

# 1 Health status

## 1.1 Health conditions

### 1.1.1 Chronic diseases

#### Summary of findings

The following summary of findings refers to the prevalence of self-reported health conditions, which can be influenced by the awareness of individuals (i.e. if they know they have the condition and are able to name it). The findings are based on Tables 1.1.1.1 to 1.1.1.11 (on pages 34–42).

- *All chronic diseases:* Overall there was no significant difference between regional areas and Major Cities. However, the prevalence among 15–64-year-old regional females was about 10% higher than for their counterparts in Major Cities.
- *Diabetes:* The prevalence of self-reported diabetes in regional areas was 0.9 times that in Major Cities. This is influenced by regional prevalences that were 0.7 times as high for males as for their counterparts in Major Cities and indistinguishable for females. This pattern of self-reported diabetes prevalence is at odds with higher rates of diabetes-related mortality in regional areas.

In 2001, males and females in Major Cities were 1.26 and 1.27 times as likely, respectively, to self-report diabetes as in 1995. Males in regional areas were about as likely to self-report diabetes as in 1995, and females in regional areas were 1.44 times as likely to self-report diabetes as in 1995.

- *Cerebrovascular disease:* In 2001, males and females in regional areas were, respectively, about 0.7 times and equally as likely to self-report cerebrovascular disease as their counterparts in Major Cities. Substantially lower prevalence rates for males and females over 64 years have influenced this overall pattern. The pattern in 2001 was different from that in 1995, when males in Inner Regional areas were as likely, males in Outer Regional areas were 0.46 times as likely, and females in regional areas were 1.37 times as likely to self-report cerebrovascular disease as their counterparts in Major Cities. Between 1995 and 2001, there appears to have been a decrease in the rate at which people in regional areas self-report cerebrovascular disease, but this was not statistically significant at the 95% level of confidence.
- *Asthma:* For males, the prevalence of self-reported asthma in 1995 was 1.12 times as high in regional areas as in Major Cities, but in 2001 it was 0.89 times as high. For females, the patterns in both years were similar (i.e. a significant 1.06 times as high in regional areas in 1995, and an apparent 1.06 times as high in regional areas in 2001). In 2001, people in Major Cities were 1.10 times as likely to self-report asthma as in 1995, and in regional areas, males and females were, respectively, 0.85 and 1.11 times as likely to self-report asthma as in 1995.

- *Bronchitis/emphysema*: In 2001, there was no significant difference between the prevalence of self-reported bronchitis and emphysema in Major Cities and regional areas as a whole, although prevalence tended to be lower in regional areas (significantly lower for females in Outer Regional areas). In 1995, regional prevalence was 0.92 times as high as in Major Cities (0.78 times as high in Outer Regional areas). In 2001, people in Major Cities and regional areas were, respectively, 0.86 and 0.83 times as likely to self-report bronchitis or emphysema as they had been in 1995. The inter-regional pattern for self-reported prevalence contrasts with death rates from this condition, which were about 1.2–1.4 times as high for males in regional areas, and about 1.05–1.10 times as high for females in regional areas, as those in Major Cities.
- *Arthritis*: The regional self-reported prevalence of arthritis in both 2001 and 1995 was 1.17–1.24 times as high for males, and 1.08–1.13 times as high for females as their counterparts in Major Cities. In 2001, people in Major Cities and regional areas were, respectively, 0.89 and 0.90 times as likely to self-report arthritis as they had been in 1995.
- *Osteoporosis*: Results from both the 1995 and 2001 National Health Surveys indicate regional prevalences about 0.8 times as high as those in Major Cities. In 2001, males and females in Major Cities were, respectively, 1.80 times and equally as likely to self-report osteoporosis as in 1995. The prevalence of self-reported osteoporosis appeared higher in 2001 than it was in 1995, for both regional males and females, but the difference was not statistically significant.
- *Ischaemic heart disease*: There were about as many males and females in regional areas as expected who self-reported ischaemic heart disease (IHD) (although half as many 45–64-year-old regional males as expected). Regional death rates for males and females were about 1.10 and 1.05 times as high as in Major Cities. However, wide confidence intervals for the prevalence data do not support any comparison with death rate patterns.
- *Kidney disease, lung cancer and colorectal disease*: The relatively low prevalence of these diseases made it difficult to identify any regional differences.

## Background

The results in this section are based on the 1995 and 2001 National Health Surveys. Emphasis is placed on reporting the more recent 2001 data, but the 1995 data provide additional and historical information. Whereas about 54,000 people were surveyed in 1995, only about 26,000 were surveyed in 2001, reducing the opportunity for detecting significant differences in this year.

Interpretation of the results presented here should take into account the small size of the sample in remote areas, and the tendency to sample in larger population centres rather than the sparsely settled areas. So it is possible that the results are biased towards those living in larger less remote centres, who may have different health outcomes.

Rates are based on survey respondents self-reporting chronic disease. Results can be affected if a respondent is unaware of, or is confused about the nature of, the disease. In areas where patients are less likely to see a doctor and be diagnosed, they may be less likely to be aware of the presence of disease. Additionally, people with higher educational attainment may be better informed about the nature of any disease.

Because of the possibility that the better health of older people in the more remote areas can mask the poorer health in younger ages in any overall summary measure, age-specific rates have also been reported. In many cases, the number of respondents in each age group is very

small and it is difficult to detect significant differences. However, in other cases, description of regional differences in age-specific rates sheds considerable light on underlying patterns. Because patterns of disease may be different for each sex, data are presented for males and for females as well as for all persons.

Statistical methods are described on page 302.

Where data were not available for 1995, rates for 2001 only are reported here (i.e. there is no comparison of rates in 1995 and 2001).

In almost all areas, rates for non-Indigenous people who responded to the survey were statistically indistinguishable from those from the total population, and so are not reported separately.

Up to three sets of results have been provided in each of Tables 1.1.1.1-1.1.1.11:

- 2001 survey results, age-standardised to the rates in the 2001 Major Cities population
- 1995 survey results, age-standardised to the rates in the 1995 Major Cities population
- a comparison of rates in 2001 with those in 1995 (last row of each table). The values presented are 2001 survey results, age-standardised to the rates calculated for each area in 1995. A ratio greater than 1 indicates an increase between the years, and a ratio less than 1 indicates a decrease between the years.

For example (from Table 1.1.1.4), males in regional areas were:

- 0.89 times as likely to self-report asthma in 2001 as their counterparts in Major Cities in that year
- 1.12 times as likely to self-report asthma in 1995 as their counterparts in Major Cities in that year
- 0.85 times as likely to self-report asthma in 2001 as those in regional areas in 1995.

In most cases, individual comparisons are not statistically significantly different (i.e. it is not certain that the difference calculated from the sample is indicative of the difference in the population). Significance, where found, is indicated in the table.

## **Detailed results**

### **All chronic diseases**

Based on the number who self-reported in the National Health Survey, an estimated 5.3 million people suffered from a chronic disease in 2001.

About 45% of these were male, with 66% of all cases in Major Cities, 22% in Inner Regional areas and 12% in Outer Regional areas.

Overall, rates of self-reported chronic disease for males and females were similar to their counterparts across the three areas. Although not significant at the 95% level of confidence, females in regional areas appeared to be 1.05 times as likely as those in Major Cities to self-report chronic disease. This higher overall rate for females in regional areas was influenced by rates for 15-64-year-old females, who were 1.11 times as likely to self-report chronic disease as those in Major Cities (Table 1.1.1.1).

## Diabetes

2001

Based on the number who self-reported in the National Health Survey, an estimated 550,000 people had diabetes in 2001. It is acknowledged that many people who have diabetes do not realise it, so the true national total is likely to be higher.

About half of the people self-reporting diabetes were male, with 68% of all cases in Major Cities, 20% in Inner Regional areas and 12% in Outer Regional areas.

There were fewer males with diabetes outside Major Cities than expected (0.7 times as many), and about the same number of females as expected (Table 1.1.1.2). The lower rates for males were largely influenced by very low rates among 45–64-year-olds (0.5 times Major Cities rates). Rates for females in Outer Regional areas may be influenced by fewer than expected cases for females 65 years and over, and more than expected cases for those aged 15–64, although the differences were not statistically significant. This possible higher prevalence among 15–64-year-olds may be a consequence of higher prevalence among Indigenous women.

Of Indigenous people, 9% in non-remote areas and 16% in remote areas self-reported diabetes in the 2001 National Health Survey (ABS 2002a). This compares with 3% of people from the total population in Major Cities.

1995–2001

The rate at which people self-identified as having diabetes increased substantially between 1995 and 2001, from 2% to 3% of the population. This increase did not appear to be a consequence of ageing within the population. Rates for males and females in Major Cities were 1.26 and 1.27 times higher, respectively, than they were in 1995. Rates for males in regional areas had not significantly changed, but rates for females were 1.44 times higher in 2001 than they were in 1995.

1995

In 1995, people in regional areas were 0.9 times as likely to self-report having diabetes as their counterparts in Major Cities. The pattern was similar in 2001, where rates were 0.9 times those in Major Cities, although the difference was not statistically significant at the 95% level of confidence. In 1995, males in Outer Regional areas was the only group reported here for whom rates were significantly lower (0.8 times) than in Major Cities at the time.

### *Comparison with mortality*

This pattern of diabetes prevalence is at variance with the pattern for mortality:

- Mortality for males was about the same in Inner Regional areas and 1.24 as high in Outer Regional areas as in Major Cities; and for females it was 1.11 times as high in Inner Regional areas and 1.44 times as high in Outer Regional areas (page 98).
- Regional prevalences were 0.7 times as high for males and almost the same for females as those for their counterparts in Major Cities.

Confidence intervals around the estimates of relative regional diabetes prevalence tend to be lower than the point estimates of the standardised mortality ratio – indicating that the patterns of prevalence and mortality are probably different.

There could be several reasons for the apparent discrepancy between diabetes prevalence and mortality:

- people living in regional areas may be less aware that they have diabetes than people in Major Cities;
- people living in regional areas may be less able to access services to prevent death from diabetes;
- the National Health Surveys may not adequately represent people living in regional areas.

## **Cerebrovascular diseases**

2001

Based on the number who self-reported in the National Health Survey, an estimated 104,000 people had cerebrovascular disease in 2001.

Roughly half of these were male, with 68% of all cases in Major Cities, 22% in Inner Regional areas and 10% in Outer Regional areas.

There were fewer males than expected self-reporting cerebrovascular disease outside Major Cities (0.7 times as many), and about the same number of females as expected (Table 1.1.1.3). The lower rates for regional males were largely influenced by low rates among those 65 years and over (0.5 times Major Cities rates). Overall rates for females would have been substantially higher in Outer Regional areas except for the effect of low rates among those who were 65 years and over (0.2 times those in Major Cities).

1995–2001

The rate at which people in Major Cities self-reported cerebrovascular disease did not appear to change significantly between 1995 and 2001. There are broad similarities in the inter-regional patterns evident in 1995 and 2001, and the data show a statistically non-significant decrease in the rate at which regional males and females self-report cerebrovascular disease.

1995

Overall, the rate at which males in regional areas self-reported cerebrovascular disease in 1995 was not significantly different from that for males in Major Cities in the same year. However, whereas males in Inner Regional areas were about as likely to self-report cerebrovascular disease as those in Major Cities, males in Outer Regional areas were about half as likely. In 1995, females in regional areas were 1.35 times as likely to self-report cerebrovascular disease as their counterparts in Major Cities.

### *Comparison with mortality*

This pattern of lower regional cerebrovascular disease prevalence for males and higher regional prevalence for females suggested by results from the 1995 and 2001 National Health Surveys differs from the pattern for death, for which rates were similar in Major Cities, Inner Regional and Outer Regional areas. However, confidence intervals around the estimates of relative regional prevalence are relatively large, and in many cases include the estimate of relative regional mortality; consequently, caution should be exercised in comparing inter-regional patterns of cerebrovascular disease prevalence and mortality.

## **Asthma**

2001

Based on the number who self-reported in the National Health Survey, an estimated 2.2 million people suffered from asthma in 2001.

About 45% of these were male, with 68% of all cases in Major Cities, 20% in Inner Regional areas and 12% in Outer Regional areas.

There were fewer males self-reporting asthma outside Major Cities than expected (0.9 times as many), and about the same number of females as would be expected if Major Cities rates had applied to the population living in regional areas.

Of Indigenous people who participated in the National Health Survey, 17% self-reported asthma (ABS 2002a) compared with 11% and 12% for males and females from the total population, respectively, who lived in Major Cities (Table 1.1.1.4).

1995–2001

In 2001 people in Major Cities were 1.10 times as likely to self-reported asthma as in 1995. This followed a decrease nationally between 1989–90 and 1995, which was previously reported by the ABS (ABS 1997a). In 1995, 10% and 11% of male and female survey participants in Major Cities self-reported asthma, compared with 11% and 12% in 2001. Males in regional areas were 0.85 times as likely to self-report asthma as they had been in 1995, and females in regional areas were 1.11 times as likely.

1995

Overall, males in regional areas were 1.12 times and females were 1.06 times as likely to self-report asthma as their counterparts in Major Cities in 1995.

Making a broad comparison between the inter-regional patterns in 1995 and 2001:

- for males, the prevalence of self-reported asthma in 1995 was about 1.10 times as high in regional areas as in Major Cities, but in 2001 it was 0.9 times as high
- for females, the patterns in both years were similar (i.e. a significant 1.06 times as high in regional areas as in Major Cities in 1995, and an apparent 1.06 times as high in regional areas in 2001).

### *Comparison with mortality*

This pattern is not remarkably different from that for deaths: death rates were similar or up to 30% higher for males in regional areas and higher (but not significantly so) for females in regional areas than their counterparts in Major Cities in the period 1997–99.

## **Bronchitis/emphysema**

2001

Based on the number who self-reported in the National Health Survey, an estimated 665,000 people suffered from bronchitis or emphysema in 2001.

About 47% of these were male, with 68% of all cases in Major Cities, 21% in Inner Regional areas and 9% in Outer Regional areas.

Broadly, there were fewer people in regional areas who self-reported bronchitis or emphysema than expected (Table 1.1.1.5), but only for females in Outer Regional areas was the difference statistically significant (0.7 times as many as expected). Relatively low regional

rates among those 65 years and over, significantly so (0.35 times the Major Cities rate) among Outer Regional females, were a major contributor to these lower prevalences.

Rates for males aged 25–44 years in both Inner and Outer Regional areas in 2001 were 0.5 times those for their Major Cities counterparts.

#### *1995–2001*

In 2001, people in Major Cities and regional areas were, respectively, 0.86 and 0.83 times as likely to self-reported bronchitis or emphysema as they had been in 1995.

#### *1995*

There were about as many people in Inner Regional areas self-reporting bronchitis or emphysema in 1995 as expected. However, the number of males and females in Outer Regional areas self-reporting bronchitis or emphysema in 1995 were, respectively, 0.72 and 0.84 times those expected if Major Cities rates at the time had applied in those areas. In Outer Regional areas, age-specific rates of self-reporting were between 0.64 and 0.81 times those at the time in Major Cities.

The inter-regional pattern evident in 1995 is very similar to that in 2001, i.e. regional prevalences that were about 0.9 times those in Major Cities, largely linked in each year to lower prevalences in Outer Regional areas (0.75–0.8 times those in Major Cities at the time).

#### *Comparison with mortality*

Prevalence of self-reported bronchitis or emphysema, as indicated by both the 1995 and 2001 National Health Surveys, appeared to be slightly lower in regional areas than in Major Cities. Death rates due to chronic obstructive pulmonary disease (COPD) were 1.2–1.4 times as high for males and 1.05–1.1 times as high for females in regional areas as in Major Cities.

Confidence intervals for estimates of relative regional prevalence tend to be lower than the estimates of the standardised mortality ratio – lending weight to the possibility that these inter-regional patterns of prevalence and mortality are different.

### **Arthritis**

#### *2001*

Based on the number who self-reported in the National Health Survey, an estimated 2.6 million people suffered from arthritis in 2001.

About 40% of these were male, with 63% of all cases in Major Cities, 25% in Inner Regional areas and 13% in Outer Regional areas.

In regional areas, there were between 1.1 and 1.2 times as many males and females as expected self-reporting arthritis (Table 1.1.1.6). Substantial contributors to these higher rates in regional areas were rates for 45–64-year-old males and females that were 1.3 times those in Major Cities.

#### *1995–2001*

In 2001, people in Major Cities and regional areas were, respectively, 0.89 and 0.90 times as likely to self-report arthritis as their counterparts had been in 1995.

1995

Overall, the rate at which males in regional areas self-reported arthritis in 1995 was 1.24 times as high as for males in Major Cities in the same year. Females in regional areas were 1.08 times (8%) as likely to self-report arthritis as their counterparts in Major Cities in 1995. These higher rates appear to be strongly driven by higher rates of self-reporting among regional 25–64-year-olds, rates that were substantially (1.2–1.7 times) higher for males, and 1.1–1.2 times as high for females (but for females the difference was not statistically significant).

The inter-regional pattern evident in 1995 was very similar to that in 2001, i.e. regional prevalences that were about 15% higher in each year than in Major Cities; 15–25% higher for males, and 10% higher for females in regional areas than those in Major Cities.

## **Osteoporosis**

2001

Based on the number who self-reported in the National Health Survey, an estimated 300,000 people suffered from osteoporosis in 2001.

About 83% of these were female, with 70% of all cases in Major Cities, 19% in Inner Regional areas and 11% in Outer Regional areas.

There were 0.6 times as many (i.e. fewer) males than expected in regional areas self-reporting osteoporosis (Table 1.1.1.7). The number of regional females self-reporting osteoporosis was not significantly lower than expected, although there were 0.6 times as many (i.e. fewer) 25–64-year-old women with osteoporosis as expected in regional areas.

1995–2001

In 2001, males and females in Major Cities were, respectively, 1.80 times and equally as likely to self-report osteoporosis as in 1995.

In 1995, 0.3% of males in Major Cities who participated in the National Health Survey self-reported osteoporosis, compared with 0.6% in 2001. The rate at which females in Major Cities self-reported osteoporosis did not change significantly between 1995 and 2001 (2.6% and 2.7%, respectively).

Although the regional prevalence of self-reported osteoporosis for both males and females appears higher in 2001 than it was in 1995, the differences are not statistically significant.

1995

Overall, the rate at which males in regional areas self-reported osteoporosis in 1995 was not significantly lower than for males in Major Cities in the same year (although regional males 65 years and over were less (0.35 times) likely to self-report osteoporosis than their Major Cities counterparts). Females in regional areas were 0.8 times as likely to self-report osteoporosis as their counterparts in Major Cities in 1995.

The results from both 1995 and 2001 are generally consistent. Even though statistical significance is not reached in some cases, the survey results for both years suggest the same story: rates of self-reported osteoporosis for both males and females that are about 0.8 times as high as in Major Cities.

## **Ischaemic heart disease**

2001

Based on the number who self-reported in the National Health Survey, an estimated 354,000 people suffered from ischaemic heart disease (IHD) in 2001.

About 57% of these were male, with 65% of all cases in Major Cities, 23% in Inner Regional areas and 11% in Outer Regional areas.

Overall, there were about as many males and females who self-reported IHD as expected in 2001 (data for 1995 were not available). There were significantly fewer (0.5 times as many) 45–64-year-old males who self-reported IHD in Outer Regional areas, but otherwise regional rates for males were not significantly lower than they were in Major Cities (Table 1.1.1.8). The rates for regional females tended to be higher than for those in Major Cities, but not significantly.

### *Comparison with mortality*

This absence of a regional difference in the rate of self-reported IHD (at least for males) is, at least on the surface, at odds with mortality data, which show higher rates of death in regional areas due to this cause (1.1 times as high for males, and 1.05 times as high for females). However, confidence intervals around the estimates of relative regional prevalence are relatively large, and in a number of cases include the point estimates for relative regional mortality. Consequently, caution should be exercised in comparing inter-regional patterns of IHD prevalence and mortality.

## **Kidney disease**

2001

Based on the number who self-reported in the National Health Survey, an estimated 82,000 people suffered from renal disease in 2001.

About 44% of these were male, with 67% of all cases in Major Cities, 24% in Inner Regional areas and 8% in Outer Regional areas.

The number of people in regional areas self-reporting renal disease was not significantly different from the number expected if Major Cities rates had applied in those areas (Table 1.1.1.9). There were, however, substantially fewer (0.45 times as many) people aged 65 years and over in regional areas self-reporting renal disease than expected. Data for 1995 were not available.

### *Comparison with mortality*

Confidence intervals for estimates of both prevalence and mortality are wide, making it difficult to clearly compare patterns. Death rates due to renal disease for regional males in 1997–99 were similar to those in Major Cities; for females, rates were similar to Major Cities in Inner Regional areas, and about 1.10 times as high in Outer Regional areas.

## **Lung cancer**

2001

Based on the number who self-reported in the National Health Survey, an estimated 15,000 people suffered from lung cancer in 2001.

About 81% of these were male, with 65% of all cases in Major Cities, 11% in Inner Regional areas and 24% in Outer Regional areas.

Lung cancer is not well represented in the relatively small survey sample. It is not possible to make confident statements about the prevalence of this disease from this data source.

The data are presented in Table 1.1.1.10 for interest/discussion.

### *Comparison with mortality*

Confidence intervals for estimates of both prevalence and mortality are wide, making it difficult to clearly compare patterns. Death rates due to lung cancer for regional males in 1997–99 were slightly higher than those in Major Cities; for females, rates were not significantly different from those in Major Cities.

## **Colorectal cancer**

2001

Based on the number who self-reported in the National Health Survey, an estimated 20,000 people suffered from colorectal cancer in 2001.

About 74% of these were male, with 77% of all cases in Major Cities, 14% in Inner Regional areas and 9% in Outer Regional areas.

Although there were fewer (0.4 times as many) regional males self-reporting colorectal cancer than expected, the number of females self-reporting this disease was not significantly different from that expected (Table 1.1.1.11).

### *Comparison with mortality*

Confidence intervals for estimates of both prevalence and mortality are wide, making it difficult to compare patterns. However, in 1997–99, mortality due to colorectal cancer for males and females in regional areas was about 1.05–1.10 times as high as Major Cities. The inter-regional pattern of prevalence for females compares reasonably well with that for mortality, but males in regional areas had substantially lower prevalence than those in Major Cities – again, contrary to the pattern for mortality.

## Tables on prevalence of self-reported chronic disease

### Notes to the tables

- Age-specific comparisons have been included, even though, in the majority of cases, the numbers are too small to allow meaningful comparisons (in which case, calculated confidence intervals would be large, and statistical significance difficult to establish). Nevertheless, in a number of cases, these age-specific rates do provide useful information.
- The statistic used to compare regions is the ratio of the number of observed cases to the number expected if 'standard rates' applied in each area.
- The standard for 2001 data is the rate of self-reporting in Major Cities in 2001.
- When comparing regions in 1995, the standard is the rate of self-reporting in Major Cities in 1995.
- The last row in some of the tables compares rates in 1995 with those in 2001. Comparison over time is not possible using the presented data for 1995 and 2001, because their standards (1995 Major Cities rates and 2001 Major Cities rates) are different. The last row compares the observed number with the condition in 2001, with the number expected if 1995 age-specific rates for that area applied in that area in 2001. A ratio greater than 1 indicates an increase between the years in that area, and a ratio less than 1 indicates a decrease between the years. It is not possible to compare areas using the ratios in this last row; only comparisons within each area between 1995 and 2001 are possible.
- The column headed 'MC%' contains the crude percentage of the Major Cities sample who self-reported the disease.
- Ratios that are significantly different from 1.00 are indicated with bold font and an asterisk.
- In some cases, data for 1995 were not available, and reporting has been restricted to 2001.
- The percentage of people with the characteristic of interest can be inferred from the tables. The crude percentage for Major Cities is given in the first column for each sex. The percentage of each age group is equal to the Major Cities percentage multiplied by the ratio. For example, 15% ( $0.87 \times 17\%$ ) of the 0-14-year-old males in Outer Regional areas self-reported a chronic disease. The age-standardisation process, by definition, will prevent similar derivation of the crude percentage (for the total).

**Table 1.1.1.1: Ratio of the number of people self-reporting any chronic disease to the number expected, 2001**

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
0–14	17	1.00	1.03	0.87	0.97	13	1.00	1.04	0.72	0.92	15	1.00	1.04	<b>*0.80</b>	0.95
15–24	18	1.00	0.89	0.97	0.91	20	1.00	0.95	1.38	1.10	19	1.00	0.92	1.19	1.01
25–44	17	1.00	1.00	0.90	0.96	21	1.00	1.12	1.14	1.13	19	1.00	1.07	1.03	1.05
45–64	34	1.00	1.04	1.05	1.04	40	1.00	1.07	1.14	1.09	37	1.00	1.06	1.09	1.07
65+	59	1.00	0.98	1.01	0.99	69	1.00	1.02	0.93	0.99	65	1.00	1.00	0.96	0.99
Total	25	1.00	1.00	0.98	0.99	30	1.00	1.05	1.05	1.05	28	1.00	1.03	1.01	1.02

Source: ABS National Health Survey, 2001.

Table 1.1.1.2: Ratio of the number of people self-reporting diabetes to the number expected, 2001 and 1995

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0-14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15-24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25-44	1	1.00	0.67	0.58	0.63	1	1.00	0.75	1.38	0.99	1	1.00	0.71	0.96	0.80
45-64	7	1.00	<b>*0.57</b>	<b>*0.48</b>	<b>*0.54</b>	4	1.00	1.08	1.47	1.21	6	1.00	<b>*0.77</b>	0.83	<b>*0.79</b>
65+	10	1.00	0.96	1.05	0.99	11	1.00	1.06	0.84	0.99	11	1.00	1.02	0.93	0.99
Total	3	1.00	<b>*0.71</b>	0.75	<b>*0.72</b>	3	1.00	1.00	1.14	1.05	3	1.00	0.85	0.93	0.88
<b>1995 (using 1995 MC rates as standard)</b>															
0-14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15-24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25-44	1	1.00	0.95	1.44	1.15	1	1.00	<b>*0.49</b>	1.38	0.83	1	1.00	<b>*0.67</b>	<b>*1.40</b>	0.96
45-64	5	1.00	0.75	0.80	0.77	4	1.00	0.91	1.19	1.02	4	1.00	<b>*0.82</b>	0.96	<b>*0.87</b>
65+	10	1.00	1.08	0.68	0.95	8	1.00	0.99	0.77	0.92	9	1.00	1.04	<b>*0.73</b>	0.94
Total	2	1.00	0.93	<b>*0.80</b>	0.89	2	1.00	0.87	1.03	0.93	2	1.00	<b>*0.90</b>	0.91	<b>*0.91</b>
<b>Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)</b>															
Total	..	<b>*1.26</b>	0.97	1.20	1.05	..	<b>*1.27</b>	<b>*1.46</b>	1.41	<b>*1.44</b>	..	<b>*1.27</b>	1.20	<b>*1.31</b>	<b>*1.24</b>

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.3: Ratio of the number of people self-reporting cerebrovascular disease to the number expected, 2001 and 1995

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	1	1.00	1.16	0.84	1.04	0	1.00	0.88	1.66	1.14	1	1.00	1.08	1.07	1.07
65+	4	1.00	<b>*0.31</b>	0.73	<b>*0.46</b>	3	1.00	1.42	<b>*0.20</b>	1.02	3	1.00	0.86	<b>*0.49</b>	0.73
Total	1	1.00	0.61	0.74	<b>*0.66</b>	0	1.00	1.30	0.72	1.10	1	1.00	0.90	0.74	0.85
<b>1995 (using 1995 MC rates as standard)</b>															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	1	1.00	0.72	0.59	0.67	0	1.00	1.51	1.86	1.64	1	1.00	1.05	1.10	1.07
65+	5	1.00	1.05	<b>*0.34</b>	0.82	3	1.00	1.30	1.14	1.25	4	1.00	1.16	<b>*0.66</b>	1.00
Total	1	1.00	1.08	<b>*0.46</b>	0.87	0	1.00	<b>*1.36</b>	1.38	<b>*1.37</b>	1	1.00	<b>*1.20</b>	0.83	1.08
<b>Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)</b>															
Total	..	0.96	<b>*0.55</b>	1.61	0.75	..	1.08	1.02	0.56	0.87	..	1.01	0.77	0.94	0.81

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.4: Ratio of the number of people self-reporting asthma to the number expected, 2001 and 1995

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0-14	15	1.00	0.99	0.85	0.94	12	1.00	1.09	<b>*0.70</b>	0.94	14	1.00	1.03	<b>*0.78</b>	0.94
15-24	16	1.00	0.85	0.92	0.87	16	1.00	1.01	1.32	1.12	16	1.00	0.93	1.12	0.99
25-44	9	1.00	0.77	1.05	0.88	12	1.00	1.22	1.23	<b>*1.22</b>	11	1.00	1.03	1.15	1.08
45-64	8	1.00	0.83	0.84	0.84	12	1.00	0.96	1.22	1.05	10	1.00	0.92	1.04	0.96
65+	8	1.00	0.85	0.90	0.87	10	1.00	0.85	0.87	0.86	9	1.00	0.85	0.88	0.86
Total	11	1.00	<b>*0.88</b>	0.91	<b>*0.89</b>	12	1.00	1.05	1.08	1.06	12	1.00	0.97	1.00	0.98
<b>1995 (using 1995 MC rates as standard)</b>															
0-14	17	1.00	1.21	1.11	1.17	14	1.00	1.05	0.95	1.01	16	1.00	<b>*1.14</b>	1.04	<b>*1.10</b>
15-24	13	1.00	1.12	1.18	1.14	15	1.00	1.08	1.11	1.09	14	1.00	1.10	<b>*1.14</b>	<b>*1.11</b>
25-44	8	1.00	1.12	0.92	1.04	10	1.00	0.93	1.29	1.07	9	1.00	1.01	<b>*1.12</b>	1.05
45-64	6	1.00	1.06	1.32	1.17	9	1.00	1.22	1.04	1.15	8	1.00	<b>*1.16</b>	<b>*1.16</b>	<b>*1.16</b>
65+	8	1.00	0.94	1.12	1.00	8	1.00	0.98	0.97	0.97	8	1.00	0.96	1.03	0.98
Total	10	1.00	<b>*1.13</b>	<b>*1.11</b>	<b>*1.12</b>	11	1.00	1.04	<b>*1.09</b>	<b>*1.06</b>	11	1.00	<b>*1.09</b>	<b>*1.09</b>	<b>*1.09</b>
<b>Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)</b>															
Total	..	<b>*1.09</b>	<b>*0.84</b>	0.88	<b>*0.85</b>	..	<b>*1.12</b>	1.11	1.10	<b>*1.11</b>	..	<b>*1.10</b>	0.98	0.99	0.98

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.5: Ratio of the number of people self-reporting bronchitis or emphysema to the number expected, 2001 and 1995

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	2	1.00	1.34	1.33	1.33	2	1.00	0.81	<b>*0.33</b>	0.62	2	1.00	1.09	0.84	1.00
15–24	2	1.00	0.55	0.87	0.66	2	1.00	1.62	2.03	1.76	2	1.00	1.09	1.48	1.22
25–44	3	1.00	<b>*0.54</b>	<b>*0.52</b>	<b>*0.53</b>	3	1.00	1.31	0.81	1.12	3	1.00	0.96	0.68	0.85
45–64	3	1.00	1.14	0.87	1.04	4	1.00	1.04	0.89	0.99	4	1.00	1.08	0.87	1.01
65+	11	1.00	0.82	0.76	0.80	8	1.00	0.75	<b>*0.34</b>	<b>*0.62</b>	9	1.00	0.79	<b>*0.57</b>	<b>*0.71</b>
Total	3	1.00	0.89	0.81	0.86	4	1.00	1.02	<b>*0.70</b>	0.90	4	1.00	0.96	<b>*0.75</b>	0.88
<b>1995 (using 1995 MC rates as standard)</b>															
0–14	3	1.00	1.24	0.57	0.97	3	1.00	0.96	0.93	0.95	3	1.00	1.10	<b>*0.74</b>	0.96
15–24	2	1.00	0.88	1.17	0.98	4	1.00	0.98	1.00	0.99	3	1.00	0.93	1.06	0.98
25–44	3	1.00	1.19	0.63	0.97	3	1.00	1.09	0.94	1.04	3	1.00	1.13	<b>*0.80</b>	1.00
45–64	5	1.00	0.97	0.81	0.90	5	1.00	1.00	0.81	0.93	5	1.00	0.99	<b>*0.81</b>	0.92
65+	13	1.00	0.78	0.68	0.75	7	1.00	1.06	<b>*0.56</b>	0.90	10	1.00	0.90	<b>*0.64</b>	<b>*0.82</b>
Total	4	1.00	0.97	<b>*0.72</b>	<b>*0.88</b>	4	1.00	1.03	<b>*0.84</b>	0.96	4	1.00	1.00	<b>*0.78</b>	<b>*0.92</b>
<b>Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)</b>															
Total	..	<b>*0.83</b>	<b>*0.75</b>	0.93	<b>*0.81</b>	..	0.89	0.90	0.76	0.85	..	<b>*0.86</b>	<b>*0.83</b>	0.84	<b>*0.83</b>

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.6: Ratio of the number of people self-reporting arthritis to the number expected, 2001 and 1995

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0-14	—	1.00	1.69	0.00	1.07	—	1.00	5.78	29.73	14.97	—	1.00	1.88	1.41	1.70
15-24	1	1.00	1.27	0.90	1.15	2	1.00	0.61	1.76	1.01	1	1.00	0.88	1.42	1.06
25-44	6	1.00	<b>*1.49</b>	0.95	1.28	7	1.00	0.95	0.93	0.94	7	1.00	1.18	0.93	1.09
45-64	19	1.00	1.21	<b>*1.31</b>	<b>*1.25</b>	26	1.00	<b>*1.30</b>	<b>*1.33</b>	<b>*1.31</b>	23	1.00	<b>*1.27</b>	<b>*1.30</b>	<b>*1.28</b>
65+	38	1.00	1.05	1.03	1.05	53	1.00	1.06	0.95	1.02	46	1.00	1.05	0.97	1.02
Total	10	1.00	<b>*1.19</b>	1.14	<b>*1.17</b>	15	1.00	<b>*1.14</b>	1.11	<b>*1.13</b>	13	1.00	<b>*1.16</b>	<b>*1.11</b>	<b>*1.14</b>
<b>1995 (using 1995 MC rates as standard)</b>															
0-14	—	1.00	2.18	5.32	3.43	—	1.00	0.99	0.50	0.80	—	1.00	1.21	1.36	1.27
15-24	1	1.00	1.57	1.11	1.41	3	1.00	1.57	1.46	1.53	2	1.00	<b>*1.55</b>	1.35	<b>*1.48</b>
25-44	6	1.00	<b>*1.68</b>	<b>*1.81</b>	<b>*1.73</b>	8	1.00	1.20	1.18	1.19	7	1.00	<b>*1.41</b>	<b>*1.46</b>	<b>*1.43</b>
45-64	21	1.00	<b>*1.28</b>	1.15	<b>*1.23</b>	32	1.00	1.15	1.07	1.12	26	1.00	<b>*1.21</b>	<b>*1.10</b>	<b>*1.16</b>
65+	40	1.00	1.03	1.03	1.03	56	1.00	1.02	0.95	1.00	49	1.00	1.02	0.97	1.00
Total	11	1.00	<b>*1.24</b>	<b>*1.24</b>	<b>*1.24</b>	17	1.00	<b>*1.10</b>	1.04	<b>*1.08</b>	14	1.00	<b>*1.15</b>	<b>*1.11</b>	<b>*1.14</b>
<b>Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)</b>															
Total	..	0.93	<b>*0.89</b>	0.87	<b>*0.89</b>	..	<b>*0.87</b>	<b>*0.89</b>	0.93	<b>*0.90</b>	..	<b>*0.89</b>	<b>*0.89</b>	<b>*0.90</b>	<b>*0.90</b>

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.7: Ratio of the number of people self-reporting osteoporosis to the number expected, 2001 and 1995

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	1	1.00	0.61	0.57	0.60	4	1.00	<b>*0.62</b>	0.68	<b>*0.64</b>	3	1.00	<b>*0.62</b>	0.62	<b>*0.62</b>
65+	3	1.00	<b>*0.31</b>	1.00	<b>*0.56</b>	13	1.00	0.97	0.90	0.94	8	1.00	0.85	0.88	0.86
Total	1	1.00	<b>*0.45</b>	0.85	<b>*0.60</b>	3	1.00	0.82	0.91	0.85	2	1.00	<b>*0.76</b>	0.86	<b>*0.79</b>
<b>1995 (using 1995 MC rates as standard)</b>															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	—	1.00	1.67	0.62	1.24	4	1.00	0.71	0.71	0.71	2	1.00	0.82	<b>*0.68</b>	<b>*0.76</b>
65+	2	1.00	<b>*0.38</b>	<b>*0.28</b>	<b>*0.35</b>	12	1.00	0.85	0.72	0.81	8	1.00	<b>*0.78</b>	<b>*0.66</b>	<b>*0.74</b>
Total	—	1.00	1.04	<b>*0.53</b>	0.85	3	1.00	<b>*0.83</b>	<b>*0.77</b>	<b>*0.81</b>	1	1.00	<b>*0.84</b>	<b>*0.72</b>	<b>*0.80</b>
<b>Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)</b>															
Total	..	<b>*1.80</b>	0.78	3.07	1.28	..	1.03	1.04	1.23	1.10	..	1.12	1.01	1.40	1.12

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.8: Ratio of the number of people self-reporting ischaemic heart disease to the number expected, 2001

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	—	1.00	0.90	0.69	0.82	—	1.00	0.98	1.59	1.21	—	1.00	0.94	1.11	1.01
45–64	3	1.00	1.08	<b>*0.50</b>	0.86	2	1.00	0.66	0.88	0.73	3	1.00	0.93	0.63	0.82
65+	12	1.00	0.89	0.98	0.92	8	1.00	1.28	1.09	1.22	10	1.00	1.07	1.04	1.06
Total	2	1.00	0.94	0.78	0.89	2	1.00	1.11	1.07	1.10	2	1.00	1.01	0.91	0.98

Source: ABS National Health Survey, 2001.

Table 1.1.1.9: Ratio of the number of people self-reporting renal disease to the number expected, 2001

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	—	1.00	1.07	0.80	0.96	1	1.00	1.55	0.69	1.27	1	1.00	1.39	0.72	1.15
65+	1	1.00	0.55	<b>*0.06</b>	<b>*0.38</b>	1	1.00	<b>*0.35</b>	0.94	0.54	1	1.00	<b>*0.47</b>	<b>*0.38</b>	<b>*0.44</b>
Total	—	1.00	1.04	<b>*0.34</b>	0.78	—	1.00	1.17	0.97	1.10	—	1.00	1.12	0.67	0.96

Source: ABS National Health Survey, 2001.

Table 1.1.1.10: Ratio of the number of people self-reporting lung cancer to the number expected, 2001

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	—	1.00	2.57	2.41	2.51	—	—	—	—	—	—	1.00	2.50	2.63	2.55
65+	1	1.00	0.42	2.55	1.18	—	1.00	—	—	—	1	1.00	<b>*0.29</b>	1.89	0.84
Total	—	1.00	0.63	2.54	1.31	—	1.00	—	—	—	—	1.00	0.45	1.95	0.96

Source: ABS National Health Survey, 2001.

Table 1.1.1.11: Ratio of the number of people self-reporting colorectal cancer to the number expected, 2001

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	1	1.00	<b>*0.31</b>	<b>*0.17</b>	<b>*0.26</b>	—	—	—	—	—	—	1.00	<b>*0.30</b>	<b>*0.19</b>	<b>*0.26</b>
65+	1	1.00	<b>*0.33</b>	<b>*0.00</b>	<b>*0.21</b>	—	1.00	1.52	0.46	1.17	1	1.00	0.77	<b>*0.16</b>	0.57
Total	—	1.00	<b>*0.32</b>	0.62	<b>*0.43</b>	—	1.00	1.25	0.36	0.95	—	1.00	0.52	0.60	0.55

Source: ABS National Health Survey, 2001.

## 1.1.2 Injuries

### Summary of findings

In 2001, the likelihood of having had a recent injury (in a 4-week period), and the likelihood of having a long-term condition as a consequence of a previous injury, were higher in regional areas than in Major Cities.

Males and females from regional areas were 1.2 times as likely to self-report a recent injury.

Males and females from regional areas were 1.24 and 1.12 times as likely, respectively, to self-report a long-term condition due to injury.

### Background

Results from the 2001 National Health Survey are presented to describe inter-regional differences in the rate at which people self-report a long-term condition due to injury, and self-report an injury in the 4 weeks prior to the survey.

The ratios and percentages presented for each age group are unadjusted, and those for the total population in each area have been age-standardised to largely remove any distorting effects of the different age structure of the various populations.

The basic data from which these indicators have been calculated from the 2001 National Health Survey. About 26,000 people participated in this face-to-face survey (ABS 2002b).

The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres.

### Detailed results

#### Recent injury within the last 4 weeks

In 2001, 13% of males and 11% of females from Major Cities self-reported an injury in the 4 weeks prior to the survey.

Males and females from regional areas were 1.2 times and equally as likely, respectively, to self-report a recent injury as their counterparts from Major Cities (Table 1.1.2.1).

The pattern of inter-regional differences was the same for non-Indigenous males and females as it was for the total population.

Details for Indigenous people were unavailable from the National Health Survey (ABS 2002a).

#### Long-term condition due to injury

In 2001, 13% of males and 9% of females from Major Cities self-reported a long-term condition due to injury.

Males in regional areas were 1.24 times as likely to self-report a long-term condition due to injury as their counterparts from Major Cities (Table 1.1.2.2), and males aged 25–64-years-old were about 1.2 times as likely. Males in all other age groups in regional areas were also more likely than those from Major Cities to self-report a long-term condition due to injury although the difference in each case was not statistically significant.

Although differences for females were not significant at the 95% level of confidence, at a slightly lower level of confidence, females in regional areas were 1.12 times as likely to self-report a long-term condition due to injury as their counterparts from Major Cities.

The pattern of inter-regional differences was the same for non-Indigenous people as it was for the total population.

Details for Indigenous people were unavailable from the National Health Survey (ABS 2002a).

**Table 1.1.2.1: Ratio of the number of people self-reporting a recent injury to the number expected, 2001**

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	22	1.00	<b>*1.29</b>	1.06	<b>*1.21</b>	19	1.00	0.98	1.25	1.09	20	1.00	<b>*1.16</b>	1.14	<b>*1.15</b>
15–24	15	1.00	1.06	0.94	1.02	11	1.00	0.72	0.70	<b>*0.71</b>	13	1.00	0.92	0.84	0.90
25–44	12	1.00	0.99	<b>*1.41</b>	1.16	11	1.00	0.90	1.10	0.98	12	1.00	0.95	<b>*1.26</b>	1.07
45–64	7	1.00	1.42	1.33	<b>*1.39</b>	8	1.00	1.13	<b>*0.53</b>	0.93	7	1.00	<b>*1.26</b>	0.93	1.14
65+	5	1.00	1.74	0.72	1.38	6	1.00	1.11	1.62	1.28	5	1.00	1.36	1.22	1.32
Total	13	1.00	<b>*1.22</b>	1.16	<b>*1.20</b>	11	1.00	0.96	1.06	1.00	12	1.00	<b>*1.10</b>	1.11	<b>*1.10</b>

See notes on page 33.

Source: ABS National Health Survey, 2001.

**Table 1.1.2.2: Ratio of the number of people self-reporting a long-term condition due to injury to the expected number, 2001**

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
<b>2001 (using 2001 MC rates as standard)</b>															
0–14	1	1.00	1.88	0.76	1.47	1	1.00	1.17	2.34	1.62	1	1.00	1.60	1.42	1.53
15–24	8	1.00	1.55	1.14	1.42	9	1.00	1.15	0.72	1.00	8	1.00	1.35	0.92	1.20
25–44	18	1.00	1.18	<b>*1.29</b>	<b>*1.22</b>	11	1.00	1.24	1.30	<b>*1.26</b>	15	1.00	<b>*1.20</b>	<b>*1.30</b>	<b>*1.24</b>
45–64	21	1.00	1.11	<b>*1.35</b>	<b>*1.20</b>	14	1.00	1.04	0.86	0.98	18	1.00	1.08	1.19	1.12
65+	15	1.00	1.27	1.20	1.25	9	1.00	0.99	1.49	1.15	11	1.00	1.16	1.34	1.22
Total	13	1.00	<b>*1.21</b>	<b>*1.28</b>	<b>*1.24</b>	9	1.00	1.12	1.12	1.12	11	1.00	<b>*1.17</b>	<b>*1.23</b>	<b>*1.19</b>

See notes on page 33.

Source: ABS National Health Survey, 2001.

## 1.1.3 Mental health

### Summary of findings

Overall, males and females in regional areas were about as likely to report psychological distress as those in Major Cities.

In 1997, there was no significant overall inter-regional difference in the rate at which affective, anxiety or substance abuse disorders were reported. Survey results suggested, however, that:

- compared with Major Cities, rates of self-reported affective disorders (depression) for 45–64-year-olds from Inner Regional areas were high, and rates among those 65 years or over from Outer Regional areas were low
- males in Outer Regional areas were 0.73 times as likely to report anxiety as those from Major Cities
- rates of substance abuse disorder in 18–24-year-old-women from regional areas were twice those of women in that age group from Major Cities. Conversely, rates of substance abuse disorder among men from regional areas aged 65 years or over appeared to be 0.36 times those (i.e. lower) for men in that age group from Major Cities.

### Background

The 2001 National Health Survey (NHS) and the 1997 Survey of Mental Health and Wellbeing of Adults (SMHW) have been used in this indicator to describe, respectively:

- psychological distress
- affective disorders (depression), anxiety and substance abuse.

Respondents to the 2001 NHS were asked about negative emotional states in the 4 weeks prior to interview using the Kessler 10 Scale (K10). Responses were categorised as low (little or no psychological distress), moderate, high and very high (potentially indicating a need for professional help) levels of psychological distress (ABS 2002b). Results presented in this indicator relate to responses categorised as high or very high.

NHS and SMHW data provided by the ABS were accompanied by estimates of standard error, and these have been used to calculate confidence intervals for the measures of psychological distress.

Because rates of mental disorder are often age-dependent and the age structure of the populations of each of the areas is different, inter-regional comparisons have been indirectly age-standardised.

The 2001 NHS and the 1997 SMHW had sample sizes, respectively, of about 26,000 and 10,600 randomly selected people. The SMHW measured the prevalence of disorders over the 12 months prior to interview (ABS 1999a).

### Detailed results

#### Psychological distress

In 2001, 13% of people reported 'high to very high levels of psychological distress' (referred to hereafter as psychological distress) in the 4 weeks prior to interview (ABS 2002b).

Overall, males and females in regional areas were about as likely to report psychological distress as those in Major Cities (Table 1.1.3.1).

The only specific groups in Table 1.1.3.1 for which there were significantly more people with self-reported psychological distress were males aged 18–24 years in Inner and Outer Regional areas. These two groups were 1.79 and 0.51 times as likely, respectively, to report psychological distress as those in Major Cities.

Figures for Indigenous people were not available due to the limited number of Indigenous people sampled. Inter-regional comparisons for non-Indigenous people were similar to those for the total population.

### **Affective disorders (depression)**

Overall in Australia, rates of affective disorder were lowest among older people (1% of males and 3% of females aged 65 years and over), and higher in younger people (3% and 11%, respectively, of 18–24-year-old males and females, and 4–6% and 7–9% of 25–64-year-old males and females).

In 1997, there was no significant overall inter-regional difference in the rate at which affective disorders were reported (Table 1.1.3.2). Survey results suggested, however, that compared with Major Cities, rates in 45–64-year-olds from Inner Regional areas were high, and rates among those 65 years and over from Outer Regional areas were low.

### **Anxiety**

Overall in Australia, rates of anxiety were higher among younger adults, declining from 8% for males aged 18–24 years to 4% for those aged 65 years and over, and from 13% to 14% for females under 65 years to 5% for those aged 65 years and over.

In 1997, there was no significant overall inter-regional difference in the rate at which anxiety was reported. However, survey results suggest that males in Outer Regional areas were 0.73 times as likely to self-report anxiety as their counterparts from Major Cities. Specifically, males in Outer Regional areas aged 25–44 years and 65 years and over were, respectively, 0.49 and 0.21 times as likely to report anxiety as their counterparts in Major Cities.

Survey results also suggested that 18–24-year-old females from Inner Regional areas were 1.73 times as likely to report anxiety as those from Major Cities (Table 1.1.3.3).

### **Substance abuse disorders**

Overall in Australia, rates of substance abuse disorder were higher among younger adults than older adults (15% of 18–24-year-olds and 10% of 25–44-year-olds, compared with 1% for people aged 65 years and over).

In 1997, there was no significant overall inter-regional difference in the rate at which substance abuse disorders were reported (Table 1.1.3.4).

However, results from the survey suggest that rates of substance abuse disorder in 18–24-year-old women from regional areas were twice that of women in that age group from Major Cities. Conversely, rates of substance abuse disorder among men from regional areas aged 65 years and over, appeared to be 0.36 times those (i.e. lower) for men in that age group from Major Cities.

**Table 1.1.3.1: Ratio of the number of people self-reporting psychological distress to the number expected, 2001**

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
18–24	10	1.00	<b>*1.79</b>	<b>*0.51</b>	1.37	22	1.00	0.96	0.85	0.92	16	1.00	1.23	0.74	1.07
25–44	10	1.00	1.14	1.17	1.15	15	1.00	1.08	1.05	1.07	13	1.00	1.10	1.10	1.10
45–64	10	1.00	0.95	0.89	0.93	15	1.00	1.05	0.81	0.97	12	1.00	1.01	0.85	0.95
65+	8	1.00	0.84	0.88	0.85	12	1.00	0.79	0.79	0.79	10	1.00	0.81	0.82	0.81
Total	10	1.00	1.11	0.97	1.06	15	1.00	1.01	0.91	0.97	13	1.00	1.05	0.94	1.01

See notes on page 33.

Note: Figures relate to the 4-week period prior to interview.

Source: ABS National Health Survey, 2001.

**Table 1.1.3.2: Ratio of the number of people reporting affective disorders to the number expected, 1997**

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
18–24	3	1.00	2.41	0.00	1.46	11	1.00	1.05	0.76	0.94	7	1.00	1.28	0.57	1.00
25–44	6	1.00	0.86	0.77	0.82	9	1.00	0.84	1.19	0.97	7	1.00	0.85	1.02	0.91
45–64	4	1.00	1.64	0.84	1.32	7	1.00	1.24	1.23	1.24	5	1.00	<b>*1.39</b>	1.06	1.26
65+	1	1.00	1.13	0.00	0.73	3	1.00	0.70	0.49	0.63	2	1.00	0.77	<b>*0.36</b>	0.63
Total	4	1.00	1.23	0.71	1.03	7	1.00	0.97	1.09	1.02	6	1.00	1.05	0.94	1.01

Notes

1. Figures relate to the 12-month period prior to interview.

2. Rates for the total population in each area have been indirectly age-standardised to the age-specific rates in Major Cities in 1997. Otherwise, see notes on page 33.

Source: ABS Survey of Mental Health and Wellbeing of Adults, 1997.

**Table 1.1.3.3: Ratio of the number of people reporting anxiety to the number expected, 1997**

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
18–24	9	1.00	1.19	0.71	1.00	13	1.00	<b>*1.73</b>	0.90	1.41	11	1.00	<b>*1.48</b>	0.81	1.21
25–44	8	1.00	0.92	<b>*0.49</b>	<b>*0.75</b>	13	1.00	1.04	1.22	1.11	11	1.00	0.99	0.93	0.97
45–64	7	1.00	1.06	1.25	1.13	14	1.00	0.88	0.79	0.84	11	1.00	0.93	0.94	0.93
65+	4	1.00	1.30	<b>*0.21</b>	0.92	5	1.00	0.88	1.17	0.97	5	1.00	1.02	0.77	0.94
<b>Total</b>	7	1.00	1.03	<b>*0.73</b>	0.92	12	1.00	1.04	1.03	1.04	10	1.00	1.03	0.91	0.98

*Notes*

1. Figures relate to the 12-month period prior to interview.
2. Rates for the total population in each area have been indirectly age-standardised to the age-specific rates in Major Cities in 1997. Otherwise, see notes on page 33.

Source: ABS Survey of Mental Health and Wellbeing of Adults, 1997.

**Table 1.1.3.4: Ratio of the number of people reporting substance abuse disorders to the number expected, 1997**

Age	Males					Females					Persons				
	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
18–24	22	1.00	0.79	1.00	0.87	9	1.00	<b>*2.19</b>	1.59	<b>*1.95</b>	15	1.00	1.18	1.18	1.18
25–44	14	1.00	1.04	0.92	0.99	6	1.00	1.05	0.85	0.97	10	1.00	1.04	0.90	0.99
45–64	6	1.00	1.04	1.03	1.04	2	1.00	1.06	0.65	0.90	4	1.00	1.07	0.94	1.02
65+	3	1.00	<b>*0.42</b>	<b>*0.26</b>	<b>*0.36</b>	—	1.00	0.00	1.78	0.57	1	1.00	<b>*0.39</b>	0.45	<b>*0.41</b>
<b>Total</b>	12	1.00	0.95	0.93	0.95	4	1.00	1.28	0.98	1.16	8	1.00	1.06	0.96	1.02

*Notes*

1. Figures relate to the 12-month period prior to interview.
2. Rates for the total population in each area have been indirectly age-standardised to the age-specific rates in Major Cities in 1997. Otherwise, see notes on page 33.

Source: ABS Survey of Mental Health and Wellbeing of Adults, 1997.

## 1.1.4 Dental health

### Summary of findings

In regional/remote areas, 6- and-12 year-old children had, respectively, about 1.3 and 1.2 times as many decayed, missing or filled teeth as their counterparts in Major Cities. This could be partly explained by the lower proportion of adequately fluoridated reticulated water systems in regional and remote areas than in Major Cities (see section 2.1.1). It may also be linked to lower prevalence of dentists in these areas (see section 3.5.2).

### Background

This indicator provides a measure of the population's oral health at an early age when the foundation for future oral health is being laid.

Data for calculating the mean number of decayed, missing and filled (dmf) teeth in 35–44-year-olds are currently available only for 1987–88; there has not been another National Oral Health Survey since. Data for the survey did not appear to be well distributed across rural and remote areas.

Poor oral health in childhood predicts poor oral health in older age. Ages 6 and 12 reported here are WHO key age groups. The average number of decayed, missing and filled teeth is frequently used as an indicator of child dental health. The data have been drawn from the Child Dental Health Survey, conducted by the AIHW Dental Statistics and Research Unit (DSRU).

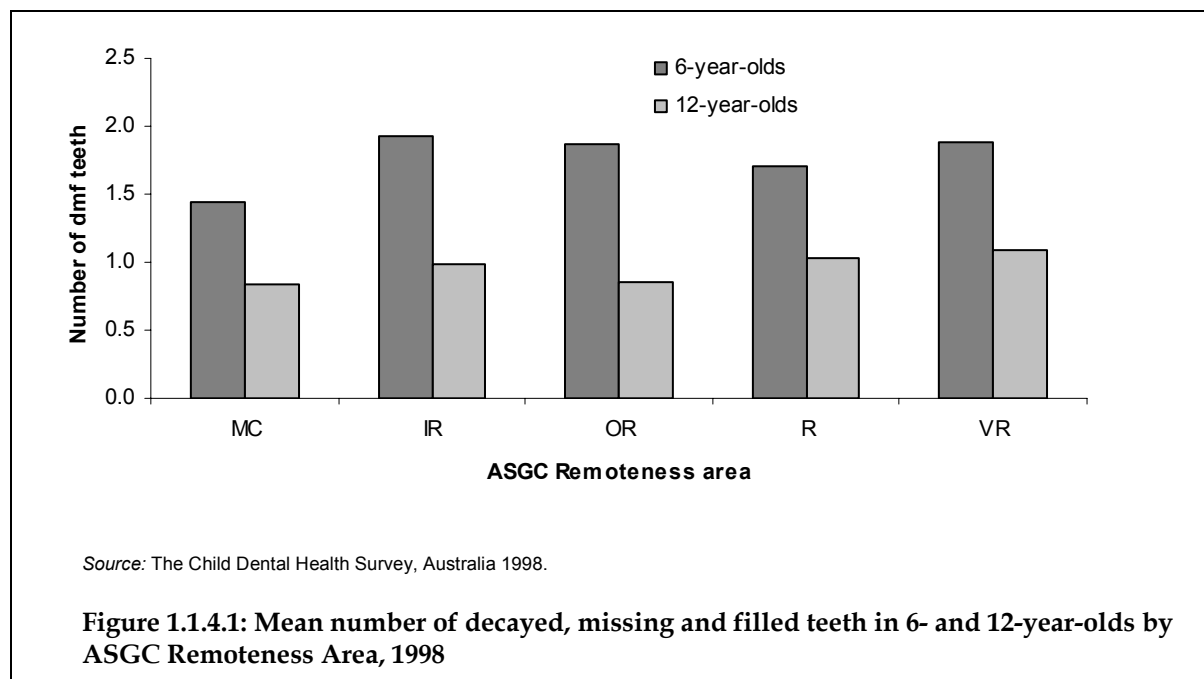
Data for the 6- and 12-year-olds is collected through school dental clinics, and is considered to capture details of almost all children who attend school (although coverage is higher in some states than others). The need for payments by parents in some states reduces the participation and therefore the available data. At present it is not possible to report for Indigenous people. Information about Indigenous status is collected well in only a few states. Work is proceeding to improve data quality and it is hoped that reporting will be possible in the future (pers.comm., Jason Armfield, DSRU).

Values for standard errors were not supplied with the data; consequently, it has not been possible to calculate confidence intervals for the estimates.

### Detailed results

In 1998, 6-year-olds living in regional and remote areas tended to have more decayed, missing and filled teeth than those in Major Cities. In Inner Regional, Outer Regional, Remote and Very Remote areas, they had 1.33, 1.29, 1.18 and 1.30 as many decayed, missing and filled teeth, respectively, as 6-year-olds living in Major Cities.

In regional and remote areas, 12-year-olds also tended to have more decayed, missing and filled teeth than those in Major Cities. In Inner Regional, Outer Regional, Remote and Very Remote areas, they had 1.17, 1.20, 1.22 and 1.31 times as many decayed, missing and filled teeth, respectively, as 12-year-olds living in Major Cities.



**Table 1.1.4.1: Mean number of decayed, missing and filled teeth in 6- and 12-year-olds by ASGC Remoteness Area, Australia, 1998**

Age of child	MC	IR	OR	R	VR	Total
	(number)					
6-year-olds	1.45	1.93	1.87	1.71	1.88	1.63
12-year-olds	0.84	0.98	0.85	1.02	1.09	0.89
	<b>Comparison with Major Cities</b>					
	(ratio)					
6-year-olds	1.00	1.33	1.29	1.18	1.30	1.12
12-year-olds	1.00	1.17	1.02	1.22	1.31	1.06

Note: These figures are slightly different from those published in the 1998 Child Dental Health Survey report because they are based on adjusted data.

Source: The Child Dental Health Survey, Australia, 1998.

## 1.1.5 Communicable diseases

### Summary of findings

- *Gastroenteric diseases (salmonellosis and campylobacteriosis)*: Rates of notification of salmonellosis were 1.3, 2.1 and 4.3 times as high in Inner and Outer Regional and remote areas, respectively, as in Major Cities in 2001. Notification rates for campylobacteriosis in these areas were the same as they were in Major Cities.
- *Ross River virus*: Rates of notification for Ross River virus were 3.1, 4.9 and 8.7 times as high in Inner and Outer Regional and remote areas in 2001, respectively, as in Major Cities.
- *Pertussis*: Rates of notification were 1.3, 1.9 and 1.9 times as high in Inner and Outer Regional and remote areas, respectively, as in Major Cities in 2001. In preceding years, the pattern has been for rates to be lowest in Major Cities, higher in Inner Regional areas, higher again in Outer Regional areas and highest in remote areas.
- *Syphilis*: Rates of notification were 0.5, 1.4 and 12.5 times as high in Inner Regional, Outer Regional and remote areas, respectively, as in Major Cities. The pattern in previous years was similar, but absolute rates and regional differences have declined substantially since 1991.
- *Chlamydia*: Rates of notification were 0.9, 1.7 and 4.1 times as high in Inner Regional, Outer Regional and remote areas, respectively, as in Major Cities in 2001. This pattern of higher rates outside Major Cities is typical of the pattern in previous years.

An inability to differentiate effectively between Indigenous and non-Indigenous people in the data prevents inter-regional comparisons as well as comparisons across time for the Indigenous and non-Indigenous populations. However:

- High rates of notification for syphilis, chlamydia and salmonella in regional and especially remote areas may reflect high rates in the general Indigenous population, and their greater representation in the populations of those areas.
- High rates of Ross River virus in these areas are likely to reflect higher overall rates of exposure (such as greater potential exposure to disease vectors such as mosquitoes) outside Major Cities generally, possibly compounded by the relatively large proportion of these areas that are in the tropics. Ross River virus notifications are less common for Indigenous people than they are for non-Indigenous people.
- Rates of pertussis are high in regional and remote areas even though they tend to be low overall for Indigenous people. Whatever the reason for higher rates of pertussis notification outside Major Cities, it is unlikely to be due to high rates in regional and remote area Indigenous populations (as appears to be the case for some of the other communicable diseases described here).

## Background

Five indicator disease groups are reported here:

- gastroenteric diseases (salmonellosis and campylobacteriosis)
- Ross River virus
- pertussis
- syphilis
- chlamydia.

The data used here to describe communicable diseases are from Australia's National Notifiable Diseases Surveillance System (NNDSS). The Communicable Diseases Network of Australia (CDNA) made these data available and reviewed the results. A potential problem in interpreting changes in rates of notifiable diseases is that an increase or decrease in apparent rates over time may be a result of a change in underlying rates of disease, a change in the likelihood of cases being notified to the surveillance system or tested in the first case, or changes in diagnostic tests.

Because of concerns about relatively small numbers of notifications, data for Remote and Very Remote areas have been aggregated.

State and territory differences in surveillance practice may affect inter-regional comparison. For example, standard case definitions in all jurisdictions have been introduced only in the past year.

In some cases, the postcode on which the ASGC Remoteness Areas category is based may not be the postcode of the person's residence or the postcode in which infection took place. However, because of the very broad nature of the ASGC Remoteness Areas, any distorting effects are unlikely to be large.

Notification rates have been compared using the ratio of observed to expected notifications (indirectly age-standardised). The age-specific rates of notification for each sex in Major Cities in 2001 were applied to the populations of males and females who lived in each area in each of the years from 1991 to 2001 to yield the 'expected number of notifications'. The reported statistic is the ratio of the observed number to the calculated expected number of notifications. If there were twice as many observed cases as expected, then the ratio is 2.0. The ratio for Major Cities in 2001 is, by definition, 1.0.

Notification rates in remote (especially Very Remote) areas could be strongly influenced by rates for Indigenous people, because of the large proportion in these areas who are Indigenous. Previously published (Blummer et al. 2003; ABS & AIHW 1999; ABS & AIHW 2001) comparisons of the rates of notification for Indigenous and non-Indigenous people show higher notification rates for Indigenous people from South Australia, Western Australia and the Northern Territory (jurisdictions in which identification of Indigenous cases is considered best) for several of the diseases (salmonellosis, syphilis and chlamydia), similar or slightly lower rates for pertussis (Menzies et al. 2004; ABS & AIHW 1999; ABS & AIHW 2001) and substantially lower rates for Ross River virus (ABS & AIHW 1999; ABS & AIHW 2001).

Although data quality is enough to indicate much higher or lower rates for Indigenous people overall, it is not clear whether the quality of identification in this data set is adequate for comparing differences between areas for either the Indigenous or non-Indigenous populations. Based on experience in some other databases, even though Indigenous identification is quite good in some of the jurisdictions, identification in each of the ASGC

Remoteness Areas can vary substantially, invalidating inter-regional comparisons for Indigenous and possibly also for non-Indigenous populations.

Some records in the National Notifiable Diseases Surveillance System data set did not have adequate postcode information to allow allocation of a Remoteness Area category. In almost all of these cases, the postcode was either missing from the record or there was no match with an existing or previous postcode (e.g. 5999, 6999, 7999 – known states, unknown postcode). The magnitude of this effect varies between disease groups and is described below for each of them. These records were not included in the analysis.

## **Detailed results**

### **Gastroenteric diseases**

Notifications for the gastroenteric diseases salmonellosis and campylobacteriosis have been reported separately as the inter-regional comparisons for the two are quite different.

Campylobacteriosis is reported more than three times as frequently as salmonellosis. The notification rate for both diseases in Australia increased between 1991 and 2001, indicating a higher incidence of disease or easier identification using improved laboratory methods (Lin et al. 2002).

Of the total 22,264 notifications<sup>1</sup> of salmonellosis and campylobacteriosis in 2001, 60%, 21%, 13% and 5% were of people in Major Cities, Inner Regional, Outer Regional and remote areas, respectively.

In 2001, there were 1.3, 2.1 and 4.3 times as many notifications of salmonella, and 1.0, 1.0 and 1.0 times as many notifications of campylobacteriosis as expected in Inner Regional, Outer Regional and remote areas as would be expected if Major Cities rates had applied in each of those areas (Figure 1.1.5.1 and Figure 1.1.5.2). For both diseases, the inter-regional pattern was similar in previous years; notification rates were lowest for salmonellosis in Major Cities and Inner Regional areas, increasing with remoteness; notification rates were similar in all areas for campylobacteriosis (although higher in remote areas in earlier years).

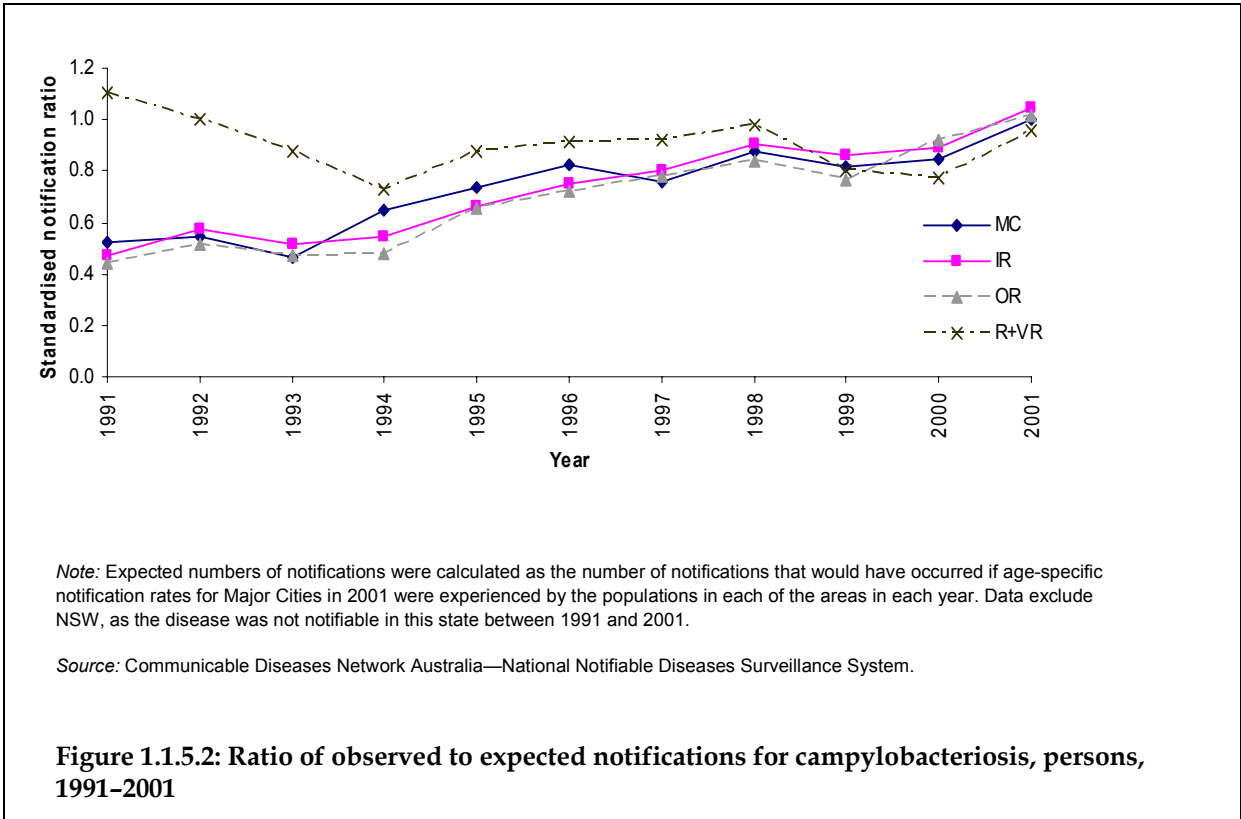
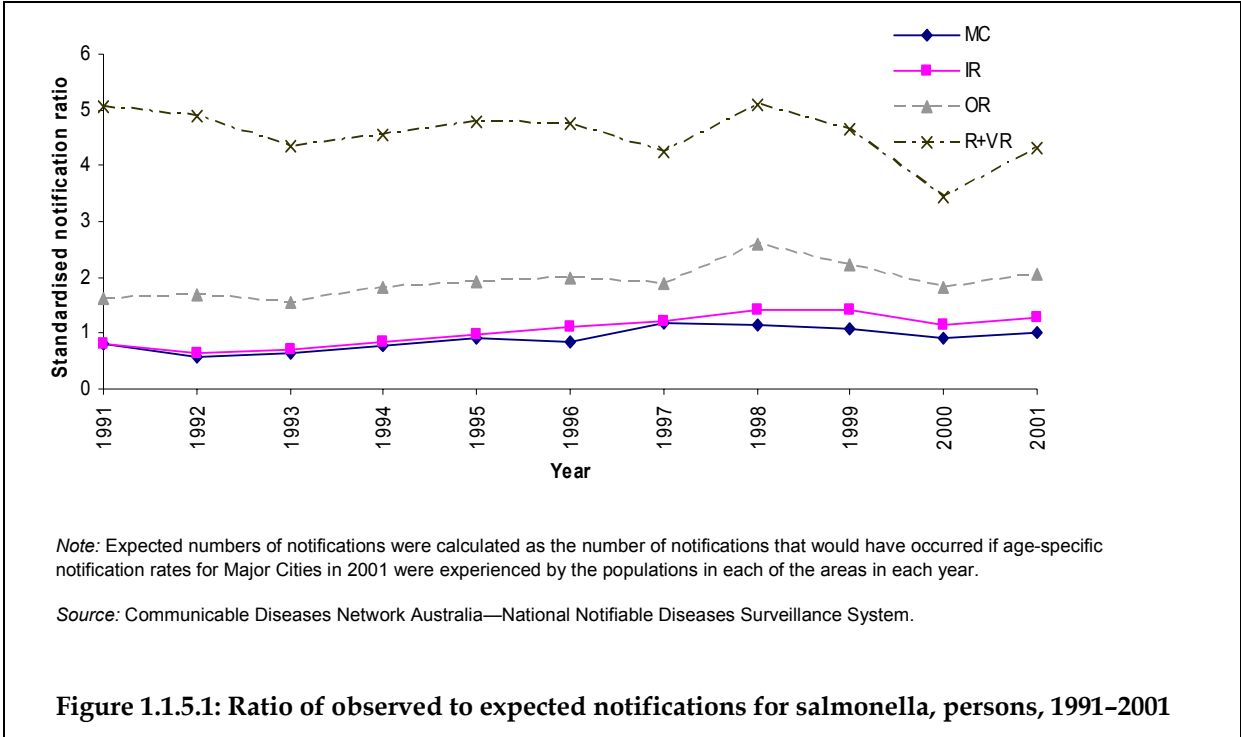
With the exception of remote areas, there has been a general increase in the notification rate for both diseases in most areas.

It is likely that higher rates of notification of salmonellosis in regional and remote areas is due to confounding issues such as a higher percentage of the population who are Indigenous in these areas. Without an ability to control for Indigenous status, it is unclear how much, if any, of the higher rates in regional and remote areas are due to remoteness. The overall rate of notification of this disease for Indigenous people in 1996–98 and 1998–2000 has been estimated at 2.5 and 4 times the rate for non-Indigenous people, respectively (ABS & AIHW 1999, ABS & AIHW 2001). It appears likely that high rates in the Indigenous population may be responsible for much, if not all, of the higher rates in regional and remote areas.

In this analysis, a total of 4% of notifications of gastroenteric diseases were lost to the analysis because the data could not be allocated to a Remoteness Area category.

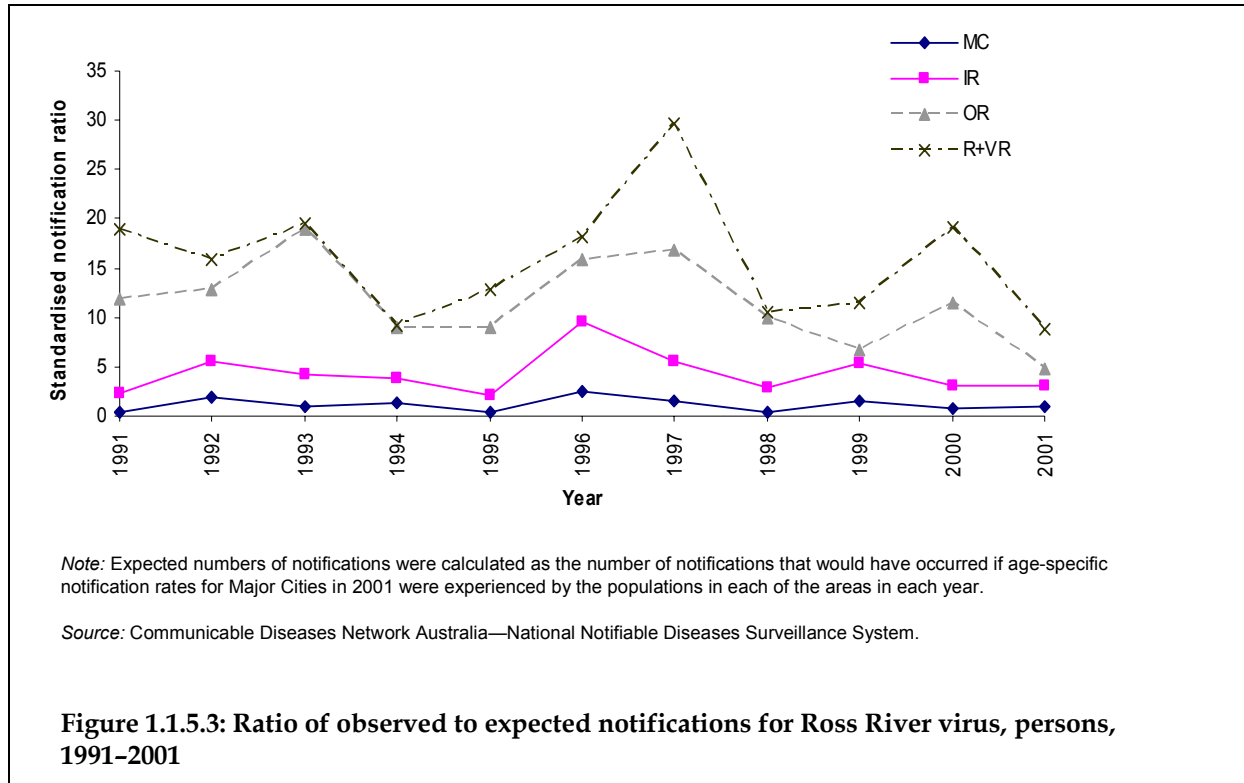
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<sup>1</sup> The number of notifications with sufficient postcode information to allow allocation of remoteness.



## Ross River virus

Ross River virus is one of several diseases transmitted by vectors such as mosquitoes. Others include Barmah Forest virus, dengue, Japanese encephalitis, Kunjin virus, malaria and Murray Valley encephalitis.



Ross River virus is the most common of the vectorborne diseases. Of the total 5,273 cases notified in 2001, 61% were Ross River virus, 22% were Bahmah Forest virus and 13% were malaria.

The notification rate for vectorborne disease depends on annual rainfall patterns, the mosquito population and the exposure of humans to mosquitoes (Lin et al. 2002). Because the incidence of disease is affected by the weather and is therefore variable, it is difficult to discern clear trends over time.

Of the total 2,978 notifications<sup>2</sup> of Ross River virus in 2001, 33%, 31%, 24% and 11% were of people in Major Cities, Inner Regional, Outer Regional and remote areas, respectively. In 2001, there were 3.1, 4.9 and 8.7 times as many notifications in Inner Regional, Outer Regional and remote areas as would be expected if Major Cities rates had applied in each of those areas (Figure 1.1.5.3). The tendency for rates to increase with remoteness was also evident in previous years, but with greater inter-regional differences in many of the previous years.

Rates of notification for Indigenous people have been reported as lower than for non-Indigenous people (0.3 and 0.7 times as high in 1996–98 and 1998–2000), so high rates in regional and especially remote areas are likely to be due to other influences (ABS & AIHW

<sup>2</sup> The number of notifications with sufficient postcode information to allow allocation of remoteness.

1999; ABS & AIHW 2001). The higher rates of notification in regional and remote areas are likely to be influenced by the tendency for many of the more remote areas to be in tropical or subtropical areas. In regional and remote areas, particularly in the tropics, the opportunity for transmission could be greater given the likely higher exposure to mosquitoes and to animal and/or bird hosts of these diseases.

In this analysis, 2% of notifications were lost to the analysis because the data could not be allocated to a Remoteness Area category.

### **Pertussis**

Pertussis, commonly known as whooping cough, is the most common vaccine-preventable illness in Australia, with periodic epidemics occurring at intervals of 3–5 years. As a result of the effectiveness of infant immunisation, young adolescents (10–14 years) now have the peak notification rate (Lin et al. 2002). The incidence of pertussis has increased in a number of countries since 1997, possibly linked to evolution of variants of the pertussis bacterium *Bordetella pertussis*.

Given the periodic increases in numbers of notifications associated with epidemics, time trends should be interpreted with caution.

Notification of pertussis may not have been very complete in 1991 and 1992, and so data for these two years have been excluded. Peaks in 1997 and 2001 are associated with epidemics.

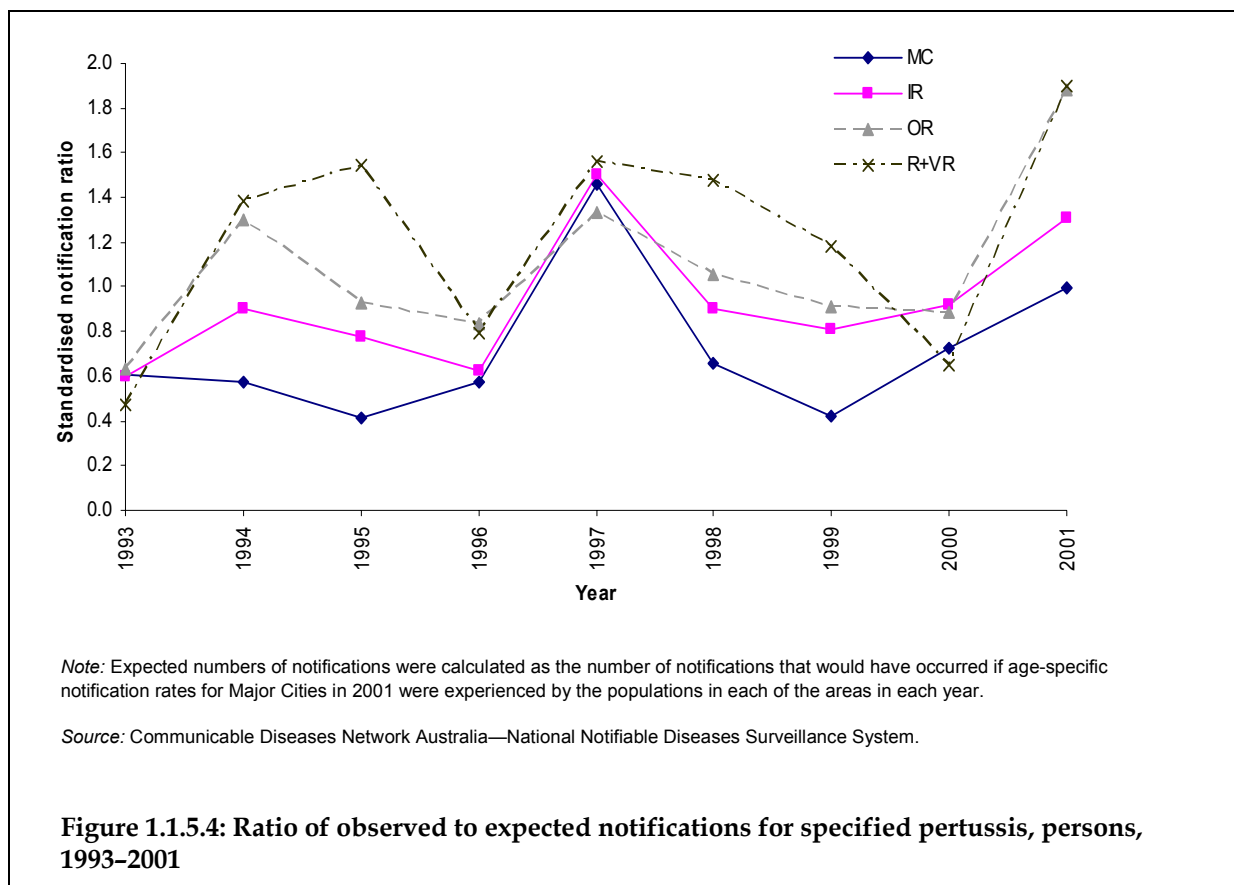
In 2001, there were 1.3, 1.9 and 1.9 times as many notifications in Inner Regional, Outer Regional and remote areas as would be expected if Major Cities rates had applied in these areas (Figure 1.1.5.4). Of the total 9,126 notifications<sup>3</sup> of pertussis in 2001, 55%, 23%, 17% and 4% were of people in Major Cities, Inner Regional, Outer Regional and remote areas. In the years preceding 2001, rates in regional and remote areas were either similar to, or higher than, those in Major Cities. On average over the period 1993–2001, rates in Inner Regional, Outer Regional and remote areas were, respectively, about 1.3, 1.5 and 1.7 times those in Major Cities.

In 2001, the rate of notification of pertussis for Indigenous people was 0.9 times what it was for non-Indigenous people (Menzies et al. 2004), a ratio similar to those (0.9 and 0.5, respectively) described in 1998–2000 (ABS & AIHW 2001) and 1996–1998 (ABS & AIHW 1999). It therefore appears probable that higher rates of notification in regional and remote areas are associated with remoteness, or with some other issue associated with, or confounding for, remoteness.

In this analysis, 1% of notifications were lost to the analysis because the data could not be allocated to a Remoteness Area category.

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<sup>3</sup> The number of notifications with sufficient postcode information to allow allocation of remoteness.



## Syphilis

Syphilis is a sexually transmitted or congenital disease, for which notifications decreased between 1991 and 2001. For every ten notifications of females, there were twelve notifications of males, with a fairly substantial peak for women aged 25–29 years. Males were affected consistently at all adult life stages.

Data presented here are likely to be adversely affected by the fact that notifications can relate to both new and chronic infections. It is only recently that notifications of newly acquired cases with duration of less than 2 years are being differentiated from notifications of chronic cases (pers. comm. CDNA).

Screening surveys may be conducted in remote locations more frequently than in other areas, and the resulting higher detection rates in these remote areas may skew comparisons of areas.

Between 1991 and 2001, there was little change in syphilis notification rates in Major Cities or in Inner Regional areas, but there were reductions in Outer Regional and particularly remote areas. The ratios of observed to expected notifications fell by 0.25 and 3.45 each year in Outer Regional and remote areas, respectively. This represents decreases in the rate of notification of 6% and 7% per year in each area, respectively.

In 2001, there were 0.5, 1.4 and 12.5 times as many notifications in Inner Regional, Outer Regional and remote areas as would be expected if Major Cities rates had applied (Figure 1.1.5.5). Of the total 972 notifications<sup>4</sup> of syphilis in 2001, 54%, 8%, 12% and 26% were

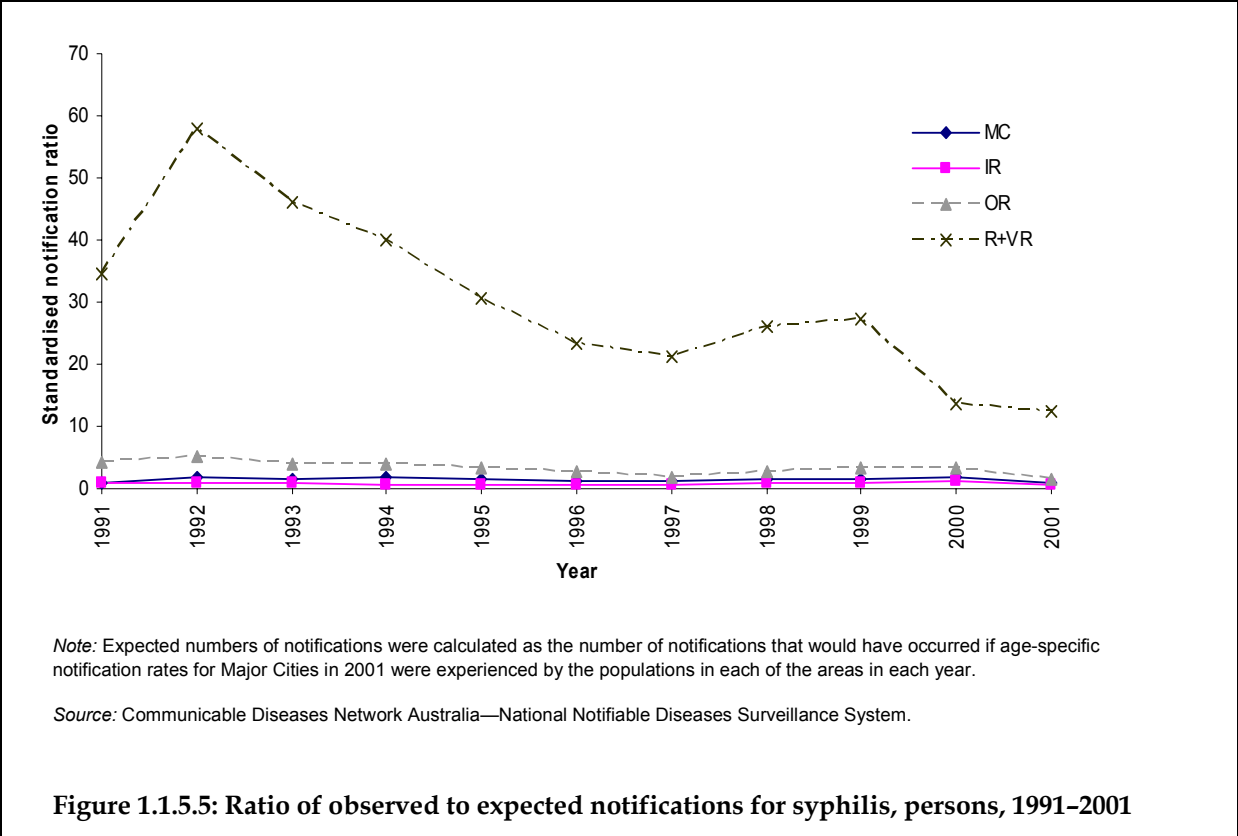
<sup>4</sup> The number of notifications with sufficient postcode information to allow allocation of remoteness.

of people in Major Cities, Inner Regional, Outer Regional and remote areas, respectively. This general pattern has been apparent since 1991 (when rates in the three regional/remote areas were 0.9, 4.6 and 37.3 times those in Major Cities at the time), with the rates in each of the areas decreasing relative to those in Major Cities over time (i.e. the differential has become smaller).

Elevated rates of syphilis notification in more remote areas are likely to be strongly affected by high rates in the Indigenous population generally, and may reflect the higher proportion of the population in these areas who are Indigenous. In 2001, overall notification rates for Indigenous people were approximately 100 times higher than for non-Indigenous people (Blumer et al. 2003). This suggests that the higher overall Indigenous notification rates may explain much of the regional variation described for this disease. It is unclear whether any of this variation can be attributed to other issues related to remoteness.

The decrease in syphilis notification rates between 1991 and 2001 may be due to a number of reasons, probably including the change in the notification definition mentioned earlier.

In this analysis, a total of 11% of syphilis notifications were lost to the analysis because the data could not be allocated to a Remoteness Area category. This loss was smaller (4–6%) in the years 1995–98, and larger in 1991 (22%) and 2001 (29%).



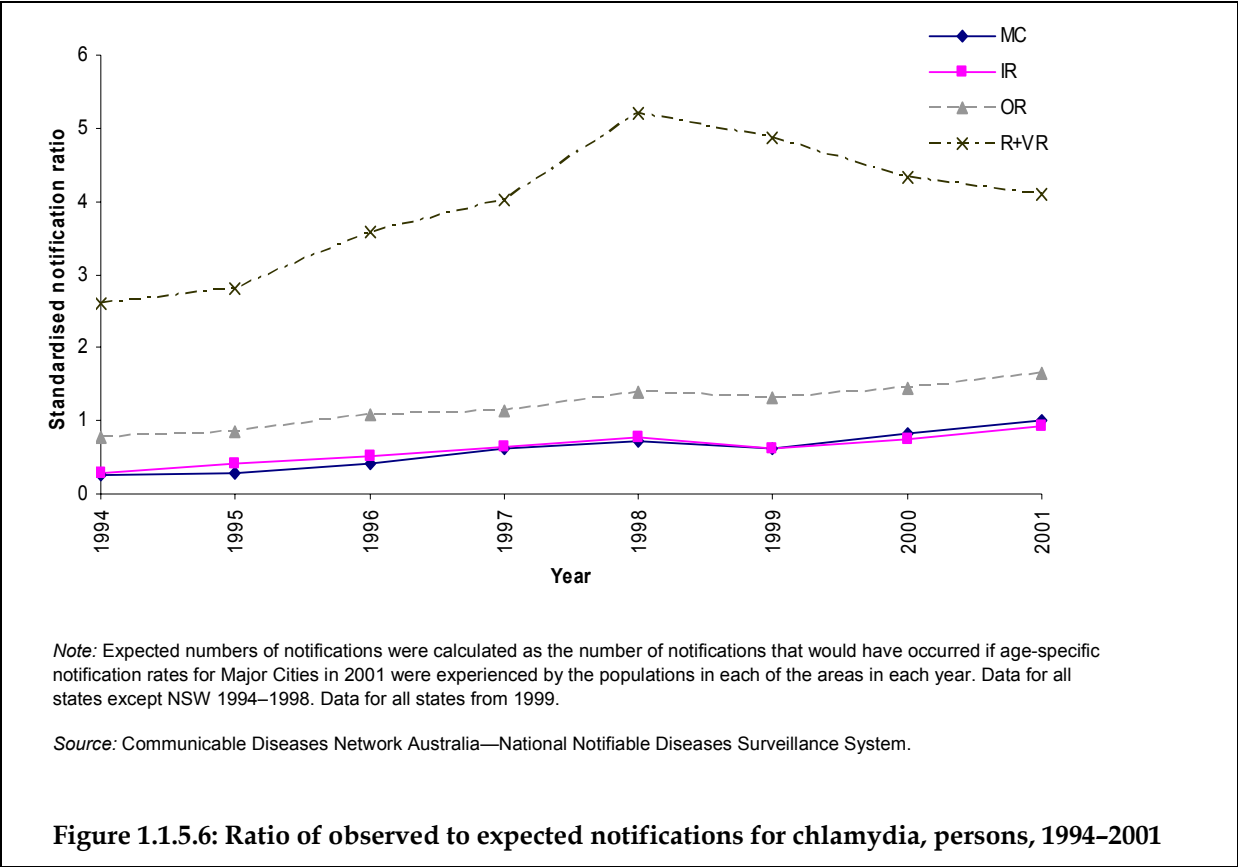
### Chlamydia

Chlamydia is the most commonly reported sexually transmitted infection (STI). Chlamydia has been a notifiable disease in all states since 1994 (although New South Wales did not report notifications to the national data set between 1994 and 1998) (Blumer et al. 2003). The rate of notification for chlamydia has increased over time, at least partly due to the

introduction of screening programs and the use of more effective laboratory testing (Lin et al. 2002).

Between 1994 and 2001, there was a general increase in the notification rate in most areas. This increase is such that the ratio of observed to expected notifications increased by about 0.1 per year in Major Cities, Inner Regional and Outer Regional areas, respectively, throughout the period. There were increases in Remote and Very Remote areas between 1994 and 1998, but this increase does not appear to have been sustained beyond that period. (Although rates appear to have decreased since 1998, the 2001 ratio for Very Remote areas was still higher than it was in 1997.) The decline in remote areas also coincides with the start of data input from New South Wales, which could have affected the comparison.

In 2001, there were 0.9, 1.7 and 4.1 times as many notifications as expected in Inner Regional, Outer Regional and remote areas, respectively, as would be expected if Major Cities rates had applied (Figure 1.1.5.6). Of the total 18,316 notifications<sup>5</sup> of chlamydia in 2001, 62%, 15%, 13% and 10% were of people in Major Cities, Inner Regional, Outer Regional and remote areas, respectively. In previous years, the differences between rates in regional and remote areas and those in Major Cities have been greater: in 1994, rates in the four areas outside Major Cities were 1.1, 3.1 and 10.4 times those in Major Cities at the time. In summary, notification rates increased in all areas, but by 2001 there was proportionally less difference between rates in regional/remote areas and rates in Major Cities.



<sup>5</sup> The number of notifications with sufficient postcode information to allow allocation of remoteness.

Elevated rates of chlamydia notification in more remote areas are likely to be strongly affected by high rates in the Indigenous population generally. In 2001, notification rates were 7.5 times higher for Indigenous people than for non-Indigenous people (Blumer et al. 2003). As for syphilis, much of the regional variation described for this disease could be the result of the higher proportion of the remote area population who are Indigenous, coupled with their overall higher notification rates. It is unclear whether any of the inter-regional variation can be attributed to other issues related to remoteness.

In this analysis, 14% of chlamydia notifications were lost to the analysis because the data could not be allocated to a Remoteness Area category. This loss decreased from 28% in 1994, to 19% in 1996, then to 5–9% thereafter. It is likely that this systematic reduction in the number of records lost to analysis over time will act to increase the presented notification rates, but the effect is not large enough to explain all of the increase between 1994 and 2001.

Notifications data used for this indicator have been sourced from the Communicable Diseases Network Australia – National Notifiable Diseases Surveillance System.

**Table 1.1.5.1: Number of disease notifications, by Remoteness Area, 1991–2001**

<b>Year</b>	<b>MC</b>	<b>IR</b>	<b>OR</b>	<b>remote</b>	<b>Total</b>
<b>Salmonella</b>					
1991	2,577	800	875	814	5,066
1992	1,799	651	917	781	4,148
1993	2,035	732	847	686	4,300
1994	2,484	878	999	709	5,070
1995	2,953	996	1,058	734	5,741
1996	2,715	1,165	1,088	725	5,693
1997	3,945	1,251	1,027	647	6,870
1998	3,794	1,456	1,419	771	7,440
1999	3,587	1,488	1,214	703	6,992
2000	3,128	1,194	987	520	5,829
2001	3,426	1,380	1,118	650	6,574
<b>Campylobacteriosis</b>					
1991	4,658	1,322	784	666	7,430
1992	4,934	1,644	912	599	8,089
1993	4,254	1,492	843	520	7,109
1994	5,956	1,606	863	428	8,853
1995	6,868	1,968	1,191	511	10,538
1996	7,766	2,255	1,316	530	11,867
1997	7,167	2,432	1,433	536	11,568
1998	8,363	2,753	1,538	572	13,226
1999	7,884	2,631	1,405	470	12,390
2000	8,283	2,770	1,692	449	13,194
2001	9,853	3,300	1,863	553	15,569
<b>Ross River virus</b>					
1991	382	556	1,614	685	3,237
1992	1,615	1,393	1,750	578	5,336
1993	764	1,068	2,622	704	5,158
1994	1,146	995	1,261	334	3,736
1995	310	566	1,270	466	2,612
1996	2,194	2,611	2,276	665	7,746
1997	1,400	1,544	2,436	1,102	6,482
1998	447	824	1,467	391	3,129
1999	1,397	1,538	998	431	4,364
2000	735	873	1,691	721	4,020
2001	989	933	727	329	2,978

*(continued)*

**Table 1.1.5.1 (continued): Number of disease notifications, by Remoteness Area, 1991–2001**

<b>Year</b>	<b>MC</b>	<b>IR</b>	<b>OR</b>	<b>remote</b>	<b>Total</b>
<b>Pertussis</b>					
1993	2,787	887	500	99	4,273
1994	2,655	1,361	1,030	288	5,334
1995	1,938	1,189	738	320	4,186
1996	2,718	966	673	166	4,523
1997	7,010	2,341	1,073	327	10,751
1998	3,180	1,416	852	309	5,760
1999	2,085	1,282	738	249	4,354
2000	3,594	1,484	721	137	5,936
2001	5,050	2,135	1,539	402	9,126
<b>Syphilis</b>					
1991	432	123	323	648	1,538
1992	795	144	392	1,089	2,429
1993	726	107	312	864	2,015
1994	921	96	304	753	2,080
1995	690	103	264	580	1,642
1996	626	89	204	447	1,367
1997	571	106	139	407	1,225
1998	724	122	220	507	1,575
1999	741	133	274	539	1,687
2000	894	183	261	268	1,606
2001	527	82	117	246	972
<b>Chlamydia</b>					
1994	1,809	568	965	1,108	4,454
1995	2,090	818	1,066	1,182	5,161
1996	2,940	1,051	1,348	1,487	6,828
1997	4,472	1,274	1,396	1,654	8,800
1998	5,292	1,525	1,707	2,131	10,662
1999	7,145	1,828	2,041	2,162	13,180
2000	9,238	2,242	2,177	1,902	15,561
2001	11,318	2,757	2,467	1,772	18,316

Note: Data for chlamydia excludes NSW before 1999.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

**Table 1.1.5.2: Ratio of observed to expected disease notifications, by Remoteness Area, 1991–2001**

<b>Year</b>	<b>MC</b>	<b>IR</b>	<b>OR</b>	<b>remote</b>	<b>Total</b>
<b>Salmonella</b>					
1991	0.8	0.8	1.6	5.1	1.1
1992	0.6	0.7	1.7	4.9	0.9
1993	0.6	0.7	1.5	4.4	0.9
1994	0.8	0.9	1.8	4.6	1.0
1995	0.9	1.0	1.9	4.8	1.2
1996	0.8	1.1	2.0	4.8	1.1
1997	1.2	1.2	1.9	4.2	1.4
1998	1.1	1.4	2.6	5.1	1.5
1999	1.1	1.4	2.2	4.6	1.4
2000	0.9	1.1	1.8	3.5	1.1
2001	1.0	1.3	2.1	4.3	1.3
<b>Campylobacteriosis</b>					
1991	0.5	0.5	0.4	1.1	0.5
1992	0.5	0.6	0.5	1.0	0.6
1993	0.5	0.5	0.5	0.9	0.5
1994	0.6	0.5	0.5	0.7	0.6
1995	0.7	0.7	0.7	0.9	0.7
1996	0.8	0.8	0.7	0.9	0.8
1997	0.8	0.8	0.8	0.9	0.8
1998	0.9	0.9	0.8	1.0	0.9
1999	0.8	0.9	0.8	0.8	0.8
2000	0.8	0.9	0.9	0.8	0.9
2001	1.0	1.0	1.0	1.0	1.0
<b>Ross River virus</b>					
1991	0.5	2.3	11.9	19.0	2.6
1992	1.9	5.5	12.7	16.0	4.2
1993	0.9	4.1	18.9	19.5	4.0
1994	1.3	3.8	9.0	9.2	2.8
1995	0.3	2.1	8.9	12.8	1.9
1996	2.4	9.6	15.8	18.1	5.7
1997	1.5	5.6	16.8	29.7	4.7
1998	0.5	2.9	10.0	10.5	2.2
1999	1.5	5.4	6.8	11.5	3.1
2000	0.8	3.0	11.4	19.1	2.8
2001	1.0	3.1	4.9	8.7	2.0

*(continued)*

**Table 1.1.5.2 (continued): Ratio of observed to expected notifications, by Remoteness Area, 1991–2001**

<b>Year</b>	<b>MC</b>	<b>IR</b>	<b>OR</b>	<b>remote</b>	<b>Total</b>
<b>Pertussis</b>					
1993	0.6	0.6	0.6	0.5	0.6
1994	0.6	0.9	1.3	1.4	0.7
1995	0.4	0.8	0.9	1.5	0.6
1996	0.6	0.6	0.8	0.8	0.6
1997	1.5	1.5	1.3	1.6	1.5
1998	0.7	0.9	1.1	1.5	0.8
1999	0.4	0.8	0.9	1.2	0.6
2000	0.7	0.9	0.9	0.6	0.8
2001	1.0	1.3	1.9	1.9	1.2
<b>Syphilis</b>					
1991	0.9	0.8	4.2	34.6	2.2
1992	1.7	1.0	5.2	57.8	3.5
1993	1.5	0.8	4.0	45.9	2.8
1994	1.9	0.7	3.8	39.9	2.9
1995	1.4	0.7	3.4	30.7	2.3
1996	1.3	0.6	2.6	23.5	1.9
1997	1.2	0.7	1.8	21.1	1.7
1998	1.4	0.8	2.8	26.0	2.1
1999	1.4	0.9	3.5	27.4	2.2
2000	1.7	1.2	3.3	13.6	2.1
2001	1.0	0.5	1.4	12.5	1.2
<b>Chlamydia</b>					
1994	0.2	0.3	0.8	2.6	0.4
1995	0.3	0.4	0.9	2.8	0.5
1996	0.4	0.5	1.1	3.6	0.6
1997	0.6	0.6	1.1	4.0	0.8
1998	0.7	0.8	1.4	5.2	1.0
1999	0.6	0.6	1.3	4.9	0.8
2000	0.8	0.8	1.4	4.3	1.0
2001	1.0	0.9	1.7	4.1	1.1

*Notes*

1. Data for chlamydia excludes NSW before 1999.
2. Ratios compare the number of observed notifications with the number expected if age-specific notification rates applied to the population in each area in each year.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

## 1.1.6 Birthweight

### Summary of findings

In the period 1997–1999, 1.3% of babies born in Major Cities were of very low birthweight. Similar proportions of babies born in Inner and Outer Regional areas (1.4% and 1.2%) were of very low birthweight, and slightly higher proportions (1.5% and 1.8%) in Remote and Very Remote areas, respectively. These higher percentages in remote areas are likely to be influenced by the higher overall percentages of Indigenous babies with very low birthweight (2.2%), but the exact size of the effect is unclear, because of uncertainty about the accuracy of Indigenous identification. The tendency for low birthweight Indigenous babies is at least partially a consequence of low socioeconomic status, a factor that also influences the birthweight of non-Indigenous babies.

The same general inter-regional pattern was evident for low birthweight babies.

Of babies born in Major Cities, 88% had a birthweight between 2,500 and 4,200 g; 87% of babies in regional and Remote areas and 86% in Very Remote areas were in this range.

Mean birthweights were slightly higher in Inner (3,377 g) and Outer (3,371 g) Regional areas than in Major Cities (3,358 g), but were lower in Remote and Very Remote areas (3,327 g and 3,280 g, respectively). The mean weight of Indigenous babies was 3,155 g, compared with 3,367 g for non-Indigenous babies.

### Background

Birthweights are an indicator of health status of babies and of the community in general. Being a healthy baby is a good foundation for adult health.

Babies are defined as low birthweight if their birthweight is less than 2,500 g. Within this category, those weighing less than 1500 g are designated as very low birthweight (AIHW 2001a). Babies greater than 4200 g are considered large.

Birthweight is related to maternal age, and therefore age standardisation (using the direct method) has been used to adjust percentages for differences in the age profile of mothers in each area. The age-standardised rates were found to be similar to the crude rates. Means, medians and percentiles have not been age-standardised and are presented as unadjusted descriptive data.

Direct age standardisation involves, for each area, applying the percentage of births that occurred in each maternal age group to the total number of births to women in that maternal age group nationally. Effectively, this calculates the number of low birthweight babies that would have been born if rates that applied in each of the areas had applied to the total population of births.

Perinatal data for the years 1997, 1998 and 1999 was provided by the National Perinatal Statistics Unit (NPSU). The postcode of the mother's home address was missing on 32% of the records, and another 8.4% had a postcode that could not be matched to an ASGC Remoteness Area.

The issue of missing postcodes was much more substantial for some states than others and for some years than for others. Consequently, the presented regional birthweights relate to those states and years for which the location of the mother's residence was available.

Although about 40% of the national data are missing from this regional analysis (and much is from states having a large share of regional and remote areas), it is reassuring that the

means (and other statistics) for the total of the analysed states and years are almost identical to those for all Australian data (see Table 1.1.6.2). Nonetheless, caution should be exercised until data from all states are capable of being analysed by region.

## Detailed results

In the period 1997–99:

- Newborn babies of mothers from regional areas were about as likely to be underweight as in Major Cities, and were slightly more likely to weigh 4,200 g or more (Table 1.1.6.1). Newborn babies of mothers from remote areas were slightly more likely to be low birthweight than those of mothers from Major Cities.
- The same patterns apply for babies of non-Indigenous mothers, except that those from remote (especially Very Remote) areas were as likely or less likely to be underweight as babies of non-Indigenous mothers from Major Cities.
- Newborn babies of Indigenous mothers were twice as likely to be underweight as those of non-Indigenous mothers, reflecting lower health status of Indigenous women generally.

**Table 1.1.6.1: Percentage of live births within each birthweight range, by ASGC Remoteness Area, 1997–99**

Birthweight range (grams)	MC	IR	OR	R	VR	Total
	Per cent					
<b>All births</b>						
Less than 1,500	1	1	1	1	1	1
1,500–2,499	5	5	5	6	6	5
2,500–4,199	88	87	88	87	87	88
4,199 or more	6	7	6	6	6	6
<b>Births to non-Indigenous women</b>						
Less than 1,500	1	1	1	1	1	1
1,500–2,499	5	5	5	5	4	5
2,500–4,199	88	87	88	88	89	88
4,199 or more	6	7	6	6	6	6
<b>Births to Indigenous women</b>						
Less than 1,500	n.p.	n.p.	n.p.	n.p.	n.p.	2
1,500–2,499	n.p.	n.p.	n.p.	n.p.	n.p.	10
2,500–4,199	n.p.	n.p.	n.p.	n.p.	n.p.	82
4,199 or more	n.p.	n.p.	n.p.	n.p.	n.p.	5

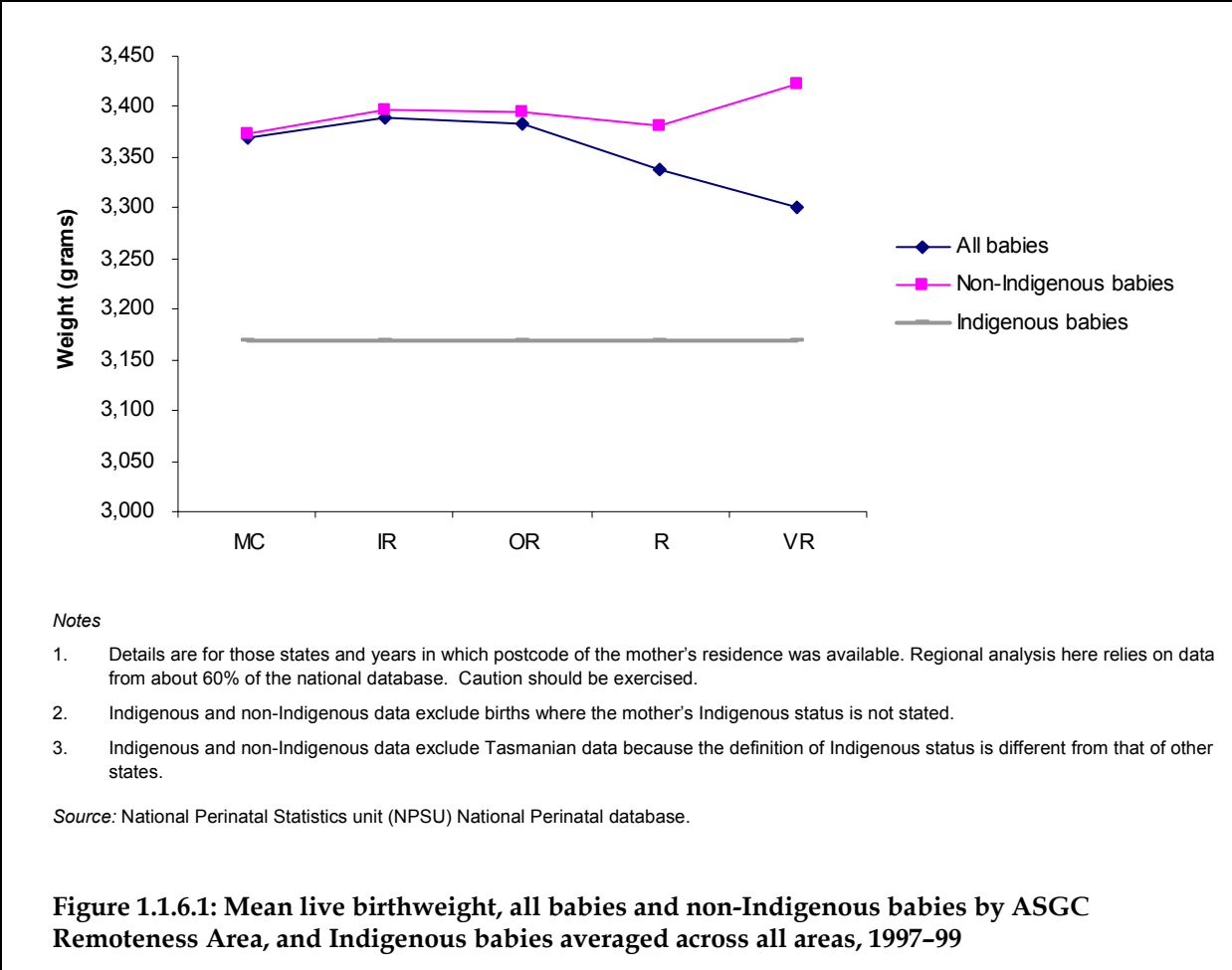
### Notes

1. All percentages have been direct age-standardised to the total number of live births in the states and in the years for which data are available by postcode. Regional analysis here relies on data from about 60% of the national database. Caution should be exercised.
2. Details are for those states and years in which postcode of the mother's residence was available.
3. Percentages may not add to 100 due to rounding.
4. Indigenous and non-Indigenous data exclude births where the mother's Indigenous status is not stated and exclude Tasmanian data because the definition of Indigenous status is different from that of other states.

Source: National Perinatal Statistics unit (NPSU) National Perinatal database.

The mean birthweight of babies was slightly higher in regional areas and lower in Remote and Very Remote areas than in Major Cities (Figure 1.1.6.1 and Table 1.1.6.2).

The low overall mean birthweight of Indigenous babies may be responsible for much of the lower mean birthweights among babies in remote areas, as the mean weights for non-Indigenous babies do not appear to decline with increasing remoteness. However, exact details regarding the accuracy of the Indigenous identifier in each area are unknown, and care must be taken in reaching conclusions.



**Table 1.1.6.2: Mean, median and percentiles for live birthweights in each area, 1997–99**

	Live births (number)	Mean	Median	Percentiles			
				10th	25th	75th	90th
				(grams)			
<b>All births</b>							
Major Cities	308,204	3,370	3,400	2,705	3,060	3,735	4,040
Inner Regional	84,849	3,389	3,430	2,700	3,070	3,760	4,070
Outer Regional	39,310	3,384	3,410	2,710	3,060	3,750	4,060
Remote	7,898	3,338	3,380	2,640	3,030	3,710	4,015
Very Remote	3,797	3,301	3,330	2,600	2,970	3,695	4,000
Unknown area	296	3,155	3,278	2,080	2,920	3,628	3,940
<b>Total</b>	<b>444,354</b>	<b>3,374</b>	<b>3,404</b>	<b>2,700</b>	<b>3,060</b>	<b>3,740</b>	<b>4,045</b>
Australia <sup>(a)</sup>	764,056	3,373	3,405	2,700	3,060	3,740	4,050
<b>Non-Indigenous births</b> <sup>(b) (c)</sup>							
Major Cities	304,137	3,372	3,400	2,710	3,060	3,735	4,040
Inner Regional	70,998	3,397	3,435	2,710	3,080	3,770	4,070
Outer Regional	30,375	3,394	3,420	2,725	3,080	3,760	4,065
Remote	6,154	3,381	3,415	2,710	3,090	3,740	4,020
Very Remote	2,155	3,422	3,440	2,775	3,120	3,780	4,045
Unknown area	243	3,191	3,284	2,330	2,950	3,635	3,945
<b>Total</b>	<b>414,062</b>	<b>3,378</b>	<b>3,410</b>	<b>2,710</b>	<b>3,070</b>	<b>3,740</b>	<b>4,050</b>
Australia <sup>(a)</sup>	675,286	3,378	3,410	2,710	3,070	3,740	4,050
<b>Indigenous births</b> <sup>(b) (c)</sup>							
<b>Total</b>	<b>11,511</b>	<b>3,169</b>	<b>3,210</b>	<b>2,410</b>	<b>2,820</b>	<b>3,580</b>	<b>3,905</b>
Australia <sup>(a)</sup>	24,892	3,175	3,220	2,415	2,830	3,588	3,930

(a) Includes all states and years 1997 to 1999.

(b) Excludes births where the mother's Indigenous status is not stated.

(c) Excludes Tasmanian data because definition of Indigenous status is different from that of other states.

*Notes*

1. Details are for those states and years in which postcode of the mother's residence was available— unless otherwise noted (see note (a)).
2. Regional analysis here relies on data from about 60% of the national data base. Caution should be exercised.

Source: National Perinatal Statistics Unit (NPSU) National Perinatal database.