# Population health profile of the

# Top End

# Division of General Practice

PHIDU

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

# Population health profile
## of the *Top End Division of General Practice*

### Introduction

This profile has been designed to provide a description of the population of the Top End 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 22.

### 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. Central Australian DGP and Australia) and Aboriginal and Torres Strait Islanders elsewhere in Australia. Specific topics covered for the Top End Division include:

- a socio-demographic profile (pages 3-7)

- 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 (Darwin only) (pages 10-14).

### Key indicators

| | | |
|---|---|---|
| **Location:** | Northern Territory | |
| **Division number:** | 801 | |
| **Population‡:** | **No.** | **%** |
| **Indigenous:** | **38,165** | |
| <25 | 21,608 | 56.6% |
| 65+ | 891 | 2.3% |
| **Non-Indigenous:** | **114,011** | |
| <25 | 40,856 | 35.8% |
| 65+ | 4,722 | 4.1% |

**Disadvantage score[1]:** 958

**GP services per head of population:**

| | |
|---|---|
| Division‡ | 2.1 |
| Australia | 4.7 |

**Population per GP:**

| | |
|---|---|
| Division‡ | 2,191 |
| Australia | 1,403 |

**Premature death rate[2]:**

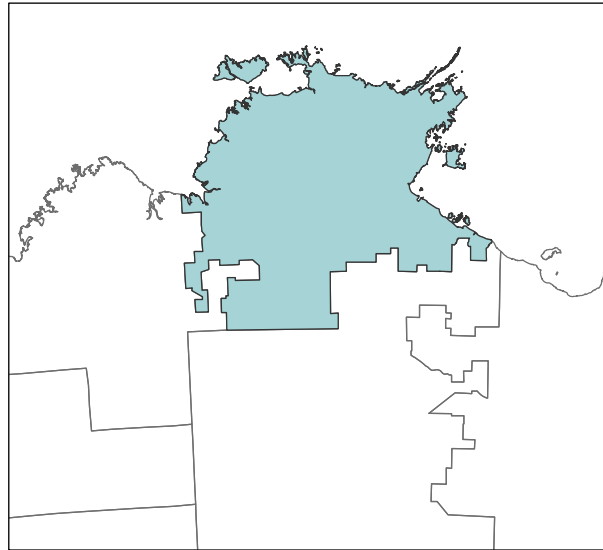| | |
|---|---|
| Division‡ | 580.6 |
| Australia | 290.4 |

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

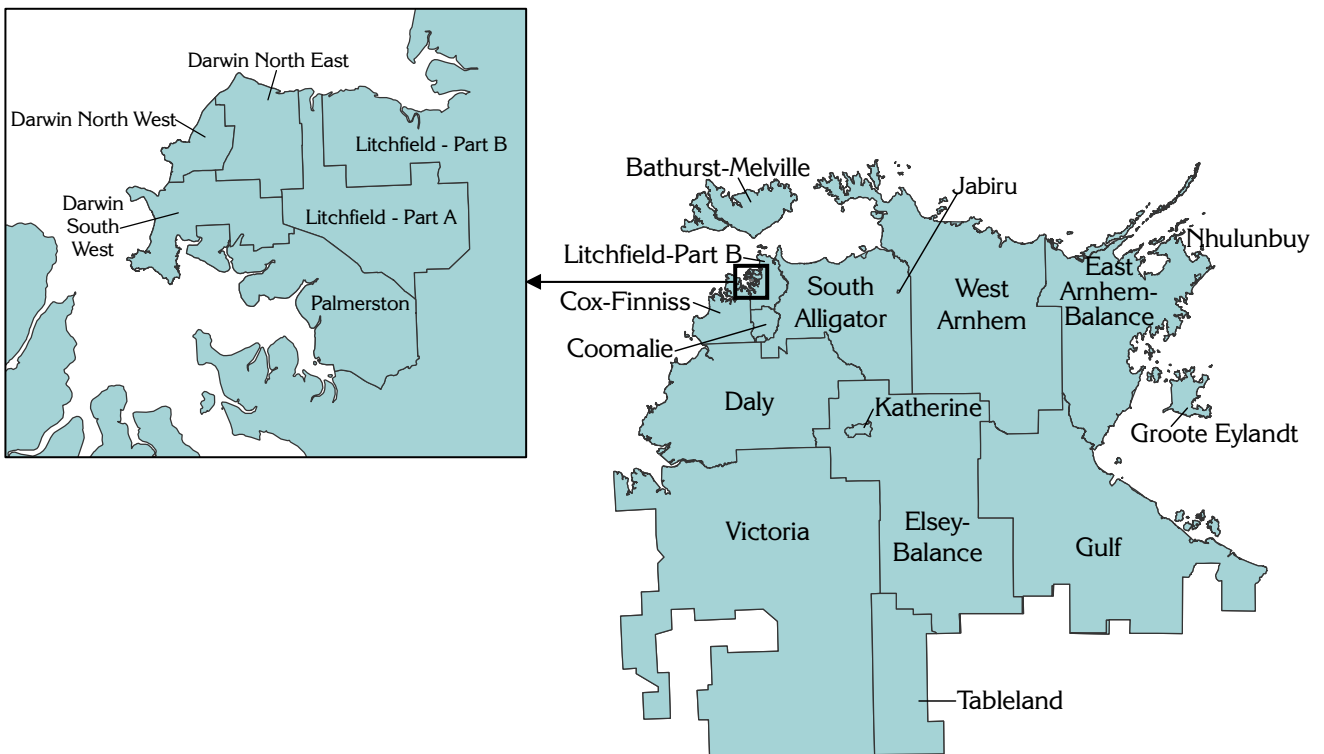[2] **Deaths at ages 0 to 74 years per 100,000 population**

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

# Top End Division of General Practice

*NT Divisions of General Practice*



*Top End DGP by SLA/SLA group*

# Socio-demographic profile

## Population

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

The Top End DGP had a population of 152,176 at the 2001 Census. Aboriginal and Torres Strait Islander people comprised a quarter (25.1%) of the population of the Division, and had a markedly younger age structure than for the non-Indigenous population in the Division. The bars in the chart for the 0 to 4 years age group clearly show the effect of high Indigenous birth rates in the Division; this gives the chart a triangular shape (Figure 1). The marked drop in the proportion of the Indigenous male population between each age group from 5 to 9 years suggests extremely high death rates (and perhaps some out-migration) are occurring from that group through to 19 years of age with lower, but still high, death rates at older ages.

The profile for the non-Indigenous population (shown by the shapes) is quite different and shows the impact, at younger ages, of a lower birth rate and, possibly, out-migration for schooling in the teenage years and further education and employment opportunities in the 20 to 24 year age group. The marked drop in the population at the oldest ages is suggestive of the non-Indigenous population moving out of the Division to retire in other parts of Australia.

### Figure 1: Population in Top End DGP‡, by Indigenous status, age and sex, 2001
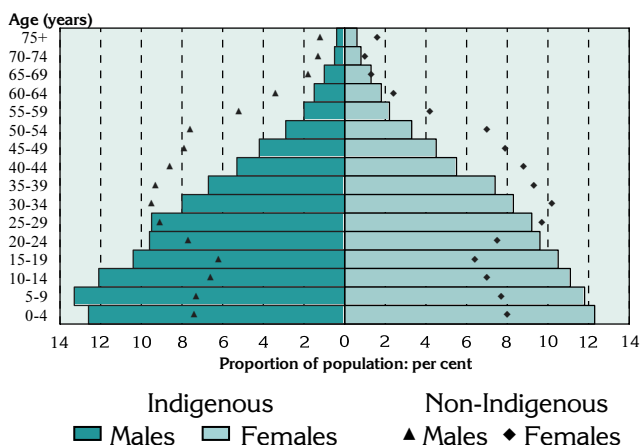


### Figure 2: Indigenous population in Top End DGP‡ and Australia, by age and sex, 2001
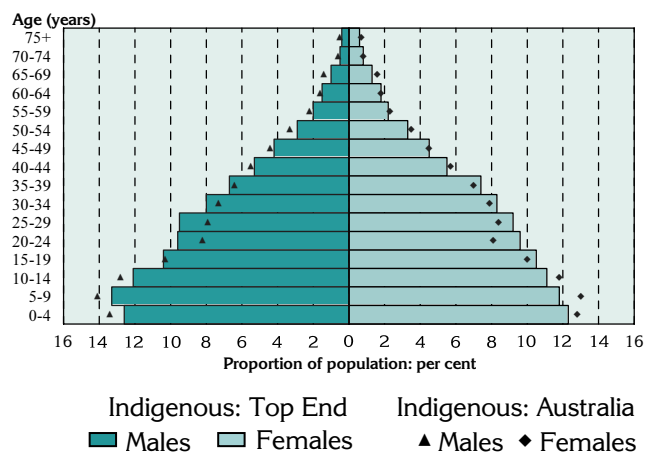


‡ **See note under 'Data converters and mapping' re calculation of Division totals**

The profile of the Indigenous population in the Division is similar to that for Indigenous people across Australia (Figure 2). The major differences are that the Division had:
- a lower proportion of male and female children aged 0 to 14 years;
- a higher proportion of males and females aged 20 to 39 years; and
- at older ages, fairly consistent proportions for both males and females.

Table 1 provides the data on which the charts in Figures 1 and 2 are based. The data highlight differences in the age distribution of the Indigenous and non-Indigenous populations.

### Table 1: Population by Indigenous status and age[*], Top End DGP‡ and Australia, 2001

| Age group (years) | Top End DGP‡ | | | | Australia | | | |
| | Indigenous | | Non-Indigenous | | Indigenous | | Non-Indigenous | |
| | No. | % | No. | % | No. | % | No. | % |
|---|---|---|---|---|---|---|---|---|
| 0-14 | 13,959 | 36.6 | 25,021 | 21.9 | 178,622 | 39.0 | 3,807,808 | 20.1 |
| 15-24 | 7,648 | 20.0 | 15,834 | 13.9 | 83,942 | 18.3 | 2,570,934 | 13.6 |
| 25-44 | 11,417 | 29.9 | 42,416 | 37.2 | 128,474 | 28.0 | 5,715,858 | 30.2 |
| 45-64 | 4,249 | 11.1 | 26,018 | 22.8 | 54,206 | 11.8 | 4,435,376 | 23.4 |
| 65-74 | 687 | 1.8 | 3,150 | 2.8 | 10,249 | 2.2 | 1,310,587 | 6.9 |
| 75+ | 204 | 0.5 | 1,572 | 1.4 | 2,768 | 0.6 | 1,111,844 | 5.9 |
| **Total** | **38,165** | **100.0** | **114,011** | **100.0** | **458,261** | **100.0** | **18,952,407** | **100.0** |

[*] Experimental estimates of Aboriginal and Torres Strait Islander people, ABS 2001
‡ See note under 'Data converters and mapping' re calculation of Division totals

At the 2001 Census, almost one-fifth (17.8%) of the Indigenous population in Top End DGP lived in the East Arnhem - Balance Statistical Local Area (SLA – see page 24), with 11.2% in West Arnhem SLA. The remainder of the SLAs within the Division comprised smaller proportions of the Indigenous population.

**Table 2: Population by Indigenous status[*], SLAs in Top End DGP[‡], 2001**

| Statistical Local Area | Indigenous | | Non-Indigenous | | Total | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| East Arnhem - Balance | 6,794 | 17.8 | 659 | 0.6 | 7,452 | 4.9 |
| West Arnhem | 4,271 | 11.2 | 402 | 0.4 | 4,673 | 3.1 |
| Palmerston[#] | 2,958 | 7.8 | 19,600 | 17.2 | 22,558 | 14.8 |
| Daly | 2,894 | 7.6 | 874 | 0.8 | 3,768 | 2.5 |
| Darwin North West[#] | 2,652 | 6.9 | 25,442 | 22.3 | 28,094 | 18.5 |
| Gulf | 2,383 | 6.2 | 545 | 0.5 | 2,927 | 1.9 |
| Bathurst-Melville | 2,287 | 6.0 | 171 | 0.1 | 2,458 | 1.6 |
| Victoria | 2,173 | 5.7 | 6,783 | 5.9 | 8,956 | 5.9 |
| Katherine | 2,164 | 5.7 | 18,796 | 16.5 | 20,960 | 13.8 |
| Darwin North East | 2,159 | 5.7 | 666 | 0.6 | 2,825 | 1.9 |
| Darwin South West[#] | 1,784 | 4.7 | 17,872 | 15.7 | 19,656 | 12.9 |
| Groote Eylandt | 1,711 | 4.5 | 941 | 0.8 | 2,652 | 1.7 |
| Elsey Balance | 1,321 | 3.5 | 730 | 0.6 | 2,051 | 1.3 |
| Other | 2,614 | 6.8 | 20,531 | 18.0 | 23,145 | 15.2 |
| **Total** | **38,165** | **100.0** | **114,011** | **100.0** | **152,176** | **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**
[#] **SLA group: see Table 15 for codes for the individual SLAs in this group**

At 30 June 2004, the Estimated Resident Population of the Division was 154,553.

## Socioeconomic status and Indigenous status

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

At the 2001 Census, 25.1% of the population of the Top End DGP was estimated to be of Aboriginal or Torres Strait Islander origin, much higher than the Australian average of 2.4% (Figure 3 and Table 3), and the third highest proportion of the Divisions (after Kimberley DGP, 47.3%, and Central Australian DGP, 40.7%). Of these, 15.8% reported poor proficiency in English (determined when Indigenous people reported in the Census speaking an Aboriginal or Torres Strait Islander language, and speaking English 'not well' or 'not at all'), lower than in Central Australian DGP (20.1%) but higher than in Australia as a whole (3.0%).

The proportion of Indigenous single parent families in the Division (23.8%) was similar to the Indigenous rate in the Central Australian DGP (23.3%) and more than twice that of the non-Indigenous population (11.4%). Just over one third (36.2%) of Indigenous 16 year olds in the Division were involved in full-time secondary school education, above the Indigenous participation rate for the Central Australian DGP (26.0%). The participation rate for the non-Indigenous population was substantially higher (76.4%).

The proportion of the Indigenous population who lived in dwellings rented from the State housing authority (16.6%) was higher than the Indigenous rate in Central Australian DGP (10.3%) and almost double that of the non-Indigenous population (8.7%). The proportion of households (Indigenous and non-Indigenous combined) in the Division receiving rent assistance from Centrelink (11.9%) was also higher than that for Central Australian DGP (7.6%).

A slightly larger proportion of the Indigenous population in Top End DGP reported using a computer at home (6.3%) compared to the Indigenous population in Central Australian DGP (3.8%). The rate of computer use by the non-Indigenous population was much higher (43.2%). Similarly, the rate of home Internet use by the Indigenous population (3.0%) was higher than the Indigenous rate for the Central Australian DGP (1.7%), and substantially lower than that for the non-Indigenous population (28.8%).

# Figure 3: Socio-demographic indicators by Indigenous status, Top End DGP‡, Central Australian DGP and Australia, 2001

*Note the different scales*
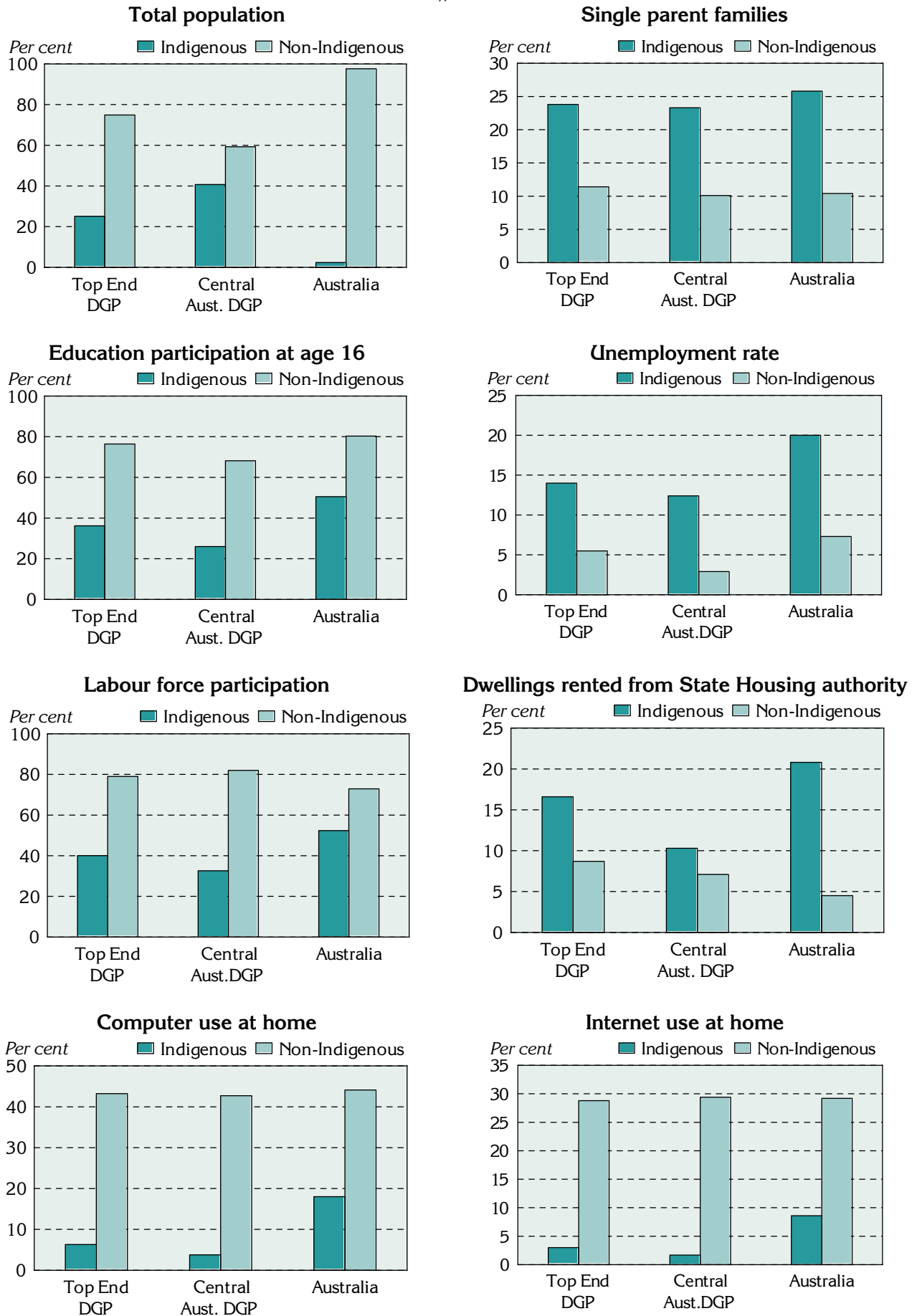


Note: The 'Total population' figure is based on the experimental estimates of Aboriginal and Torres Strait Islander people; the remaining figures are based on ABS Census data

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

**Table 3: Socio-demographic indicators, Top End DGP‡, Central Australian DGP and Australia, 2001***

| Indicator | Top End DGP‡ | | Central Australian DGP | | Australia | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Population | | | | | | |
| - Indigenous | 38,165 | 25.1 | 18,420 | 40.7 | 458,261 | 2.4 |
| - Non-Indigenous | 114,011 | 74.9 | 26,886 | 59.3 | 18,952,407 | 97.6 |
| Indigenous with poor proficiency in English[1] | 5,399 | 15.8 | 3,323 | 20.1 | 12,208 | 3.0 |
| Single parent families | | | | | | |
| - Indigenous | 1,742 | 23.8 | 808 | 23.3 | 26,487 | 25.7 |
| - Non-Indigenous | 3,034 | 11.4 | 597 | 10.1 | 503,382 | 10.4 |
| Full-time secondary school education at age 16 | | | | | | |
| - Indigenous | 280 | 36.2 | 101 | 26.0 | 5,997 | 50.5 |
| - Non-Indigenous | 971 | 76.4 | 204 | 68.2 | 327,055 | 80.3 |
| Dwellings rented from State housing authority | | | | | | |
| - Indigenous | 1,097 | 16.6 | 318 | 10.3 | 23,974 | 20.8 |
| - Non-Indigenous | 2,982 | 8.7 | 582 | 7.1 | 284,502 | 4.5 |
| People who used a computer at home | | | | | | |
| - Indigenous | 2,136 | 6.3 | 621 | 3.8 | 73,636 | 18.0 |
| - Non-Indigenous | 47,690 | 43.2 | 11,889 | 42.7 | 7,761,390 | 44.1 |
| People who used the Internet at home | | | | | | |
| - Indigenous | 1,023 | 3.0 | 273 | 1.7 | 35,384 | 8.6 |
| - Non-Indigenous | 31,793 | 28.8 | 8,173 | 29.4 | 5,135,445 | 29.2 |
| Households receiving rent assistance | 5,154 | 11.9 | 937 | 7.6 | 1,006,599 | 15.0 |

[1] Calculated on Indigenous persons who reported speaking an Aboriginal or Torres Strait Islander language and speaking English 'not well' or 'not at all'
‡ See note under 'Data converters and mapping' re calculation of Division totals

The Indigenous unemployment rate of 14.0% in Top End DGP was nearly three times that of the non-Indigenous population (5.5%) (Table 4), although it was lower than the Australian average for the Indigenous population (20.0%).  Taking into account the Indigenous population receiving payments as part of the Community Development Employment Projects (CDEP) scheme (effectively an Aboriginal work-for-the-dole scheme), the 'real' Indigenous unemployment rate was substantially higher (57.6%). This is consistent with the 'real' Indigenous unemployment rate of 57.1% for the Central Australian DGP, but markedly higher than for Australia as a whole (34.2%).

**Table 4: Unemployment and labour force participation, Top End DGP‡, Central Australian DGP and Australia, 2001**

| Labour force indicators | Top End DGP‡ | | Central Aust. DGP | | Australia | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Unemployment rate | | | | | | |
| - Indigenous | 1,160 | 14.0 | 414 | 12.4 | 24,930 | 20.0 |
| - Non-Indigenous | 3,522 | 5.5 | 495 | 2.9 | 624,337 | 7.3 |
| Labour force participation (incl. CDEP as employed) | | | | | | |
| - Indigenous | 8,297 | 40.1 | 3,330 | 32.6 | 124,517 | 52.4 |
| - Non-Indigenous | 64,118 | 79.0 | 16,917 | 82.0 | 8,609,525 | 72.9 |
| Female labour force participation (incl. CDEP as employed) | | | | | | |
| - Indigenous | 3,587 | 36.0 | 1,437 | 29.6 | 52,981 | 46.6 |
| - Non-Indigenous | 26,010 | 77.4 | 6,963 | 81.7 | 3,564,409 | 69.8 |
| Indigenous unemployment rate | | | | | | |
| - excluding CDEP | 1,160 | 14.0 | 414 | 12.4 | 24,930 | 20.0 |
| - CDEP | 3,620 | 43.6 | 1,487 | 44.7 | 17,662 | 14.2 |
| - Total (including CDEP) | 4,780 | 57.6 | 1,901 | 57.1 | 42,592 | 34.2 |

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

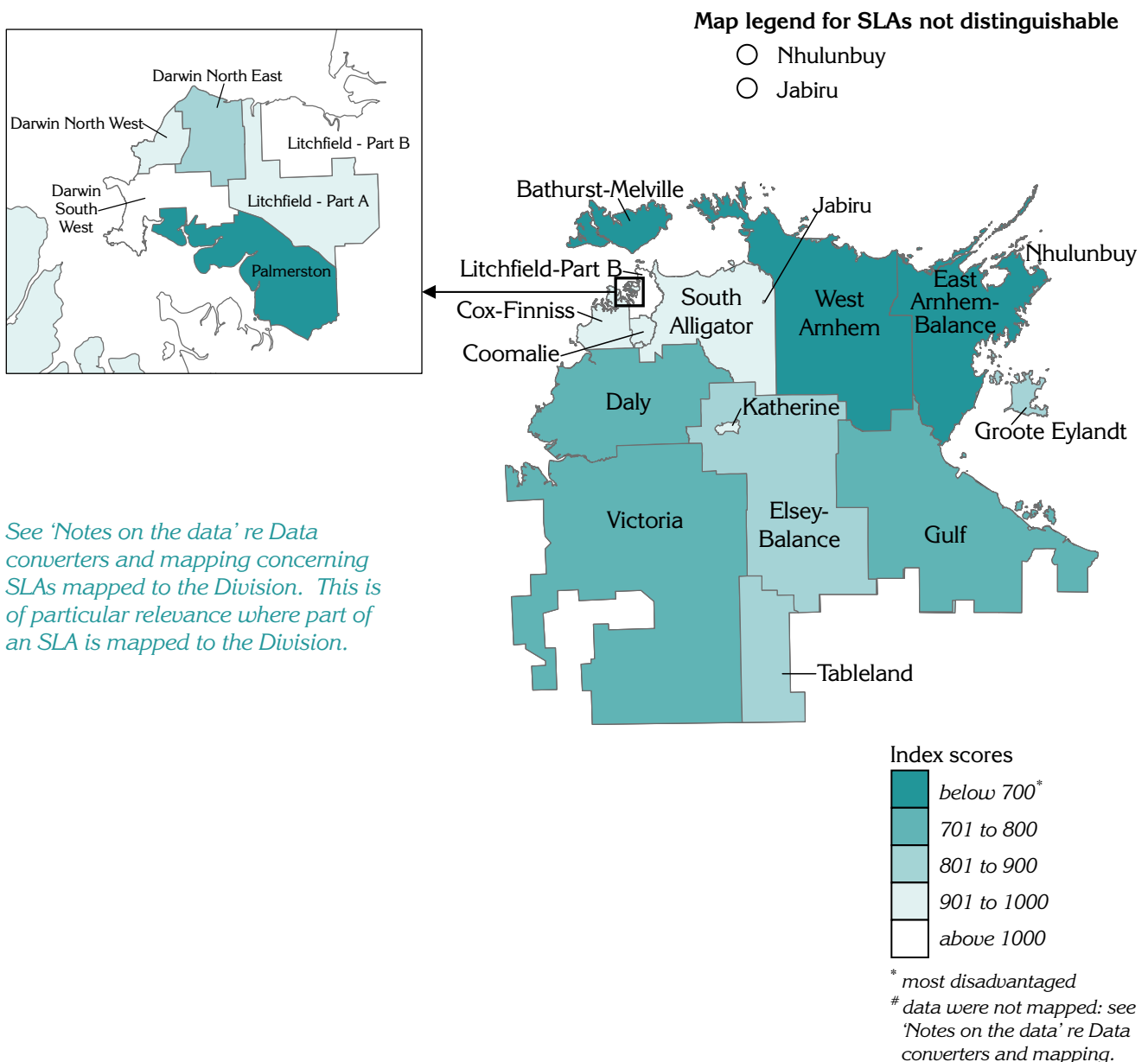Data Sources: see 'Data sources and limitations' at end of report

Labour force participation in the Division (in this case with those under the CDEP counted as employed) was half that of the non-Indigenous population (40.1%, compared to 79.0%) (Table 4). The female labour force participation rate was also lower (36.0%, compared to 77.4% for non-Indigenous). Both rates were above those for the Indigenous population in Central Australian DGP (32.6% and 29.6%, respectively).

## Summary of the socioeconomic ranking of the Top End 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 groups of SLAs in Top End DGP are shown in the supporting information in Table 13. SLAs are described in the supporting information, page 24

The Top End DGP area's SEIFA Index of Relative Socio-Economic Disadvantage (IRSD) score is 958, 4.2% below the average score for Australia (1000) but higher than that for Central Australian DGP (925); this highlights the relatively lower socioeconomic status profile of the Top End DGP population. There are, however, some substantial variations in the IRSD at the SLA level (Map 1).

### Map 1: Index of Relative Socio-Economic Disadvantage by SLA/SLA group, Top End DGP, 2001



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

# General medical practitioner (GP) supply

A total of 73.5 full-time equivalent (FTE) GPs and 76.6 full-workload equivalent (FWE[1]) GPs worked in the Division over 2002 (Table 5). Of the FWE GPs, 39.6% were female, and 33.9% were over 55 years of age (similar to the rates of 39.5% and 30.5%, respectively, for the Northern Territory).

The rates of population per FTE varied, depending on the population measure used, from a high of 2,091 people per GP (calculated on the average Estimated Resident Population (ERP) as at 30 June 2003 and 2004), to a low of 1,935 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 GP were lower, ranging from 1,858 (calculated on the URP) to 2,008 (calculated on the ERP). When calculated on the estimated day-time population, the rates of population in the Division were 3.0% below those calculated on the URP.

Based on the ERP, the rates of population per GP in Top End DGP differed little from the rates for the Northern Territory, indicating a similar level of provision of GP services in the Division. However, the Division's rates were substantially higher than those for Australia, indicating a much lower level of provision of GP services compared to the national average.

**Table 5: Population per GP in Top End DGP, Northern Territory and Australia, 2002**

| Population measure | Population | GPs | | Population per GP | |
|---|---|---|---|---|---|
| | | FTE | FWE | FTE | FWE |
| **Top End DGP** | | | | | |
| Census count (adjusted)[*] | 153,379 | 73.5 | 76.6 | 2,086 | 2,003 |
| Usual Resident Population (URP) (adjusted)[*] | 142,251 | .. | .. | 1,935 | 1,858 |
| Estimated Resident Population (ERP) | 153,750 | .. | .. | 2,091 | 2,008 |
| Day-time population (estimated on URP)[*‡] | 137,997 | .. | .. | 1,877 | 1,802 |
| **Northern Territory** (ERP) | 199,229 | 95 | 98 | 2,097 | 2,033 |
| **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 92.7% of children in the Division in 2002 were fully immunised at age one, 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. Over three quarters (80.8%) of immunisations were provided at a community health centre or by a community health worker, with a further 6.8% at an Aboriginal health service or by an Aboriginal health worker, and a similar proportion (6.5%) at a public hospital. Only 3.5% of children who were immunised were immunised by a general practitioner (compared to 70.0% for Australia).

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

| Provider | Top End DGP | Australia |
|---|---|---|
| | % | % |
| General practitioner | 3.5 | 70.0 |
| Local government council | 0.0 | 16.6 |
| Community health centre/ worker | 80.8 | 9.8 |
| Public hospital | 6.5 | 2.1 |
| Aboriginal health service/ worker | 6.8 | 0.9 |
| Other[*] | 2.5 | 0.6 |
| **Total: Per cent** | **100.0** | **100.0** |
| **Number** | **54,334** | **3,843,610** |

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

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[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

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

# 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 (438.1 deaths per 100,000 population) is substantially above the rate for Australia (290.4), but substantially below the rate for Central Australian DGP (587.5): 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 Central Australian and Australia as a whole, are cancer and diseases of the circulatory system: diseases of the respiratory system have the third highest rate in the Division (Figure 4).  Death rates in the Division for the major conditions and causes shown were higher than those for Australia as a whole.  Death rates in the Division were lower than for the Central Australian DGP with the exception of cancer, cancer of the trachea, bronchus and lung (both higher) and suicide (the same).

The data on which the following chart is based are in Table 16.

**Figure 4: Deaths before 75 years of age, by major condition group and selected cause, Top End DGP‡, Central Australian DGP, and Australia, 2000-02**[*]

*Indirectly age standardised rate per 100,000 population*
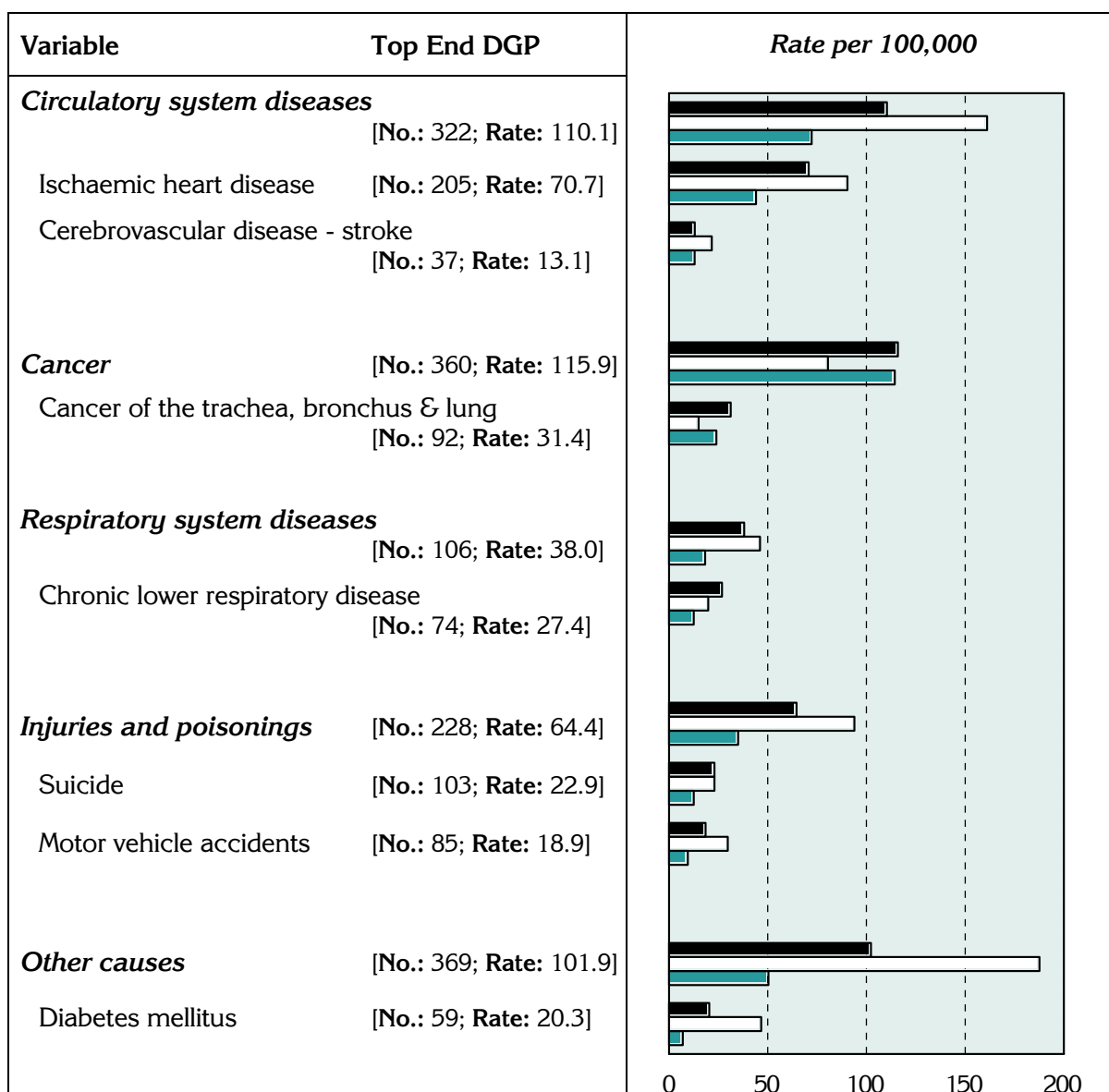


[*] 'No.' is the total number of deaths for the 2000-02 period; 'Rate' is an annual rate, based on the 3 year average
‡ See note under 'Data converters and mapping' re calculation of Division totals

# Chronic diseases and risk factors: Darwin (part of Top End DGP)

*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 (Map 2) and risk factors (Map 4), and two summary measures of health (Map 3), are shown for the SLAs in Darwin Statistical Division‡ (SD) only. The estimates have not been made for the whole Division as only the SLAs mapped were included in the 2001 National Health Survey. Note that the estimates have been predicted from self-reported data, and are not based on clinical records or physical measures. The process by which the estimates have been made, and details of their limitations, are described in the *Notes* section, pages 20-21. The data on which the following charts are based are in Table 17.

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, relatively fewer people in Darwin SD 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 lower.

## Prevalence estimates: self-reported health‡

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

The population of Darwin SD aged 18 years and over is estimated to have notably fewer people with very high psychological distress levels, as measured by the K–10, than in Australia as a whole (Figure 6). The proportion of the population aged 15 years and over estimated to have reported their health as 'fair' or 'poor' is also below the national level.

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

## Figure 5: Estimates[*] of chronic disease and injury, Darwin SD‡ and Australia, 2001

*Indirectly age standardised rate per 1,000 population*

■ Darwin SD   ■ Australia

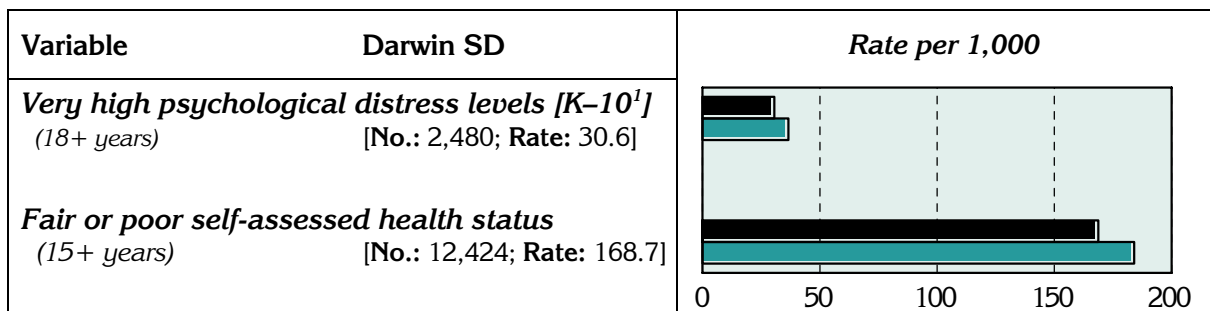| Variable | Darwin SD | Rate per 1,000 |
|---|---|---|
| *Respiratory system diseases* | [**No.:** 30,186; **Rate:** 281.3] | |
| Asthma | [**No.:** 11,041; **Rate:** 100.8] | |
| *Circulatory system diseases* | [**No.:** 13,134; **Rate:** 158.1] | |
| *Diabetes type 2* | [**No.:** 1,440; **Rate:** 18.9] | |
| *Injury event* | [**No.:** 12,743 **Rate:** 113.1] | |
| *Mental & behavioural disorders* | [**No.:** 8,188; **Rate:** 74.8] | |
| *Musculoskeletal system diseases* | [**No.:** 31,541; **Rate:** 324.4] | |
| Arthritis | [**No.:** 9,855; **Rate:** 120.2] | |
| - osteoarthritis | [**No.:** 3,804; **Rate:** 49.4] | |
| - rheumatoid arthritis | [**No.:** 1,762; **Rate:** 20.6] | |
| Osteoporosis (females) | [**No.:** 549; **Rate:** 18.3] | |



0  50  100  150  200  250  300  350
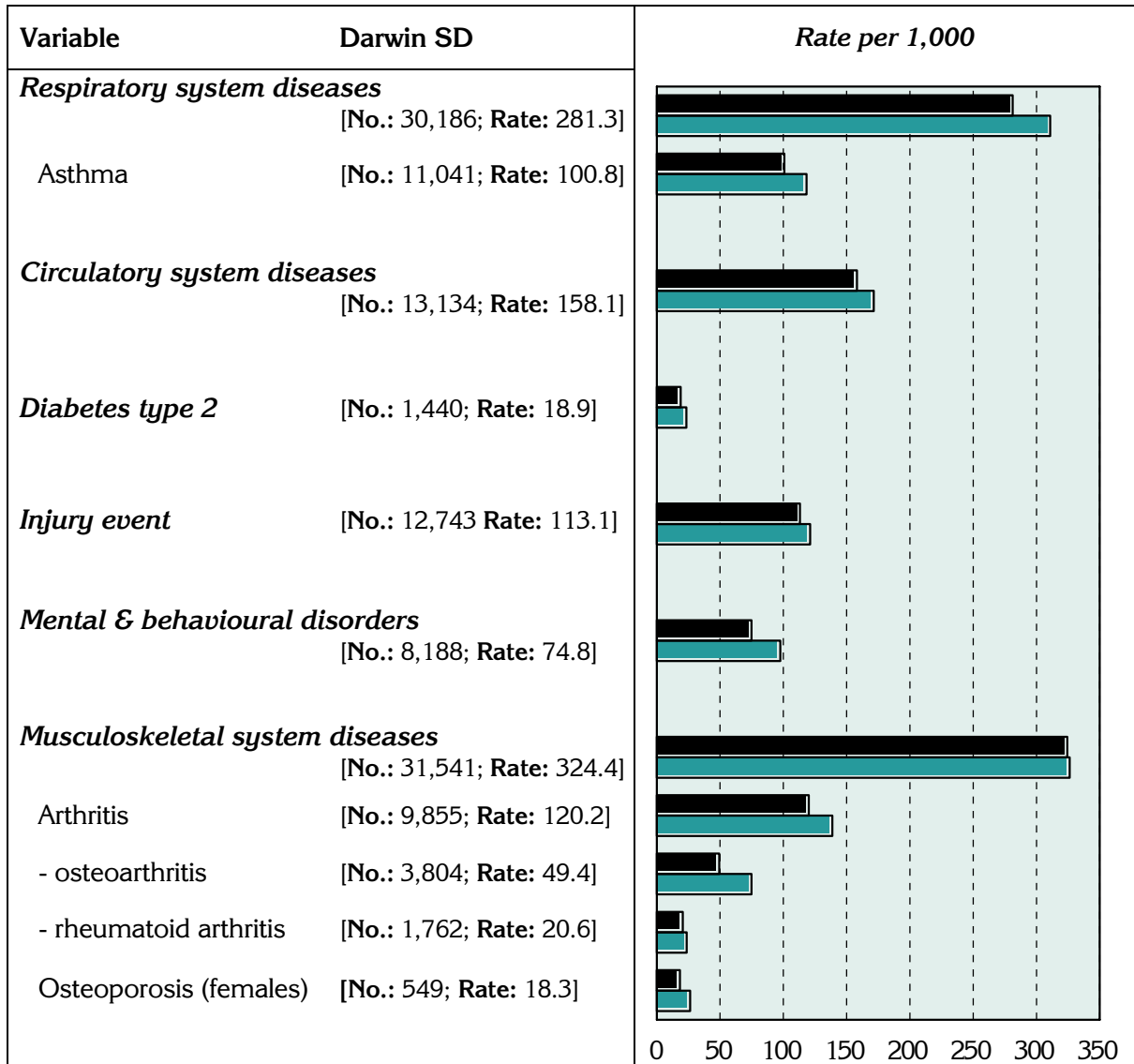
[*] 'No.' is a weighted estimate of the number of people in the Darwin Statistical Division reporting each chronic condition and is derived from synthetic predictions from the 2001 NHS
‡ See note under 'Data converters and mapping' re calculation of Statistical Division totals

## Figure 6: Estimates[*] of measures of self-reported health, Darwin SD‡ and Australia, 2001

*Indirectly age standardised rate per 1,000 population*

■ Darwin SD   ■ Australia

| Variable | Darwin SD | Rate per 1,000 |
|---|---|---|
| *Very high psychological distress levels [K–10[1]]* *(18+ years)* | [**No.:** 2,480; **Rate:** 30.6] | |
| *Fair or poor self-assessed health status* *(15+ years)* | [**No.:** 12,424; **Rate:** 168.7] | |



0  50  100  150  200

[*] 'No.' is a weighted estimate of the number of people in the Darwin Statistical Division reporting under these measures and is derived from synthetic predictions from the 2001 NHS.
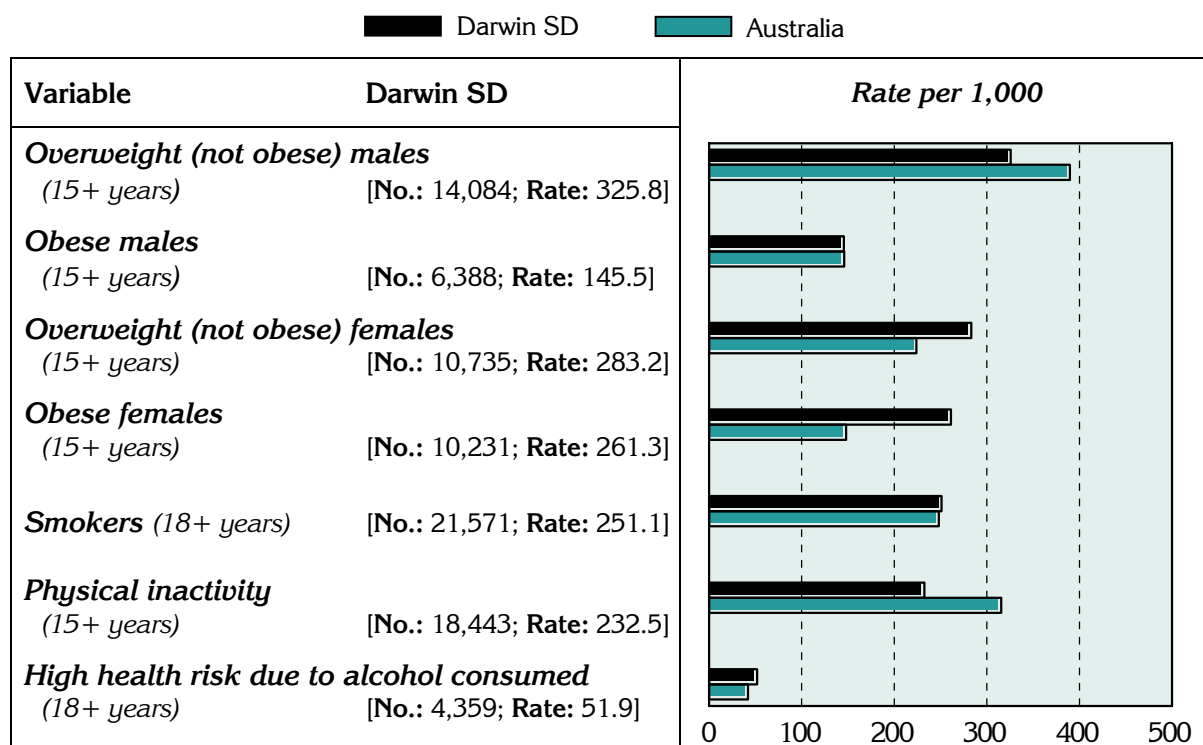[1] Kessler 10
‡ See note under 'Data converters and mapping' re calculation of Statistical Division totals

## Prevalence estimates: risk factors‡

The estimated rates for obesity and high-risk alcohol consumption in Darwin Statistical Division were higher than the rates for Australia (Figure 7). The estimated rates for overweight (not obese) and smoking were similar to those for Australia, and the rate for lack of exercise was notably lower than the national rate.

**Figure 7: Estimates* of selected risk factors, Darwin SD‡ and Australia, 2001**

*Indirectly age standardised rate per 1,000 population*



* 'No.' is a weighted estimate of the number of people in the Darwin Statistical Division 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 Statistical Division totals

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

**Map 2: Estimates\* of chronic disease and injury by SLA/SLA group, Darwin SD, 2001**
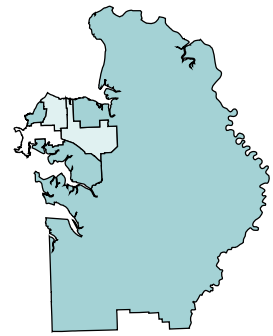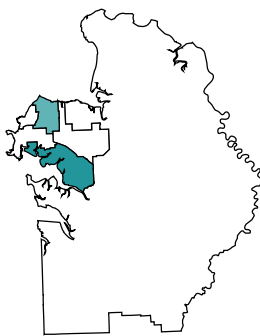
### Respiratory system diseases
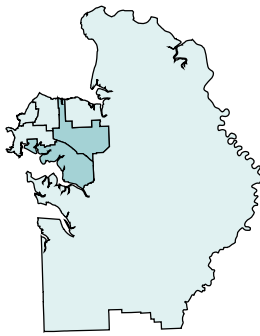
### *Respiratory system diseases:* Asthma
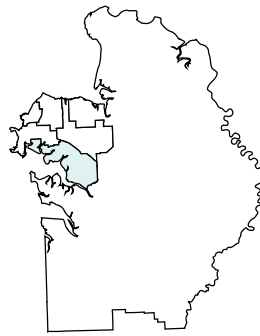
### Circulatory system diseases

### Diabetes type 2

### Injury event
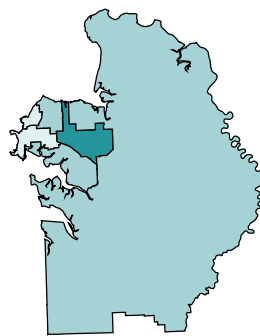
### Mental & behavioural disorders
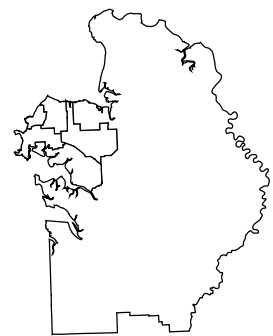
### Musculoskeletal system diseases
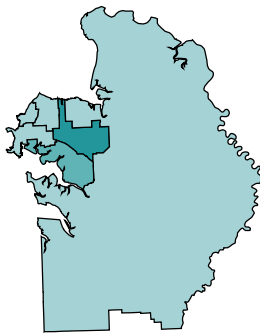
### *Musculoskeletal system diseases:* Arthritis
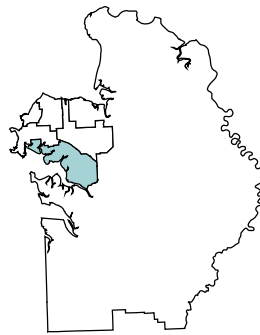
### *Arthritis:* Osteoarthritis
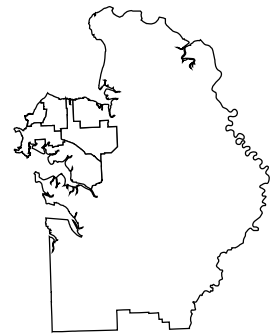
### *Arthritis:* Rheumatoid arthritis
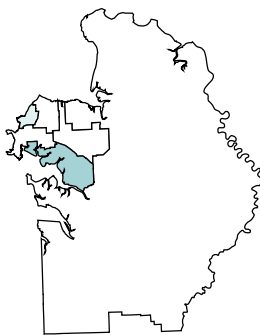
### Osteoporosis (females)
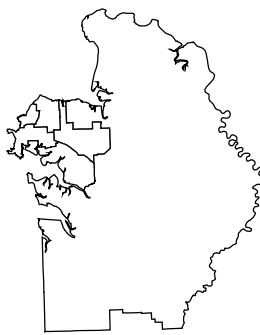
Per cent difference from Australian average
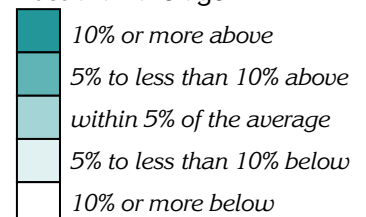
- *10% or more above*
- *5% to less than 10% above*
- *within 5% of the average*
- *5% to less than 10% below*
- *10% or more below*

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

## Map 3: Estimates* of measures of self-reported health by SLA/SLA group, Darwin SD, 2001

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



[1] Kessler 10

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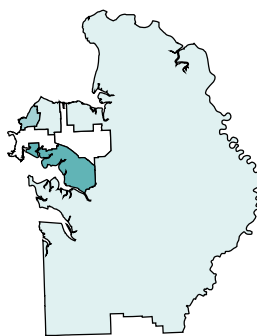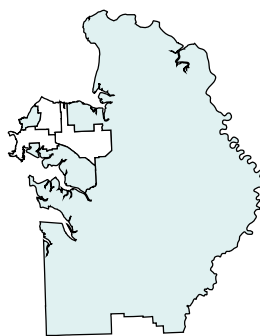
* The estimates are synthetic predictions of the prevalence of these conditions: see Notes on the data.

## Map 4: Estimates* of selected risk factors by SLA/SLA group, Darwin SD, 2001

**Overweight (not obese) males (15+ years)**



**Obese males (15+ years)**



**Overweight (not obese) females (15+ years)**
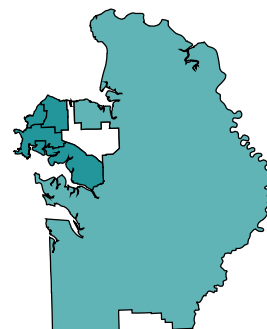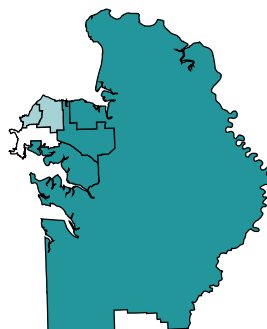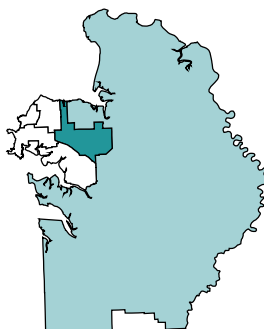


**Obese females (15+ years)**



**Smokers (18+ years)**



**Physical inactivity (15+ years)**
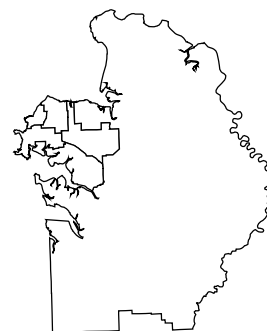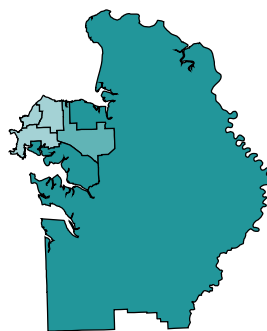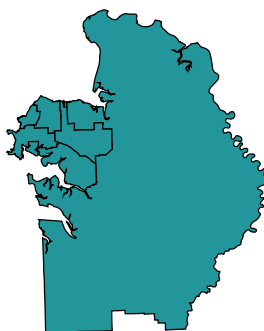


**High health risk due to alcohol consumed (18+ years)**



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

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

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

### Background

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

Remote areas in this context cover 86.4% of Australia's land mass; and, while they comprise just 3.0% of the total population, a large proportion (28.0%) of the Indigenous population live in these areas. The Top End DGP is classed as partly Remote under the ARIA+ remoteness classification (see *Notes on the data,* page 20). Under this classification approximately 30.0% of the population of the population lives in areas classed as either Remote (9.0%) or Very Remote (21.0%).

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

### National Aboriginal and Torres Strait Islander Social Survey and Health Survey

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

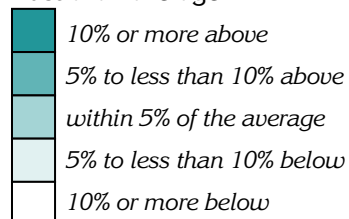Just over half (54.2%) of the Indigenous population in the remote areas of Australia reported speaking an Indigenous language. Those in the lowest income group were almost two and a half times more likely (than those in the three highest income groups) to do so: for ease of reading, these income groups are referred to in the text below as 'low' and 'high'. The difference in this characteristic between people in remote and non-remote areas is over six times (6.3). Note that almost one quarter (23.6%) of Aboriginal and Torres Strait Islander people in the remote areas did not have an income defined in the NHS, so were not included in the comparisons by income group. For almost all of the characteristics in Table 7, the outcome for those where an income was not defined showed poorer health, or greater disadvantage, than those for whom income was available. For example, Indigenous people living in remote areas and for whom an income was not available were 37% more likely (than those reporting an income) to speak an Indigenous language (a rate ratio of 1.37).

### Table 7: Summary characteristics of Aboriginal and Torres Strait Islander people, by remoteness and income group, Australia, 2002

| Characteristic | Remote areas | Low income cf. with high income (RR*) | | Remote cf. with non-remote (RR**) |
|---|---|---|---|---|
| | Per cent | Remote | Non-remote | |
| **Family and culture** | | | | |
| Able to get support in time of crisis from outside household | 86.9 | 0.99 | 0.93 | 0.95 |
| At least one stressor experienced in last 12 months | 85.5 | 1.09 | 1.03 | 1.06 |
| Speaks an Indigenous language | 54.2 | 2.45 | 1.69 | 6.30 |
| **Health and disability** | | | | |
| Self-assessed health status | | | | |
|    Excellent/very good | 44.2 | 0.94 | 0.66 | 1.00 |
|    Fair/poor | 20.0 | 1.25 | 2.34 | 0.82 |
| Disability or long term health condition | 35.4 | 1.30 | 1.64 | 0.96 |
| Risk behaviour/characteristic | | | | |
|    Current daily smoker | 50.4 | 1.16 | 1.66 | 1.05 |
|    Risky/high risk alcohol consumption in last 12 months | 16.8 | 0.81 | 0.97 | 1.16 |
| **Educational attainment** | | | | |
| Has a post-school qualification | 18.1 | 0.36 | 0.47 | 0.57 |
| Does not have a post-school qualification | | | | |
|    Completed Year 12 | 9.0 | 0.72 | 0.31 | 0.83 |
|    Completed Year 10 or Year 11 | 27.8 | 0.97 | 1.34 | 1.01 |
|    Completed Year 9 or below, or did not attend | 45.1 | 2.06 | 3.01 | 1.51 |
|    Total with no post-school qualification | 81.9 | 1.35 | 1.44 | 1.20 |
| **Employment** | | | | |
| Employed: CDEP | 32.5 | 1.01 | 1.35 | 7.22 |
|       Non-CDEP | 19.2 | 0.11 | 0.12 | 0.48 |
|    Total employed | 51.7 | 0.39 | 0.17 | 1.17 |
| Unemployed | 5.9 | 4.52 | 3.38 | 0.35 |
| Not in the labour force | 42.5 | 3.91 | 4.99 | 1.09 |
| **Financial stress** | | | | |
| Unable to raise $2,000 in a week for something important | 73.0 | 2.02 | 3.55 | 1.54 |
| **Law and justice** | | | | |
| Victim of physical, threatened violence in last 12 months | 22.7 | 0.89 | 1.82 | 0.91 |
| **Transport access** | | | | |
| Can easily get to the places needed | 65.6 | 0.74 | 0.71 | 0.91 |
| Cannot, or often has difficulty, getting to places needed | 16.6 | 3.96 | 3.31 | 1.69 |
| **Mobility** | | | | |
| Moved dwellings in last 12 months | 27.2 | 0.80 | 1.26 | 0.84 |
| **Information technology** | | | | |
| Used computer in last 12 months | 34.4 | 0.45 | 0.63 | 0.54 |
| Accessed the Internet in last 12 months | 21.6 | 0.37 | 0.50 | 0.45 |

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

\*\* **RR is ratio of the rate for the Indigenous population in the remote areas compared to that in the non-remote areas**
**Source: ABS 2002 NATSIS, 2002 (unpublished data)**

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

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

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

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

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

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

Reporting by Aboriginal and Torres Strait Islander people of selected long-term conditions (Table 8) is generally higher in remote than non-remote areas; the differentials for a number of conditions are even larger between the Indigenous and non-Indigenous populations. The impacts on the Indigenous community of diabetes and circulatory problems/ diseases are examples of these differences. The situation is similar for health-related actions, with the notable exception of doctor consultations, which are 11% lower in remote areas than non-remote areas for the Indigenous population; however, the Indigenous population across Australia as a whole reported more doctor consultations than did the non-Indigenous population.

**Table 8: Summary health characteristics, by Indigenous status and remoteness, Australia, 2001**

*Age standardised rates (as per cent)*

| Health characteristic | Indigenous | | | Non-Indigenous | RR** |
|---|---|---|---|---|---|
| | Remote | Non-remote | RR* | Total | |
| **Selected long-term conditions** | | | | | |
| Diabetes | 16 | 9 | 1.78 | 3 | 3.67 |
| Eye/sight problems | 38 | 49 | 0.78 | 51 | 0.90 |
| Ear/hearing problems | 17 | 18 | 0.94 | 14 | 1.29 |
| Circulatory problems/diseases | 24 | 18 | 1.33# | 17# | 1.12# |
| Asthma | 15 | 18 | 0.83 | 12 | 1.42 |
| Back problems | 21 | 22 | 0.95# | 21# | 1.05 |
| No long-term condition | 29 | 20 | 1.45# | 22# | 1.00 |
| **Health-related actions[1]** | | | | | |
| Admitted to hospital | 21 | 19 | 1.11 | 12 | 1.67 |
| Visited casualty/outpatients | 9 | 5 | 1.80 | 3 | 2.00 |
| Doctor consultation (GP and/or specialist) | 24 | 27 | 0.89# | 24# | 1.13 |
| Dental consultation | 7 | 5 | 1.40# | 6# | 0.83 |
| Consultation with other health professional | 27 | 16 | 1.69 | 13 | 1.38 |
| Day(s) away from work/study | 11 | 9 | 1.22# | 10# | 1.00 |

* RR is ratio of % in remote to % in non-remote for the Indigenous population
** RR is ratio of % Indigenous to % non-Indigenous
# Difference between total Indigenous and non-Indigenous data is not statistically significant
[1] Hospital admissions relate to the 12 months prior to interview. All other health-related actions relate to the two weeks prior to interview
Source: ABS 2001 NHS Cat. No. 4714.0, Table 1

Details of the immunisation status of adult Australians are not available from administrative sources (as are children's immunisations) so self-reported data again provide the only picture of the characteristics of the population groups who are immunised against various conditions (Table 9).

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

**Table 9: Immunisation status of people aged 50 years and over, by Indigenous status and remoteness, Australia, 2001**

*Per cent*

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

* RR is ratio of % in remote to % in non-remote for the Indigenous population
** RR is ratio of % Indigenous to % non-Indigenous
# estimate has a relative standard error of between 25% to 50% and should be used with caution
Source: ABS 2001 NHS Cat. No. 4714.0, Table 19

The limited range of health information available for Aboriginal and Torres Strait Islander women living in remote areas shows that they are more likely (than Indigenous women in non-remote areas) to have breastfed their child (77% and 59%, respectively) (and also more likely than the non-Indigenous population (53%)). Lower proportions also reported not having children (Table 10). Indigenous women are more likely to have had a Pap smear test. However, Indigenous women who reported having a Pap smear test were more likely to be living in remote than in non-remote areas (17% higher).

**Table 10: Summary women's health characteristics, by Indigenous status and remoteness, Australia, 2001**

*Age standardised rates (as per cent)*

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

* RR is ratio of % in remote to % in non-remote for the Indigenous population
** RR is ratio of % Indigenous to % non-Indigenous
# estimate has a relative standard error of between 25% to 50% and should be used with caution
Source: ABS 2001 NHS Cat. No. 4714.0, Table 22

# Notes on the data

## Data sources and limitations

### Data sources

Table 11 details the data sources for the material presented in this profile.

**Table 11: 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; Tables 1 and 2 | Experimental estimates of Aboriginal and Torres Strait Islander people, ABS 2001 (unpublished) |
| Figure 3, Tables 3 and 4 | Data were extracted by postal area from the ABS Population Census 2001, except for the following indicators: <br> - *Total population* – Experimental estimates, ABS 2001 (unpublished) <br> - *Full-time secondary education participation at age 16* – Census 2001 (unpublished) <br> - *Households receiving rent assistance* – Centrelink, December Quarter 2001 (unpublished) |
| Map 1; Table 13 | 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: <br> - Census count[1], ABS Population Census 2001, scaled to 2003/04 <br> - Usual Resident Population[2], ABS Population Census 2001, scaled to 2003/04 <br> - Day-time population: calculated from journey to work data, ABS Population Census (URP) 2001 (unpublished); and 2001 Census URP, scaled to 2003/04 <br> - 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 4; Table 16 | ABS Deaths, 2000 to 2002 |
| **Chronic diseases and associated risk factors** | |
| Figures 5, 6 and 7; Table 17 | Estimated from 2001 National Health Survey (NHS), ABS (unpublished) |
| **National Aboriginal and Torres Strait Islander Social Survey and Health Survey** | |
| Table 7 | ABS 2002 NATSIS, 2002 (unpublished) |
| Tables 10, 11 and 12 | ABS 2001 NHS Cat. No. 4714.0 – Tables 1, 19 and 22 |

[1] *Census count* - those counted in the Division on Census night, including tourists, business people and other visitors
[2] *Usual Resident Population* - those who usually live there and who were in Australia at the time and would have provided details in the Census at the address where they were counted

### Remote areas

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

### Chronic diseases and associated risk factors

The data for chronic conditions and risk factors 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 12 includes notes relevant to this data.

**Table 12: 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 14).

#### 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 15.

#### 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 13) 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 Top End DGP are shown in Table 13.

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 13: SEIFA scores by SLA/SLA group, Top End DGP, 2001**

| SLA code | SLA name | | Index score | | | |
|---|---|---|---|---|---|---|
| | | | Disadvantage | Advantage | Economic Resources | Education & Occupation |
| 70000# | Darwin North West | (100.0) | 1018 | 1064 | 1071 | 1059 |
| 70001# | Darwin North East | (100.0) | 1001 | 1042 | 1071 | 1016 |
| 70002# | Darwin South West | (100.0) | 1036 | 1093 | 1118 | 1071 |
| 70003# | Palmerston | (100.0) | 970 | 1009 | 1048 | 976 |
| 70609 | Bathurst-Melville | (100.0) | 665 | 851 | 828 | 899 |
| 70700 | Coomalie | (100.0) | 951 | 989 | 948 | 1032 |
| 70759 | Cox-Finniss | (100.0) | 917 | 905 | 832 | 966 |
| 70809 | Daly | (100.0) | 709 | 908 | 910 | 922 |
| 71209 | East Arnhem - Balance | (99.5) | 561 | 868 | 895 | 882 |
| 71409 | Elsey - Balance | (96.0) | 826 | 909 | 921 | 918 |
| 71609 | Groote Eylandt | (100.0) | 874 | 1034 | 1102 | 937 |
| 71809 | Gulf | (87.0) | 707 | 880 | 893 | 886 |
| 72000 | Jabiru | (100.0) | 1041 | 1069 | 1058 | 1056 |
| 72200 | Katherine | (100.0) | 978 | 1022 | 1048 | 998 |
| 72304 | Litchfield - Part A | (100.0) | 993 | 1006 | 1040 | 985 |
| 72308 | Litchfield - Part B | (100.0) | 1013 | 1002 | 1039 | 972 |
| 72409 | Nhulunbuy | (100.0) | 1046 | 1091 | 1112 | 1017 |
| 73309 | South Alligator | (100.0) | 957 | 967 | 893 | 1030 |
| 74409 | Victoria | (95.0) | 782 | 895 | 890 | 901 |
| 74809 | West Arnhem | (99.6) | 672 | 897 | 899 | 906 |

# **SLA group: see** Table 15 **for codes for the individual SLAs in this group**

## Statistical geography of the Top End DGP

The Top End DGP covers 497,954 square kilometres, based on 2001 SLA data.

**Table 14: Postcodes in Top End 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[*] |
|---|---|---|---|---|---|
| 0800 | 100 | 0822 | 100 | 0850 | 100 |
| 0801 | 100 | 0828 | 100 | 0851 | 100 |
| 0804 | 100 | 0830 | 100 | 0852 | 95 |
| 0810 | 100 | 0831 | 100 | 0853 | 100 |
| 0811 | 100 | 0832 | 100 | 0854 | 100 |
| 0812 | 100 | 0835 | 100 | 0880 | 100 |
| 0813 | 100 | 0836 | 100 | 0881 | 100 |
| 0814 | 100 | 0837 | 100 | 0885 | 100 |
| 0815 | 100 | 0845 | 100 | 0886 | 100 |
| 0820 | 100 | 0846 | 100 | 0909 | 100 |
| 0821 | 100 | 0847 | 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, Litchfield local government area (LGAs) has been split into two SLAs, Litchfield - Part A, and Litchfield - Part B. The Darwin areas and Palmerston are groups of suburbs (SLAs). The SLAs listed in Table 15 comprises the Division.

**Table 15: SLAs/SLA groups in Top End DGP by 2001 boundaries**

| SLA code | SLA/SLA group name | Per cent of the SLA/SLA group's population in the Division* | Estimate of the SLA's 2004 population in the Division |
|---|---|---|---|
| 70609 | Bathurst-Melville | 100.0 | 2,470 |
| 70700 | Coomalie | 100.0 | 1,074 |
| 70759 | Cox-Finniss | 100.0 | 813 |
| 70809 | Daly | 100.0 | 3,775 |
| 71004, 71014, 71024 71034, 71068, 71074 71078, 71088, 71098 71114, 71118, 71124 | Darwin North West | 100.0 | 27,837 |
| 71008, 71038, 71048 71052, 71058, 71064 71134 | Darwin North East | 100.0 | 20,551 |
| 71018, 71028, 71044 71054, 71084, 71094 71104, 71108, 71128 71138 | Darwin South West | 100.0 | 20,938 |
| 71169, 72802, 72804, 72806, 72808, 72814 72818, 72824 | Palmerston | 100.0 | 23,901 |
| 71209 | East Arnhem - Balance | 99.5 | 7,579 |
| 71409 | Elsey - Balance | 96.0 | 2,263 |
| 71609 | Groote Eylandt | 100.0 | 2,645 |
| 71809 | Gulf | 87.0 | 2,940 |
| 72000 | Jabiru | 100.0 | 1,168 |
| 72200 | Katherine | 100.0 | 8,609 |
| 72304 | Litchfield - Part A | 100.0 | 1,524 |
| 72308 | Litchfield - Part B | 100.0 | 14,681 |
| 72409 | Nhulunbuy | 100.0 | 3,795 |
| 73309 | South Alligator | 100.0 | 735 |
| 74409 | Victoria | 95.0 | 2,829 |
| 74809 | West Arnhem | 99.6 | 4,425 |

*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 16.

**Table 16: Deaths before 75 years of age by major condition group and selected cause Top End DGP‡, Central Australian DGP and Australia, 2000-02***

*Indirectly age standardised rate per 100,000 population*

| Variable | Top End DGP | | Central Aust. DGP | | Australia | |
|---|---|---|---|---|---|---|
| | No. | Rate | No. | Rate | No. | Rate |
| **Circulatory system diseases** | 322 | 110.1 | 154 | 161.1 | 38,357 | 72.3 |
| Ischaemic heart disease | 205 | 70.7 | 86 | 90.4 | 23,364 | 44.1 |
| Cerebrovascular disease – stroke | 37 | 13.1 | 20 | 21.7 | 6,920 | 13.0 |
| **Cancer** | 360 | 115.9 | 80 | 80.5 | 60,603 | 114.3 |
| Cancer of the trachea, bronchus & lung | 92 | 31.4 | 14 | 15.0 | 12,715 | 24.0 |
| **Respiratory system diseases** | 106 | 38.0 | 43 | 46.1 | 9,726 | 18.3 |
| Chronic lower respiratory disease | 74 | 27.4 | 18 | 19.9 | 6,657 | 12.6 |
| **Injuries and poisonings** | 288 | 64.4 | 128 | 93.9 | 18,573 | 35.0 |
| Suicide | 103 | 22.9 | 31 | 23.0 | 6,706 | 12.6 |
| Motor vehicle accidents | 85 | 18.9 | 41 | 29.8 | 5,014 | 9.5 |
| **Other causes** | 369 | 101.9 | 214 | 187.6 | 26,735 | 50.4 |
| Diabetes mellitus | 59 | 20.3 | 45 | 46.7 | 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 17 below.

**Table 17: Estimates of chronic disease and associated risk factors, Darwin Statistical Division‡ (part of Top End DGP) and Australia, 2001**

*Indirectly age standardised rate per 1,000 population*

| Variable | Darwin SD | Australia |
|---|---|---|
| **Chronic disease and injury** (Figure 5) | | |
| Respiratory system diseases | 281.3 | 310.8 |
| Asthma | 100.8 | 118.3 |
| Circulatory system diseases | 158.1 | 171.5 |
| Diabetes type 2 | 18.9 | 23.4 |
| Injury event | 113.1 | 121.2 |
| Mental & behavioural disorders | 74.8 | 97.6 |
| Musculoskeletal system diseases | 324.4 | 326.2 |
| Arthritis | 120.2 | 138.8 |
| - Osteoarthritis | 49.4 | 74.9 |
| - Rheumatoid arthritis | 20.6 | 23.6 |
| Osteoporosis (females) | 18.3 | 26.4 |
| **Measures of self-reported health** (Figure 6) | | |
| Very high psychological distress levels (18+ years) | 30.6 | 36.6 |
| Fair or poor self-assessed health status (15+ years) | 168.7 | 184.0 |
| **Risk factors** (Figure 7) | | |
| Overweight (not obese) males (15+ years) | 325.8 | 389.7 |
| Obese males (15+ years) | 145.5 | 145.9 |
| Overweight (not obese) females (15+ years) | 283.2 | 223.9 |
| Obese females (15+ years) | 261.3 | 148.0 |
| Smokers (18+ years) | 251.1 | 248.0 |
| Physical inactivity (15+ years) | 232.5 | 315.5 |
| High health risk due to alcohol consumed (18+ years) | 51.9 | 42.1 |

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

# 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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