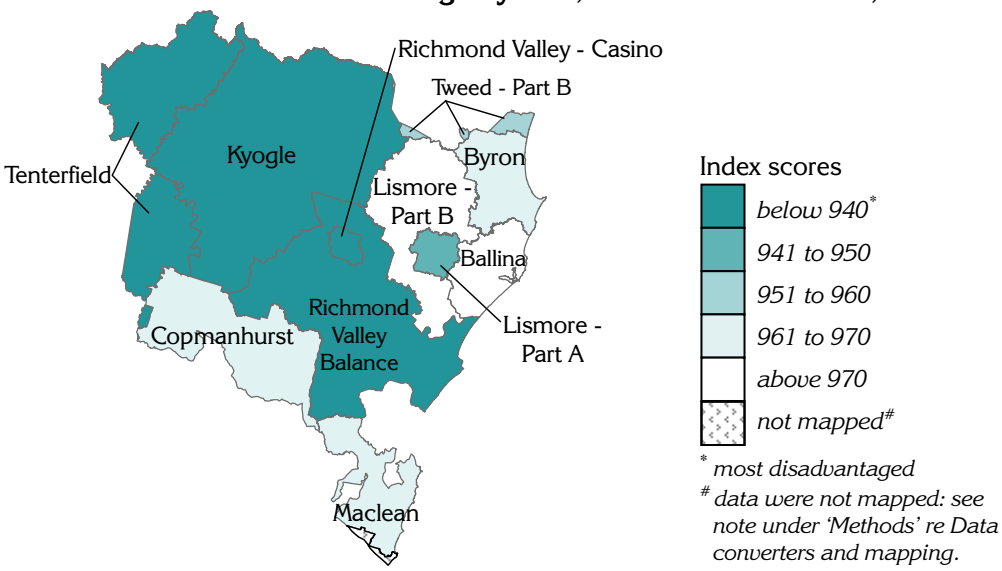
Summary of the socioeconomic ranking of the Northern Rivers DGP

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 Northern Rivers DGP are shown in the supporting information in Table 12, page 19: SLAs are described on page 20.

The Northern Rivers DGP's SEIFA Index of Relative Socio-Economic Disadvantage (IRSD) score is 958, 4.2% below the average score for Australia (1000), and below that for country New South Wales (973); this highlights the lower socioeconomic status profile of the Division's population, relative to Australia as a whole. 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, Northern Rivers 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.



Socioeconomic status: Indigenous population

At the 2001 Census, 3.5% of the population of the Northern Rivers DGP were estimated to be of Aboriginal or Torres Strait Islander origin, consistent with the proportion for country New South Wales (3.7%). The largest Indigenous populations were in the SLAs of Lismore - Part A (an estimated 1,311 people, 23.7% of the Indigenous population in the Division), Ballina (1,024 people, 18.5%) and Richmond Valley - Casino (777 people, 14.0%).

Table 5: Population by Indigenous status*, SLAs in Northern Rivers DGP‡, 2001

Statistical Local Area	Indigenous		Non-Indigenous		Total	
	No.	%	No.	%	No.	%
Lismore - Part A	1,311	23.7	29,560	19.3	30,871	19.5
Ballina	1,024	18.5	37,135	24.3	38,159	24.1
Richmond Valley - Casino	777	14.0	9,638	6.3	10,415	6.6
Maclean	656	11.9	14,962	9.8	16,618	9.8
Kyogle	535	9.7	9,269	6.1	9,804	6.2
Richmond Valley Balance	478	8.6	9,862	6.4	10,341	6.5
Byron	366	6.6	27,688	18.1	25,054	17.7
Lismore - Part B	243	4.4	11,950	7.8	12,193	7.7
Other	141	2.5	3,068	2.0	3,209	2.0
Total	**5,531**	**100.0**	**153,132**	**100.0**	**158,664**	**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 (31.5%) was higher than the Indigenous rate in country New South Wales (27.5%), and more than double that of the Division's non-Indigenous population (14.4%) (Table 6).

Just over half (51.0%) of Indigenous 16 year olds living in the Division were involved in full-time secondary school education, consistent with the Indigenous participation rate in country New South Wales (52.5%), but much lower than the rate of more than three quarters (79.3%) of the non-Indigenous 16 year olds.

Table 6: Socio-demographic indicators, Northern Rivers DGP‡, country New South Wales and Australia, 2001

Indicator	Northern Rivers DGP‡		Country NSW		Australia	
	No.	%	No.	%	No.	%
Population						
- Indigenous	5,547	3.5	91,036	3.7	458,261	2.4
- Non-Indigenous	153,329	96.5	2,355,909	96.3	18,952,407	97.6
Single parent families						
- Indigenous	385	31.5	5,881	27.5	26,587	25.8
- Non-Indigenous	5,680	14.4	67,924	11.2	503,382	10.4
Full-time secondary school education at age 16						
- Indigenous	51	51.0	938	52.5	5,997	50.5
- Non-Indigenous	1,702	79.3	24,828	76.5	327,055	80.3
Dwellings rented from State housing authority						
- Indigenous	198	14.1	4,868	19.7	23,974	20.8
- Non-Indigenous	1,454	2.7	35,585	4.4	284,502	4.5
People who used a computer at home						
- Indigenous	807	16.3	14,924	18.4	73,636	18.0
- Non-Indigenous	54,602	38.0	854,211	38.9	7,761,390	44.1
People who used the Internet at home						
- Indigenous	401	8.1	6,454	8.0	35,384	8.6
- Non-Indigenous	33,754	23.5	518,491	23.6	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**

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

The proportion of the Indigenous population living in dwellings rented from the State housing authority (14.1%) was lower than the Indigenous rate for country New South Wales (19.7%), and five times that of the Division's non-indigenous population (2.7%) (Table 6).

The rate of home internet use by the Division's Indigenous (16.3%) was similar to the rate for the Indigenous population in country New South Wales (18.4%), but less than half the rate of the non-Indigenous population in the Division (38.0%).

The proportion of the Indigenous population in the Division who reported using the Internet at home (8.1%) was consistent with the Indigenous rate for country New South Wales (8.0%), but just one third that of the Division's non-Indigenous population (23.5%).

The Northern Rivers DGP Indigenous population's unemployment rate of 30.6% was higher than the Indigenous rate for country New South Wales (26.6%), and two and half times the rate of the Division's non-Indigenous population (12.3%) (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 of 40.6% was notably higher than the 'real' Indigenous unemployment rate for country New South Wales (34.1%).

Table 7: Unemployment and labour force participation, Northern Rivers DGP‡, country New South Wales and Australia, 2001

Labour force indicators	Northern Rivers DGP‡		Country NSW		Australia	
	No.	%	No.	%	No.	%
Unemployment rate						
- Indigenous	395	30.6	6,155	26.9	24,930	20.0
- Non-Indigenous	7,448	12.3	87,454	9.0	624,337	7.3
Labour force participation*						
- Indigenous	1,291	47.8	22,902	50.4	124,517	52.4
- Non-Indigenous	60,334	66.7	972,088	69.5	8,609,525	72.9
Female labour force participation*						
- Indigenous	544	41.2	9,403	44.3	52,981	46.6
- Non-Indigenous	24,956	65.1	390,835	67.2	3,564,409	69.8
Indigenous unemployment rate						
- excluding CDEP	395	30.6	6,155	26.9	24,930	20.0
- CDEP	129	10.0	1,650	7.2	17,662	14.2
- Total (including CDEP)	524	40.6	7,805	34.1	45,592	34.2

*** Includes people paid through Community Development Employment Projects**
‡ See note under 'Data converters and mapping' re calculation of Division totals

The Indigenous labour force participation rate (47.8%) and Indigenous female labour force participation rate (41.2%) were marginally lower than the Indigenous rates for country New South Wales (50.4% and 44.3%, but both rates were substantially lower than the rates for the Division's non-Indigenous population (66.7% and 65.1%).

General medical practitioner (GP) supply

A total of 112.3 full-time equivalent (FTE) GPs and 125.8 full-time workload equivalent (FWE[2]) GPs worked in the Northern Rivers DGP in 2003/04 (Table 8). Of the FWE GPs, 19.8% were female, and 22.5% were over 55 years of age (compared to 26.4% and 33.4%, respectively, for New South Wales).

Apart from the estimated day-time population, the rates of population per FTE GP varied, depending on the population measure used, from a high of 1,434 per GP (calculated on the average Estimated Resident Population (ERP) as at 30 June 2003 and 30 June 2004), to a low of 1,373 people per GP (calculated on the 1 August 2001 Usual Resident Population (URP) – usual residents of the Division counted in Australia on Census night). The rates of population per FWE were lower, ranging from 1,226 (calculated on the URP) to 1,280 (calculated on the ERP). When calculated on the estimated day-time population, the rates of population in the Division were 2.7% below those calculated on the URP.

Based on the ERP, the rate of population per FTE GP in Northern Rivers DGP differed little from those for New South Wales and Australia, indicating a similar level of provision of GP services in the Division. The rate per FWE GP was higher than the rates for New South Wales and Australia.

Table 8: Population per GP in Northern Rivers DGP, New South Wales and Australia, 2003/04

Population measure	Population	GPs		Population per GP	
		FTE	FWE	FTE	FWE
Northern Rivers DGP					
Census count (adjusted)*	156,225	112.3	125.8	1,391	1,242
Usual Resident Population (URP) (adjusted)*	154,242	..	..	1,373	1,226
Estimated Resident Population (ERP)	161,023	..	..	1,434	1,280
Day Time Population (estimated on URP)* ‡	150,149	..	..	1,337	1,194
New South Wales (ERP)	6,706,674	4,819	5,969	1,392	1,124
Australia (ERP)	19,989,303	14,246	16,872	1,403	1,185

* **The Census count, Usual Resident Population and Day-time population were adjusted to reflect population change between 2001 and 2003/2004, 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 91.1% of children in the Division in 2002 were fully immunised at age one, slightly 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 9. The majority of children in the Division were immunised by a general practitioner (69.3%), compared to 70.0% for Australia, with 30.1% immunised at a community health centre, or by a community health worker, and 0.6% at a public hospital.

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

Provider	Northern Rivers DGP	Australia
	%	%
General practitioners	69.3	70.0
Local government council	0.0	16.6
Community health centre / worker	30.1	9.8
Public hospital	0.6	2.1
Aboriginal health service / worker	0.0	0.9
Other*	0.0	0.6
Total: Per cent	**100.0**	**100.0**
Number	**25,529**	**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

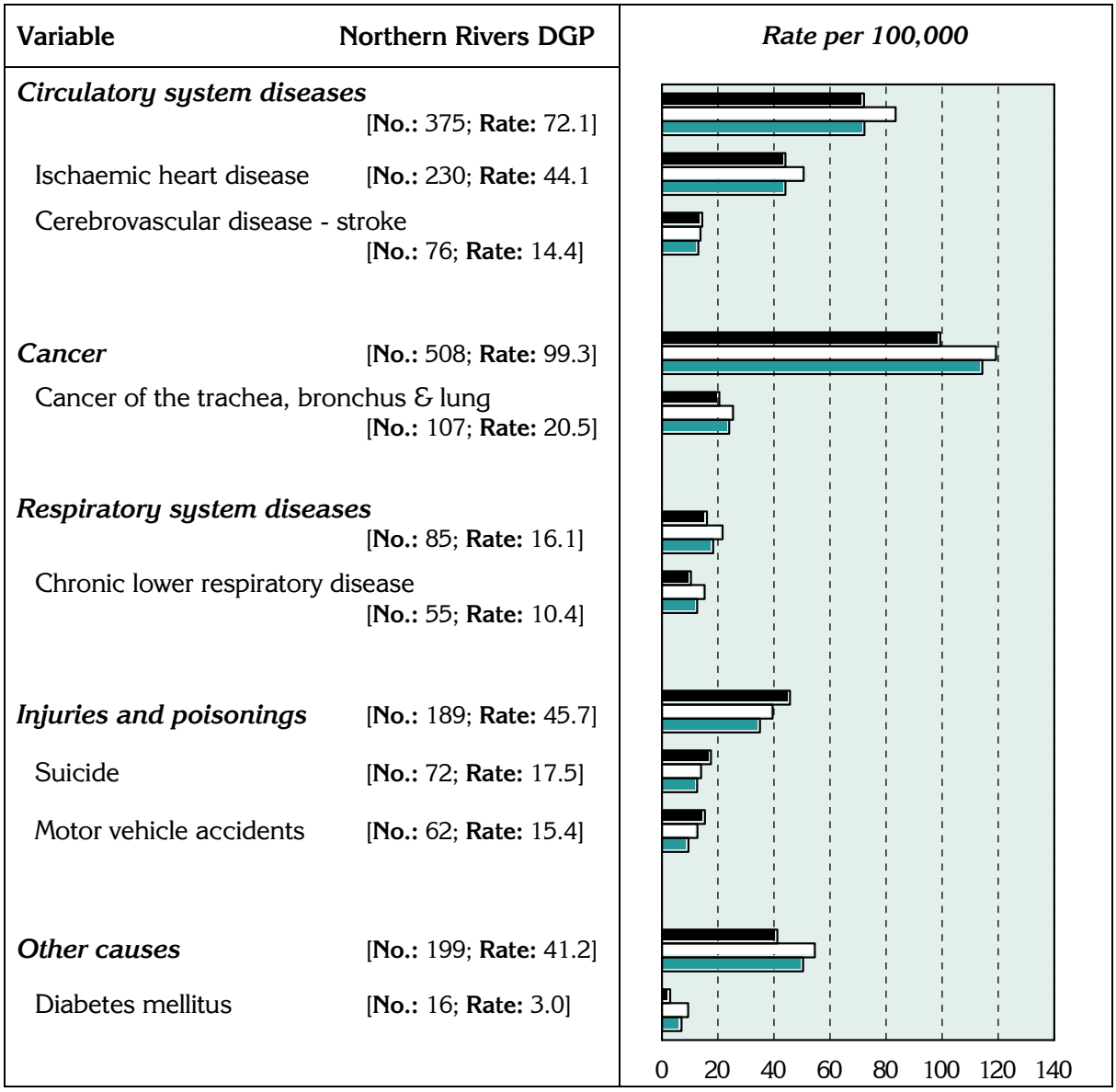
Deaths at ages below 75 years are used as an indicator of health status, as they largely reflect premature deaths, given the current levels of life expectancy in Australia.

The 'all causes' death rate in the Division at ages 0 to 74 years (272.4 deaths per 100,000 population) is lower than for country New South Wales (318.3), 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 New South Wales and Australia as a whole, are cancer and diseases of the circulatory system (Figure 4). With the exception of cerebrovascular disease (stroke), and injuries and poisonings, death rates in the Division for all the major conditions and selected causes were lower than those for country New South Wales. The Division's death rates were lower than Australia for cancer, respiratory diseases and other causes, but higher for injuries and poisonings. The data on which the following chart is based are in Table 15.

Figure 4: Deaths before 75 years of age by major condition group and selected cause, Northern Rivers DGP‡, country New South Wales 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

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 17-18. The data on which the following charts are based are in Table 16.

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 exception of musculoskeletal system diseases and osteoporosis (females), more people in Northern Rivers DGP reported having any of the selected chronic conditions than in Australia as a whole Figure 5; that is, the prevalence rates per 1,000 population were higher. The generally higher rates are consistent with the socioeconomic status profile of the population of the Division.

Prevalence estimates: self-reported health‡

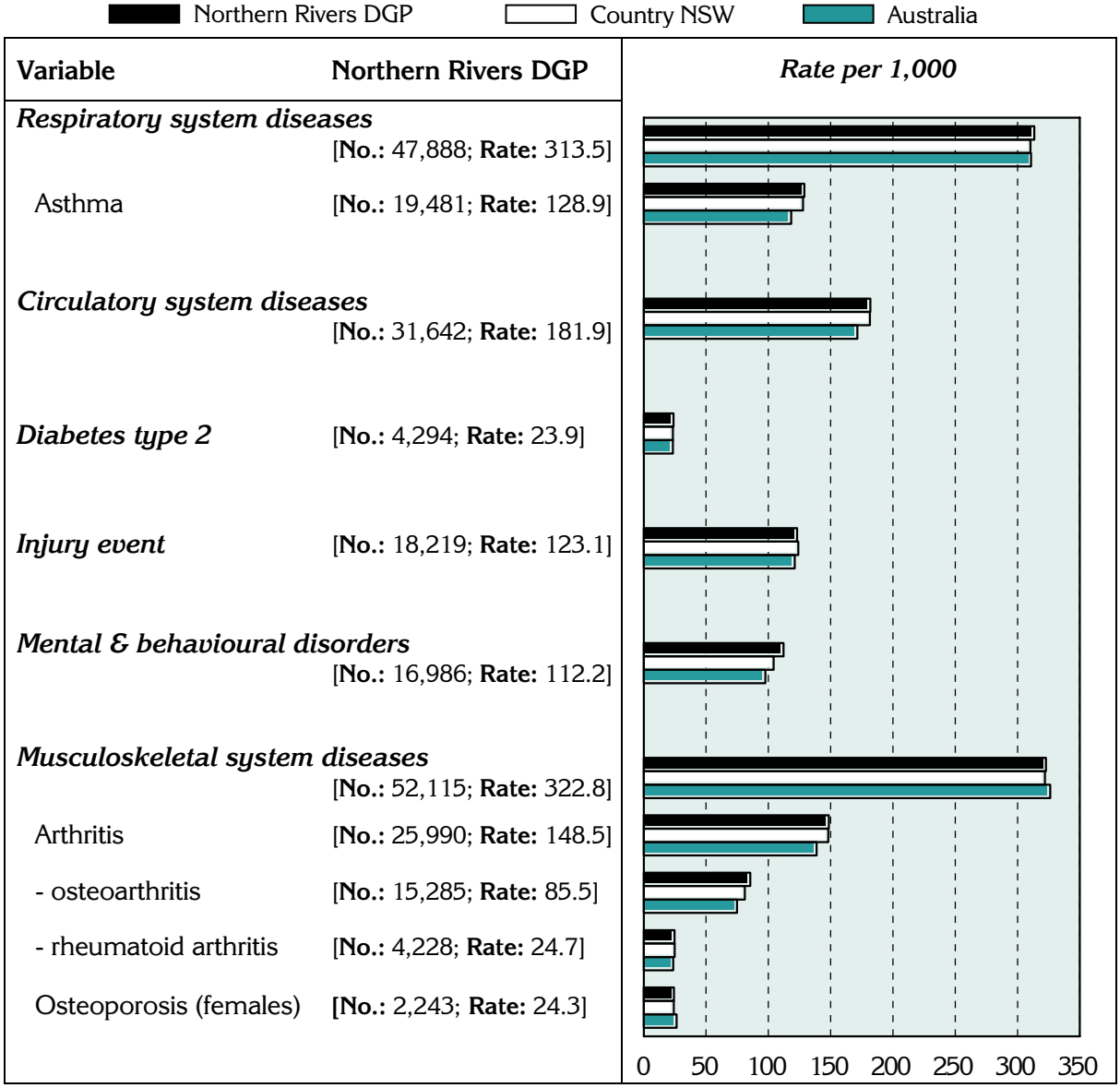
The NHS includes two measures of self-reported health. One is the Kessler Psychological Distress Scale-10 items (K-10). This is a scale of non-specific psychological distress based on 10 questions about negative emotional states in the four weeks prior to interview, asked of respondents 18 years and 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 notably more people with very high psychological distress levels as measured by the K-10 (Figure 6) compared to Australia. The proportion of the population aged 15 years and over estimated to have reported their health as 'fair' or 'poor' is also above the national average.

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

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

Indirectly age standardised rate per 1,000 population

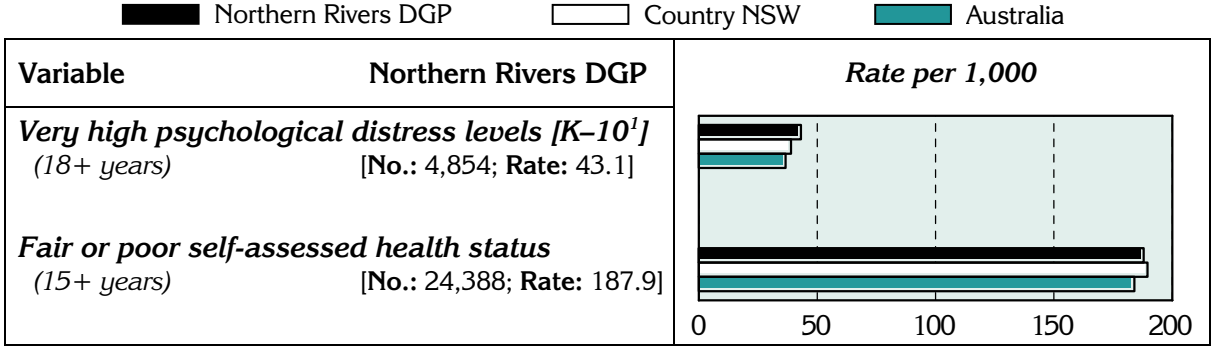


* 'No.' is a weighted estimate of the number of people in Northern Rivers DGP reporting each chronic condition and is derived from synthetic predictions from the 2001 NHS

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

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

Indirectly age standardised rate per 1,000 population



* 'No.' is a weighted estimate of the number of people in Northern Rivers 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

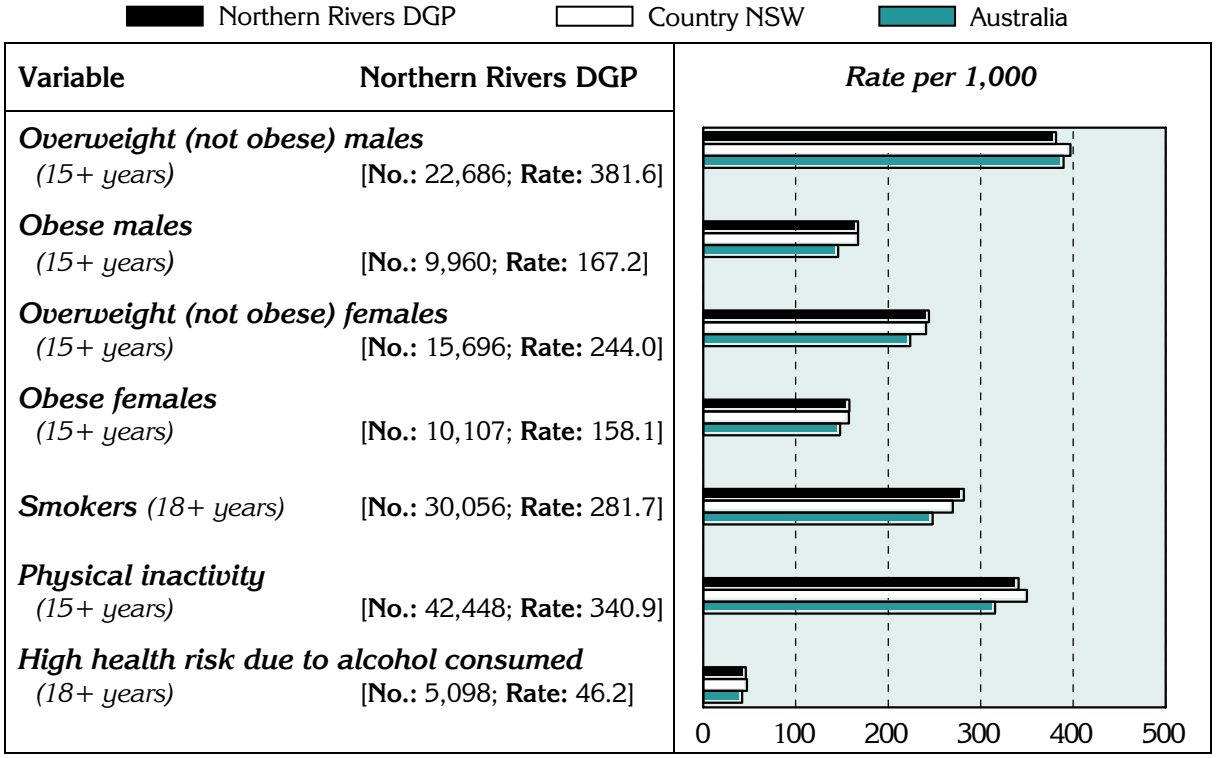
Data Sources: see 'Data sources and limitations' at end of report

Prevalence estimates: risk factors‡

The higher rates in the Division (when compared to the Australian population) for all of the selected risk factors, except overweight in males (Figure 7), are consistent with the socioeconomic status profile of the Division.

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

Indirectly age standardised rate per 1,000 population



* 'No.' is a weighted estimate of the number of people in Northern Rivers 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

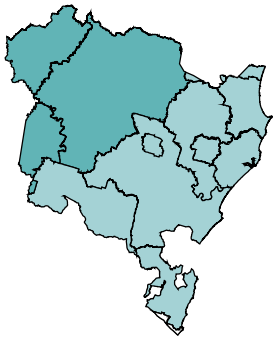
The following maps provide details of the geographic distribution, at the SLA level, of the estimated prevalence of chronic disease (Map 2), self-reported health (Map 3) and risk factors associated with chronic disease (Map 4).

In the following maps, users should note that the estimates shown for part SLAs in the Division (see Table 14), page 20, 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.

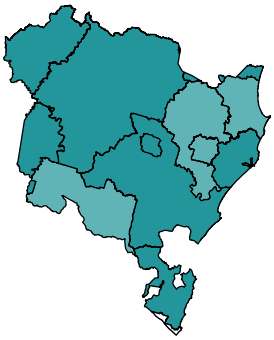
Data Sources: see 'Data sources and limitations' at end of report

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

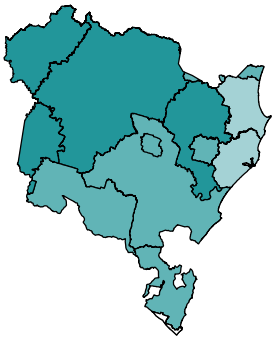
Respiratory system diseases



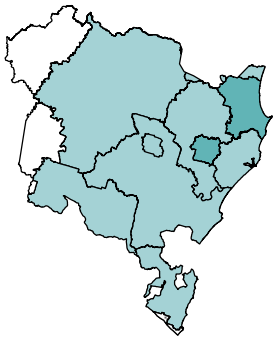
***Respiratory system diseases:* Asthma**



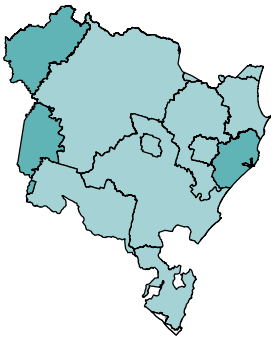
Circulatory system diseases



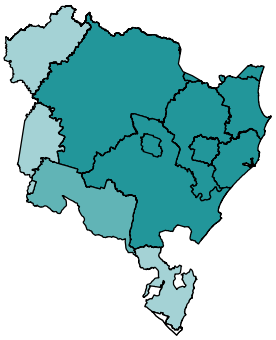
Diabetes Type 2



Injury event

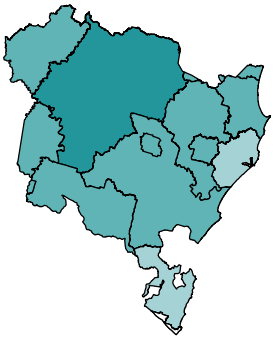


Mental & behavioural disorders

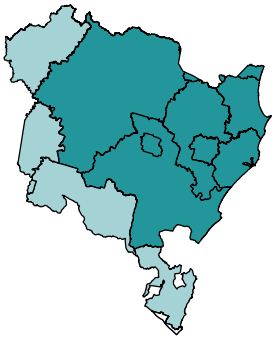


Musculoskeletal system diseases

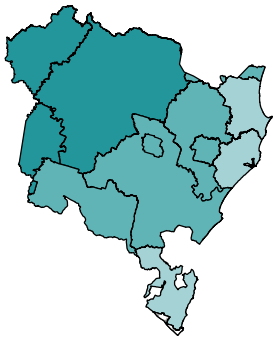
***Musculoskeletal system diseases:* Arthritis**



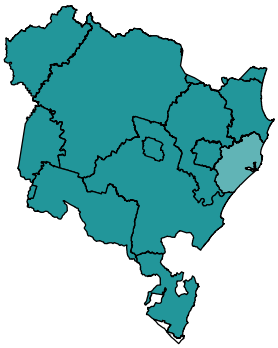
***Arthritis:* Osteoarthritis**



***Arthritis:* Rheumatoid arthritis**



Osteoporosis (females)



Per cent difference from Australian average

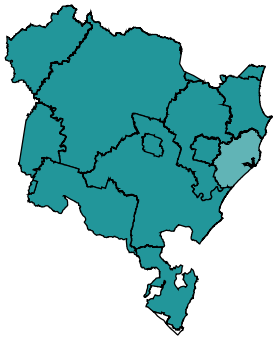
- *10% or more above*
- *5% to less than 10% above*
- *within 5% of the average*
- *5% to less than 10% below*
- *10% or more below*
- *not mapped#*

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

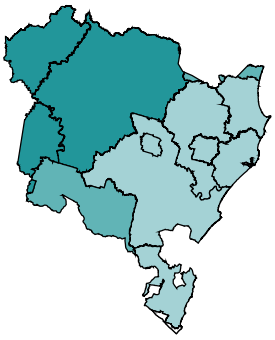
\# *Data not mapped: see Notes on the data.*

Map 3: Estimates* of measures of self-reported health by SLA, Northern Rivers 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#*

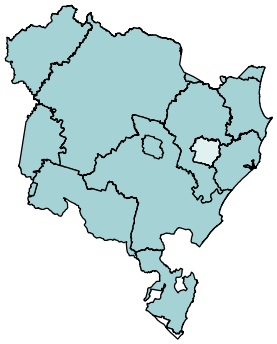
* *The estimates are synthetic predictions of the prevalence of these conditions: see Notes on the data.*

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

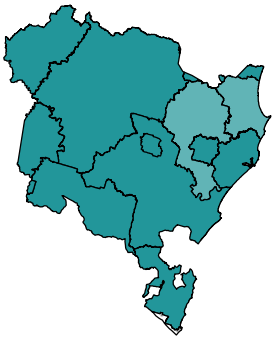
[1] **Kessler 10**

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

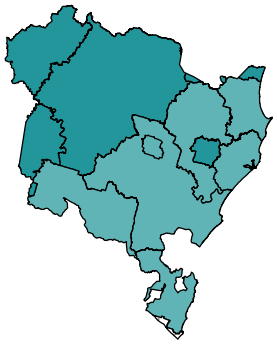
Overweight (not obese) males (15+ years)



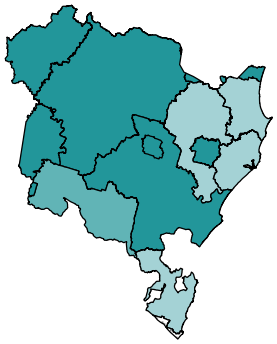
Obese males (15+ years)



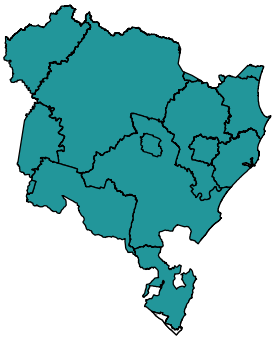
Overweight (not obese) females (15+ years)



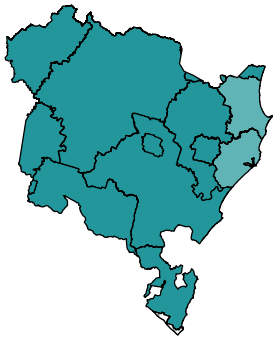
Obese females (15+ years)



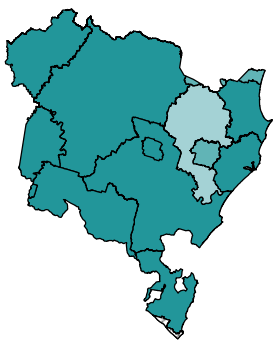
Smokers (18+ years)



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.*

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

Notes on the data

Data sources and limitations

General

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

Data sources

Table 10 details the data sources for the material presented in this profile.

Table 10: 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; Figure 3	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 12	ABS SEIFA package, Census 2001
Tables 5, 6 and 7	For all indicators, data were from the ABS Population Census 2001 (unpublished), except for the data in *Table 5* and the *Total population* 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 (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 9	Australian Childhood Immunisation Register, Health Insurance Commission, 2003/04 (unpublished)
Premature mortality	
Figure 4; Table 15	ABS Deaths, 2000 to 2002
Chronic diseases and associated risk factors[4]	
Figures 5, 6 and 7; Maps 2, 3 and 4; Table 16	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 11 includes notes relevant to this data.

Table 11: Notes on estimates of chronic diseases and associated risk factors

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

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

Methods

Synthetic estimates

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

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

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

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

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

Premature deaths

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

Data converters and mapping

Conversion to Division of data available by postcode

The allocation of postcodes to Divisions was undertaken using information from the Department of Health and Ageing's web site, which shows the proportion of a postcode in a Division (Table 13).

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 14.

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 (labeled 'Disadvantage' in Table 12) 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 Northern Rivers DGP are shown in Table 12.

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 12: SEIFA scores by SLA, Northern Rivers DGP, 2001

SLA code	SLA name (& per cent of SLA in the Division)		Index score			
			Disadvantage	Advantage	Economic Resources	Education & Occupation
10250	Ballina	(100.0)	987	967	946	991
11350	Byron	(94.5)	962	969	935	1017
12250	Copmanhurst	(7.9)	963	915	894	942
14550	Kyogle	(99.9)	934	897	868	931
14851	Lismore - Part A	(100.0)	949	946	925	978
14854	Lismore - Part B	(100.0)	978	962	909	1010
15000	Maclean	(91.6)	961	908	884	938
16611	Richmond Valley - Casino	(98.0)	894	876	896	880
16612	Richmond Valley - Balance	(99.4)	940	893	887	914
17400	Tenterfield	(21.7)	937	897	884	922
17552	Tweed - Part B	(4.9)	951	922	905	948

[*] **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 Northern Rivers DGP

Northern Rivers DGP covers 11,317 square kilometres based on 2001 SLA data.

Postcodes in the Division (as per the Department of Health and Ageing web site) are shown in Table 13.

Table 13: Postcodes in Northern Rivers 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*
2463	100	2472	100	2478	100
2464	100	2473	100	2479	100
2465	100	2474	100	2480	100
2466	100	2475	100	2481	100
2469	100	2476	100	2482	100
2470	98	2477	100	2483	80
2471	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 Richmond Valley is comprised of two SLAs, Casino (a majority of which is in the Division) and Balance (all in the Division). These SLAs, and all or parts of the other SLAs listed in Table 14, comprise the Division.

Table 14: SLAs in Northern Rivers 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
10250	Ballina	100.0	39,484
11350	Byron	94.5	28,986
12250	Copmanhurst	7.9	365
14550	Kyogle	99.9	9,601
14851	Lismore - Part A	100.0	30,906
14854	Lismore - Part B	100.0	12,256
15000	Maclean	91.6	16,477
16611	Richmond Valley - Casino	98.0	10,168
16612	Richmond Valley - Balance	99.4	10,182
17400	Tenterfield	21.7	1,473
17552	Tweed - Part B	4.9	1,410

* **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 4 to illustrate the rates of premature mortality in the Division are shown below in Table 15.

Table 15: Rates of premature mortality, Northern Rivers DGP‡, country New South Wales and Australia, 2000-02*

Indirectly age standardised rate per 100,000 population

Variable	Northern Rivers DGP‡		Country New South Wales		Australia	
	No.	Rate	No.	Rate	No.	Rate
Circulatory system diseases	375	72.1	6,468	83.4	38,357	72.3
Ischaemic heart disease	230	44.1	3,929	50.6	23,364	44.1
Cerebrovascular disease – stroke	76	14.4	1,080	13.8	6,920	13.0
Cancer	508	99.3	9,113	119.2	60,603	114.3
Cancer of the trachea, bronchus & lung	107	20.5	1,980	25.4	12,715	24.0
Respiratory system diseases	85	16.1	1,700	21.7	9,726	18.3
Chronic lower respiratory disease	55	10.4	1,209	15.3	6,657	12.6
Injuries and poisonings	189	45.7	2,541	39.5	18,573	35.0
Suicide	72	17.5	888	14.0	6,706	12.6
Motor vehicle accidents	62	15.4	809	12.7	5,014	9.5
Other causes	199	41.2	3,998	54.6	26,735	50.4
Diabetes mellitus	16	3.0	442	9.4	3,734	7.0

* **'No.' is the total number of deaths for the 2000-02 period; 'Rate' is an annual rate, based on the 3 year average**
‡ **See note under 'Data converters and mapping' re calculation of Division totals**

The rates used to illustrate the prevalence estimates of chronic disease (Figure 5), measures of self-reported health (Figure 6), and selected risk factors (Figure 7), are shown in Table 16 below.

Table 16: Estimates of chronic disease and associated risk factors, Northern Rivers DGP‡, country New South Wales and Australia, 2001

Indirectly age standardised rate per 1,000 population

Variable	Northern Rivers DGP‡	Country NSW	Australia
Chronic disease and injury (Figure 5)			
Respiratory system diseases	313.5	310.4	310.8
Asthma	128.9	127.9	118.3
Circulatory system diseases	181.9	181.6	171.5
Diabetes type 2	23.9	23.4	23.4
Injury event	123.1	124.0	121.2
Mental & behavioural disorders	112.2	104.3	97.6
Musculoskeletal system diseases	322.8	322.0	326.2
Arthritis	148.5	148.1	138.8
- Osteoarthritis	85.5	81.1	74.9
- Rheumatoid arthritis	24.7	24.8	23.6
Osteoporosis (females)	24.3	24.1	26.4
Measures of self-reported health (Figure 6)			
Very high psychological distress levels (18+ years)	43.1	38.9	36.6
Fair or poor self-assessed health status (15+ years)	187.9	189.5	184.0
Risk factors (Figure 7)			
Overweight (not obese) males (15+ years)	381.6	397.0	389.7
Obese males (15+ years)	167.2	167.5	145.9
Overweight (not obese) females (15+ years)	244.0	240.9	223.9
Obese females (15+ years)	158.1	157.5	148.0
Smokers (18+ years)	281.7	269.8	248.0
Physical inactivity (15+ years)	340.9	349.9	315.5
High health risk due to alcohol consumed (18+ years)	46.2	47.4	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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