Australian Government
Australian Institute of Health and Welfare

Australian Burden of Disease Study

# Impact and causes of illness and death in Aboriginal and Torres Strait Islander people

2011

## Summary report

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# Key points

This summary report on the health of Indigenous Australians is part of a major study known as the Australian Burden of Disease Study 2011. The study uses a technique that assesses and compares the impact—the burden—of fatal and non-fatal diseases and injury on population groups.

The results presented are for Indigenous Australians in the year 2011 unless otherwise stated. For any comparisons between populations or years, adjustments have been made where necessary to account for differences in population size and age structure.

## Chronic diseases are the biggest burden

Chronic diseases caused 64% of the total disease burden among Indigenous Australians in 2011. The 5 disease groups that caused the most burden were mental & substance use disorders (19% of total disease burden), injuries (which includes suicide) (15%), cardiovascular diseases (12%), cancer (9%) and respiratory diseases (8%).

## The health gap and chronic diseases

Indigenous Australians experienced a burden of disease that was 2.3 times the rate of non-Indigenous Australians and a diabetes burden 6 times as high. Chronic diseases as a whole were responsible for more than two-thirds (70%) of the total health gap in 2011.

## Much of the burden can be prevented

Reducing exposure to the modifiable risk factors included in this study could have prevented over one-third (37%) of the burden of disease in Indigenous Australians. The risk factors contributing the most to the overall disease burden were tobacco and alcohol use, high body mass, physical inactivity, high blood pressure and dietary factors.

## Some important health gains since 2003

Between 2003 and 2011 there was a 5% reduction in the rate of total disease burden in the Indigenous population, with an 11% reduction in the fatal burden but a 4% increase in the non-fatal burden. The largest absolute reduction in the rate of total disease burden was for cardiovascular diseases, mostly due to a fall in the fatal burden.

## Reduction in the burden due to some risk factors

Between 2003 and 2011, of the 13 risk factors measured at both time points for the Indigenous population, there was a decrease in the attributable burden due to high blood pressure, physical inactivity and high cholesterol. Conversely there was an increase in the burden attributable to intimate partner violence.

## The burden differs across Australia

The Northern Territory and Western Australia had higher rates of Indigenous burden of disease than New South Wales and Queensland (the 4 jurisdictions for which estimates are reported). Large inequalities were also evident across remoteness areas, with *Remote* and *Very remote* areas having higher rates of disease burden than non-remote areas.

# Introduction: this report, the 'burden' and why it is important

This summary report aims to provide a special, more holistic picture of the health of Indigenous Australians. It is part of the Australian Burden of Disease Study (ABDS) 2011, which describes the 'burden' of disease and injury in the Australian population as a whole and also among the Indigenous population. Given the generally poorer health among Indigenous Australians, any insights from a 'burden' approach may be of particular interest.

Commonly, health statistics provide information about causes of death, disease prevalence and causes of poor health and disability. These statistics are valuable but their varied nature means it can be difficult to get a clear and simple picture of the extent of the impact—the burden—of disease and injury in a population. Allocating health resources in the most effective way requires information about which conditions have the biggest impact on populations and where the most gains can be made. For example, how can the impact of a common chronic disease that leads to long-term disability, but rarely causes death, be compared with the impact of a disease that is not common but is often fatal?

Burden of disease analysis quantifies the gap between a population's actual health and an ideal level of health in a given year—that is, every individual living in full health to the theoretical maximum life span—for all diseases at the same time. Measuring both the burden of living with ill health as well as the burden of dying prematurely contributes to this analysis. It also quantifies the contribution of various risk factors to this burden. Because the same methods are used for all diseases, it means that the health impacts of different diseases and injuries can be validly compared, which makes it valuable for informing health policy and service planning.

## The ABDS and the measures it uses

Analysing the fatal and non-fatal impact of nearly 200 diseases and injuries, the ABDS 2011 covers the Australian population and the Indigenous population for 2011 and 2003. The study uses and adapts the methods of global studies to produce estimates that are better aligned to the Australian health policy context. It also estimates the contribution of various modifiable health-risk factors to the disease burden. While this summary report covers the Aboriginal and Torres Strait Islander population, estimates for the total Australian population are covered in a separate detailed report and summary which the AIHW has also published in 2016.

The **non-fatal burden** is expressed as years lived with disability (YLD). YLD measures the proportion of healthy life lost due to living with a disease in a given year. The number of people with each disease, how long they spend living with its effects and how severe those effects are influence the total YLD.

The **fatal burden**, which is expressed as years of life lost (YLL), measures the years lost between the age at which a person dies and the number of years they could have potentially gone on to live, based on the current best life expectancy across the world. Both the number of deaths and the ages at which the deaths occur influence the total YLL.

The non-fatal and fatal burden are added together to produce a single summary measure called **disability-adjusted life years (DALY)**. One DALY is 1 year of 'healthy life' lost due to illness and/or death—the more DALY associated with a disease or injury, the greater the burden. DALY are estimated for every occurrence of every disease and then added together for the whole population, to indicate the **total disease burden**.

The **attributable burden** due to a particular risk factor is the amount of the disease burden that could be avoided if exposure to the risk factor was reduced to the lowest possible level. There are 29 separate risk factors analysed in the ABDS 2011. These were selected because they are modifiable and there is strong evidence that they are linked to diseases that occur in Australia. While it is an extensive list, it does not cover all potential risk factors—for example, the social determinants of health, such as income and education, could not be included as risk factors in this study.

# The findings

The following sections present a selection of key findings. They begin by discussing the Indigenous burden across the life course, the conditions concerned, and how the burden varies according to age and sex. Then they examine non-fatal and fatal causes in more detail, moving to an estimate of how much of the burden may be prevented by avoiding certain risk factors. Finally, they consider the health gap between Indigenous and non-Indigenous Australians before documenting some areas of improvement and finishing with a discussion of how the burden varies by location and socioeconomic status.

## Disease burden across the life course

Figure 1 shows the disease burden over the 'life course' of Indigenous Australians in 2011, from children aged 0–4 up to adults aged 85 and over.

- In 2011, there were 284 years of healthy life lost due to premature death or living with disease or injury for every 1,000 Indigenous people in Australia, equivalent to 190,227 DALY.
- Total DALY (overall burden) was high at ages 0–4, dropped at 5–9 then generally increased with age, peaking at ages 40–44 and then declining. The rate of burden (that is, the number of DALYs per 1,000 people) increased with age.
- In Indigenous infants, fatal burden predominated. For those aged 15–44, the burden was more evenly shared between fatal and non-fatal outcomes. In Indigenous males aged 40 and over and females aged 50 and over, the fatal burden was higher than the non-fatal burden.
- After adjusting for differences in population age structure, the Indigenous burden of disease rate was 2.3 times that for non-Indigenous Australians.

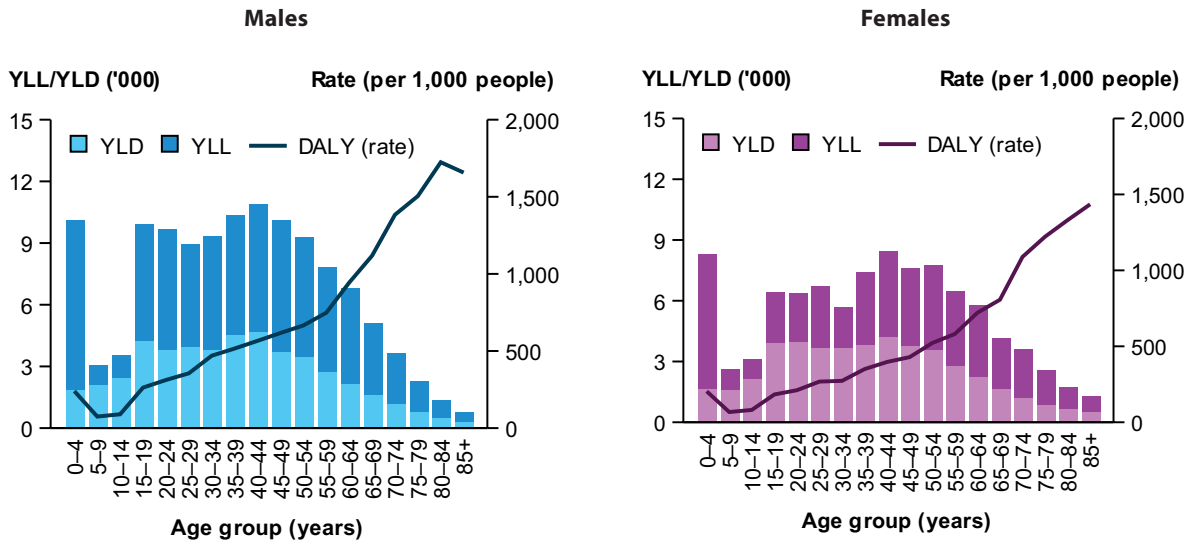



**Figure 1: Non-fatal (YLD) and fatal (YLL) composition of the total burden (DALY), and DALY rates, Indigenous Australians, 2011**

# Chronic diseases and injuries dominate

- Mental & substance use disorders (19%), injuries (including suicide) (15%), cardiovascular diseases (12%), cancer (9%) and respiratory diseases (8%) were the leading causes of total disease burden that Indigenous Australians experienced in 2011.
- Chronic diseases caused 64% of the total disease burden among Indigenous Australians (this group includes cardiovascular diseases, mental & substance use disorders, cancer, chronic kidney disease, diabetes, vision loss, hearing loss and selected musculoskeletal, respiratory, neurological and congenital disorders).
- The patterns for males and females were largely similar, although injuries and cardiovascular diseases accounted for a higher proportion of the burden for Indigenous males and musculoskeletal conditions accounted for a higher proportion of the burden for Indigenous females (Figure 2).

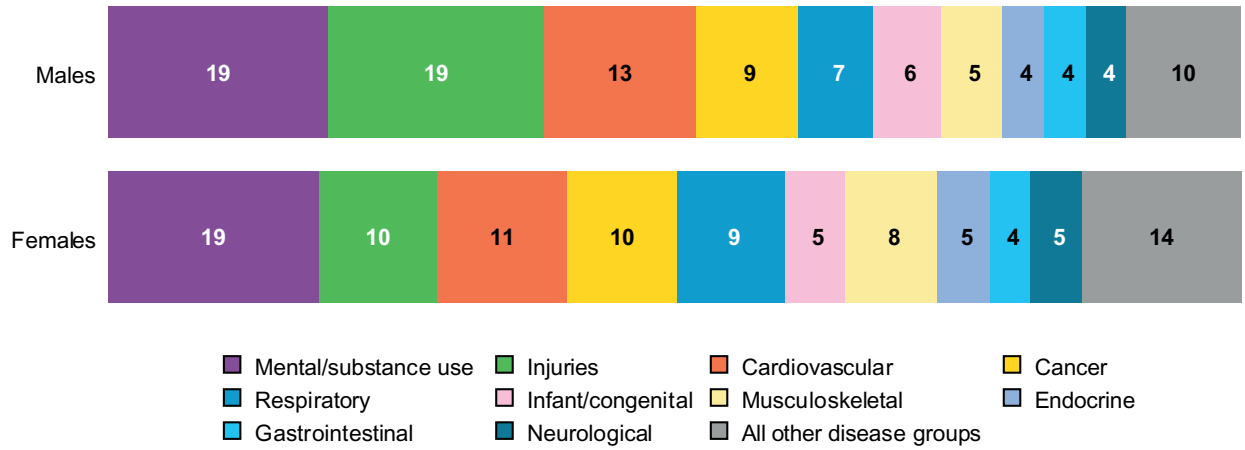



**Figure 2: Proportion (%) of total burden (DALY), by disease group and sex, Indigenous Australians, 2011**

## Fatal to non-fatal composition differs across disease groups

- Among the 5 disease groups with the highest disease burden:
  - the burden from cancer, cardiovascular diseases and injuries was mainly due to people dying early (Figure 3)
  - the burden from mental & substance use disorders and respiratory diseases was mainly due to people living with disease.
- For other disease groups:
  - most of the burden from gastrointestinal disorders, infant & congenital conditions, and endocrine disorders was fatal
  - most of the burden from musculoskeletal conditions, oral disorders, skin disorders, and reproductive & maternal conditions was non-fatal.

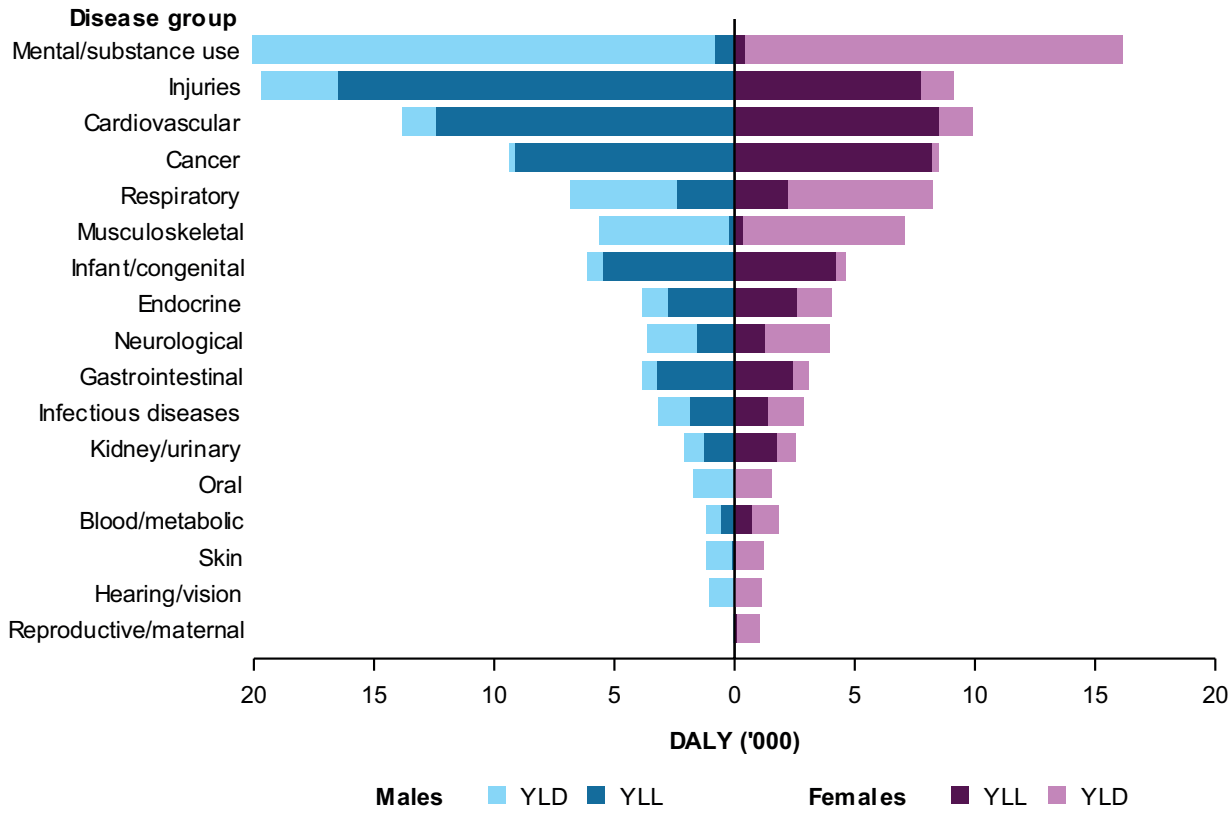



**Figure 3: Non-fatal (YLD) and fatal (YLL) burden, by disease group and sex, Indigenous Australians, 2011**

## Burden of disease group differs by sex

The distribution of overall disease burden between the sexes varied by disease group (Figure 3).

- Indigenous males experienced over two-thirds (68%) of the overall burden due to injuries and a greater share of the burden due to cardiovascular diseases (58%), infant & congenital conditions (57%), and mental & substance use disorders and gastrointestinal disorders (55% each).
- Indigenous females experienced a greater share of the burden from blood & metabolic disorders (61%), musculoskeletal conditions (56%), and kidney & urinary diseases (55%).

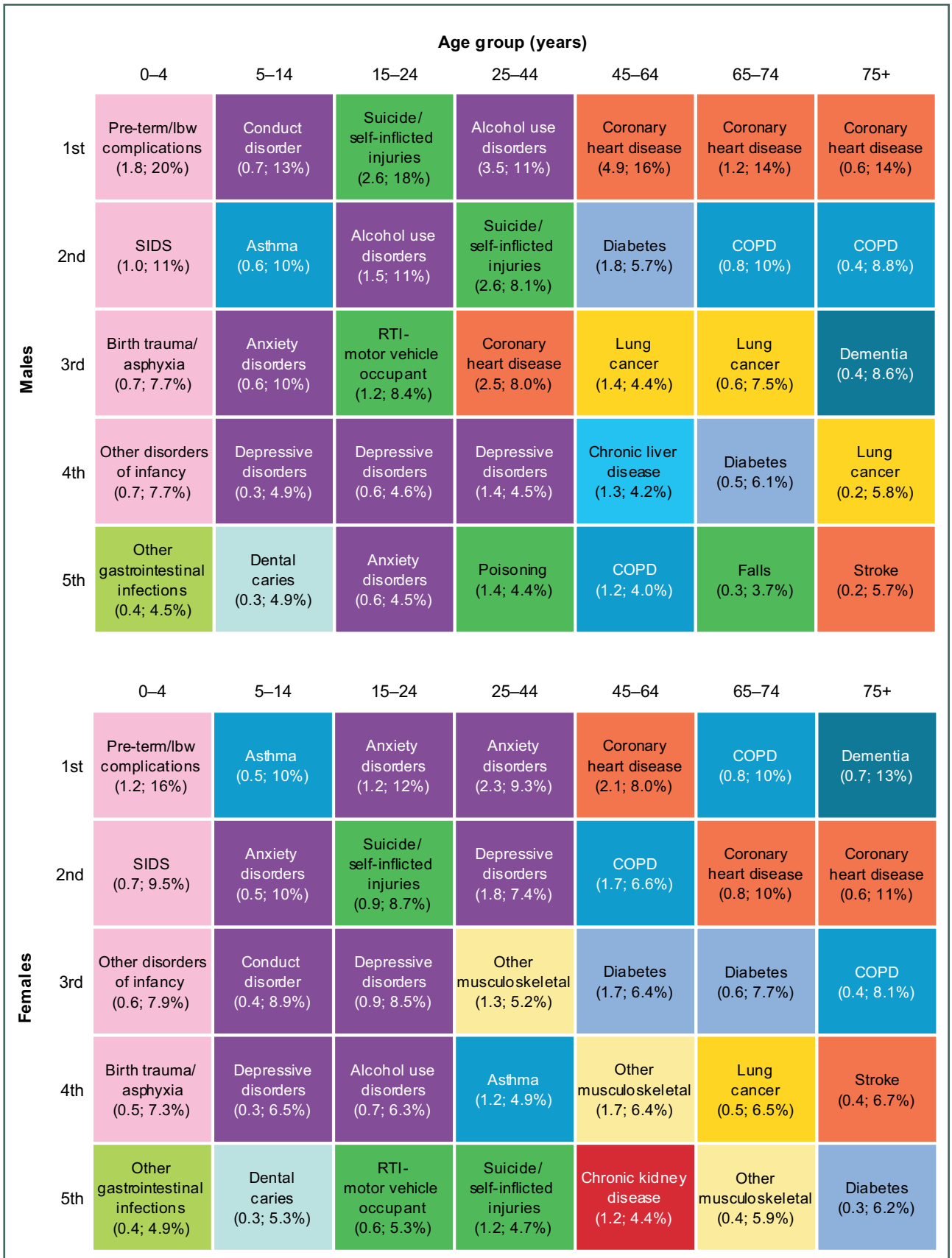
## Diseases that caused the most burden at different points in the life course

### Disease groups

- Infant & congenital conditions were the main cause of the disease burden in infancy while mental & substance use disorders and injuries (including suicide) were the main causes of the burden for late childhood, adolescence and adulthood to age 44.
- Cardiovascular diseases and cancer started to emerge as major causes of the burden among Indigenous Australians from around age 45, and continued to be the main contributors to disease burden in older Indigenous Australians.

### Specific diseases

- Ages 0–4: Pre-term/low birth weight complications, sudden infant death syndrome, birth trauma/ asphyxia and other disorders of infancy were the leading causes of Indigenous disease burden for both sexes.
- Ages 5–14: Asthma, anxiety disorders, depressive disorders and conduct disorders were the main causes of disease burden among Indigenous males and females.
- Ages 15–24: Suicide & self-inflicted injuries, alcohol use disorders and motor vehicle traffic accidents were the leading causes of the burden among Indigenous males, while anxiety, suicide & self-inflicted injuries and depressive disorders were the leading causes of the burden for Indigenous females.
- Ages 25–44: Alcohol use disorders and suicide & self-inflicted injuries were the leading contributors to disease burden for Indigenous males. Anxiety disorders and depressive disorders were the leading causes of the burden for Indigenous females.
- Ages 45–64: Coronary heart disease (CHD) was the leading cause of disease burden for both Indigenous males and females, followed by diabetes for males and chronic obstructive pulmonary disease (COPD) for females.
- Ages 65–74: CHD, COPD, lung cancer and diabetes were the major contributors to the burden for both Indigenous males and females in this age group.
- Ages 75 and over: CHD, COPD and dementia were the leading contributors to the burden for both Indigenous males and females in this age group (Figure 4).




*Note:* 'lbw' = 'low birthweight'; 'RTI' = 'Road traffic injuries'.

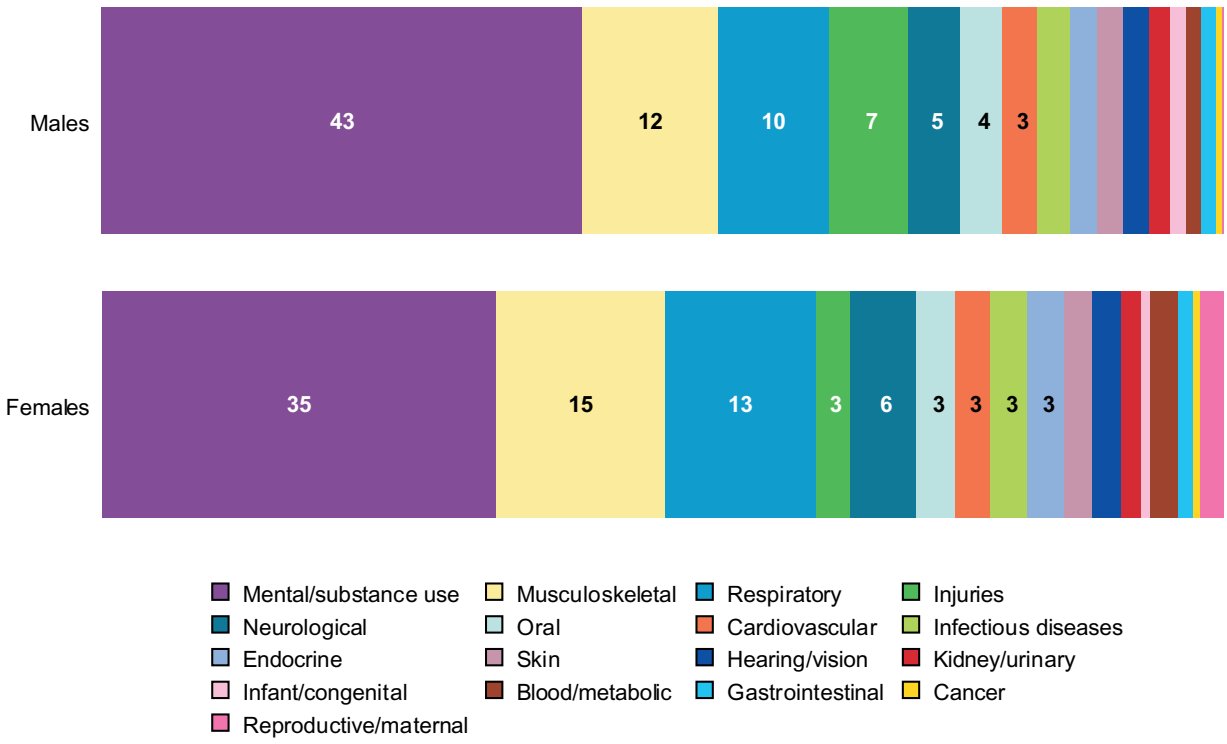
**Figure 4: Leading causes of total burden (DALY '000s; proportion of DALY for age group %), by sex and age group, Indigenous Australians, 2011**

# Impact of living with illness or injury

- In 2011, just under half (47%) of the total burden that Indigenous Australians experienced was due to the impact of living with illness or injury—the non-fatal disease burden.
- There was little overall difference in the non-fatal burden between Indigenous males and females although males generally experienced a slightly higher rate of non-fatal burden at ages 35–44 and from age 70 onwards.
- Rates of non-fatal burden (years per 1,000 people) increased with age.

## Three disease groups caused almost two-thirds of the non-fatal burden

- Three disease groups accounted for around two-thirds (65%) of the non-fatal burden that Indigenous Australians experienced in 2011: mental & substance use disorders (43% of the total for males; 35% for females), musculoskeletal conditions (12% males; 15% females) and respiratory diseases (10% males; 13% females) (Figure 5).




*Note:* Per cent labels are not shown for disease groups contributing less than 3% of burden.

**Figure 5: Proportion (%) of non-fatal burden (YLD) by disease group and sex, Indigenous Australians, 2011**

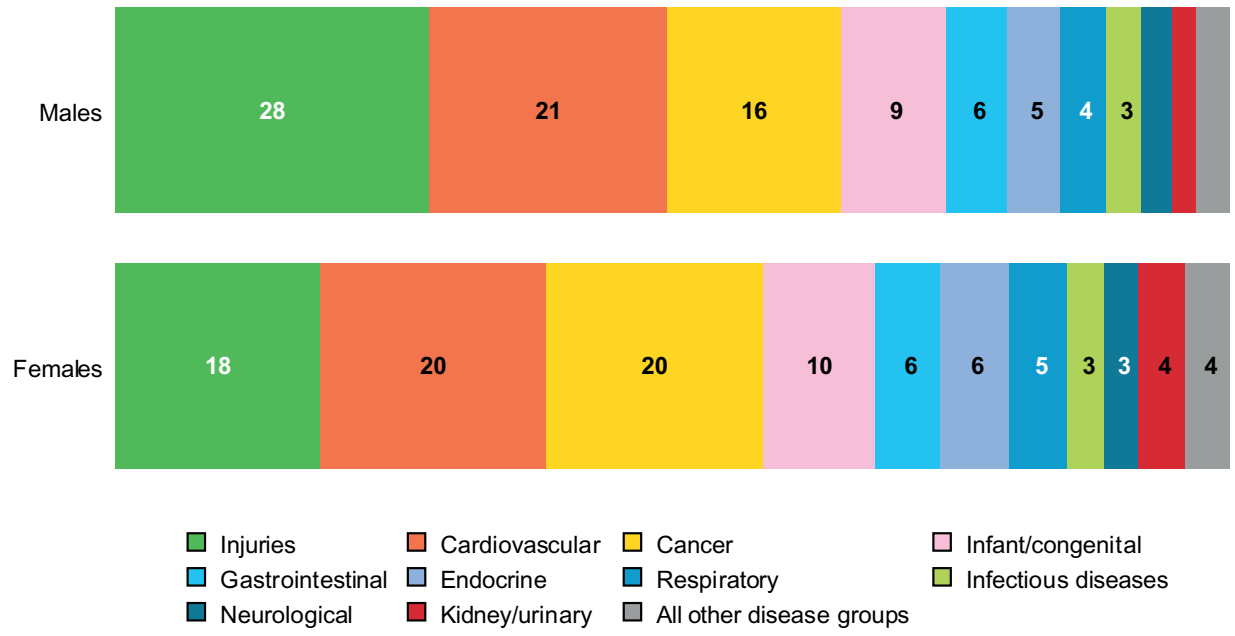
- Anxiety disorders, alcohol use disorders, depressive disorders, other musculoskeletal conditions and asthma were leading causes of the non-fatal burden for both Indigenous males and females.
- Alcohol use disorders contributed a much higher proportion of YLD for Indigenous males (12%) compared to Indigenous females (4%), and anxiety disorders contributed a higher proportion of YLD for Indigenous females (12% compared to 7% for Indigenous males).

# Impact of dying early

- Fatal burden accounted for 53% of the total burden of disease and injury that Indigenous Australians experienced in 2011.
- Indigenous males experienced more of the fatal burden than Indigenous females (58% compared to 42%). After adjusting for differences in age structure of the population, males experienced a 44% higher rate of fatal burden than females. This was mainly due to the higher number of deaths at younger ages in males compared with females.
- Two-thirds (65%) of Indigenous deaths occurred before age 65, which is in stark contrast to the non-Indigenous population where only 19% of deaths occurred before this age.

## Injuries, cardiovascular diseases and cancer caused the most fatal burden

- Three disease groups accounted for the majority of YLL that Indigenous Australians experienced in 2011: injuries (24% of YLL), cardiovascular diseases (21%) and cancer (17%). Injuries accounted for a greater proportion of YLL for males than females (Figure 6).
- Five specific diseases resulted in around one-third of YLL in the Indigenous population: CHD, suicide & self-inflicted injuries, diabetes, injuries from motor vehicle accidents and lung cancer.




*Notes*

1. Per cent labels are not shown for disease groups contributing less than 3% of burden.
2. Hearing & vision disorders and oral disorders are not included, as no Indigenous deaths were recorded for these disease groups in 2011.

**Figure 6: Proportion (%) of fatal burden (YLL) by disease group, Indigenous Australians, 2011**

- Injuries (mainly road traffic injuries and suicide & self-inflicted injuries) were the largest contributor to the fatal burden experienced by Indigenous Australians during childhood and early adulthood.
- For those aged 25–44, the contribution of injuries to the fatal burden was still high; however, cardiovascular diseases and cancer started to emerge.
- Cardiovascular diseases—mainly CHD—and cancer (lung cancer) became the 2 biggest contributors to the fatal burden for Indigenous people aged 45 and over.

# Large proportion of the burden can be prevented

- More than one-third (37%) of the burden of disease that the Indigenous population experienced in 2011 could be prevented by reducing exposure to the modifiable risk factors included in this study (which did not include the social determinants of health).
- The 5 risk factors that caused the most disease burden among Indigenous Australians in 2011 were tobacco use, alcohol use, high body mass, physical inactivity and high blood pressure (Table 1).
- Dietary factors as a group contributed 10% to the total disease burden experienced by Indigenous Australians.
- Tobacco use caused around two-fifths of the burden for each of cancer, cardiovascular diseases and respiratory diseases. High body mass accounted for nearly two-thirds of the burden from endocrine disorders (including diabetes).

**Table 1: Proportion (%) of burden attributable to leading 5 risk factors for selected disease groups, Indigenous Australians, 2011**

| Disease group | Tobacco use | High body mass | Alcohol use | Physical inactivity | High blood pressure | Dietary risks (joint effect)[a] |
|---|---|---|---|---|---|---|
| ***Proportion of total burden*** | | | | | | |
| **All diseases** | **12.3** | **8.2** | **8.3** | **5.5** | **4.9** | **9.7** |
| ***Proportion of disease group burden*** | | | | | | |
| Cancer | 39.0 | 5.3 | 2.8 | 4.8 | .. | 9.6 |
| Cardiovascular | 39.4 | 33.8 | 3.3 | 28.8 | 35.4 | 50.1 |
| Mental | .. | .. | 22.2 | .. | .. | .. |
| Injuries | .. | .. | 18.5 | .. | .. | .. |
| Respiratory | 41.7 | .. | .. | .. | .. | .. |
| Endocrine | 8.2 | 62.3 | 0.7 | 35.6 | .. | 60.7 |
| Kidney/urinary | .. | 36.6 | .. | .. | 19.2 | .. |

(a) Estimates for diet are based on an analysis of the joint effects of all dietary risk factors included in the study following methods used in recent global burden of disease studies.

*Note:* Blank cells '. .' indicate that the risk factor has no associated diseases or injuries in the disease group.

## Why risk factor estimates cannot be added together

The estimates for different risk factors cannot simply be added to derive their total DALY, due to complex pathways and interactions between them. For example, physical inactivity increases the chance of having high body mass, and both increase the risk of cardiovascular diseases.

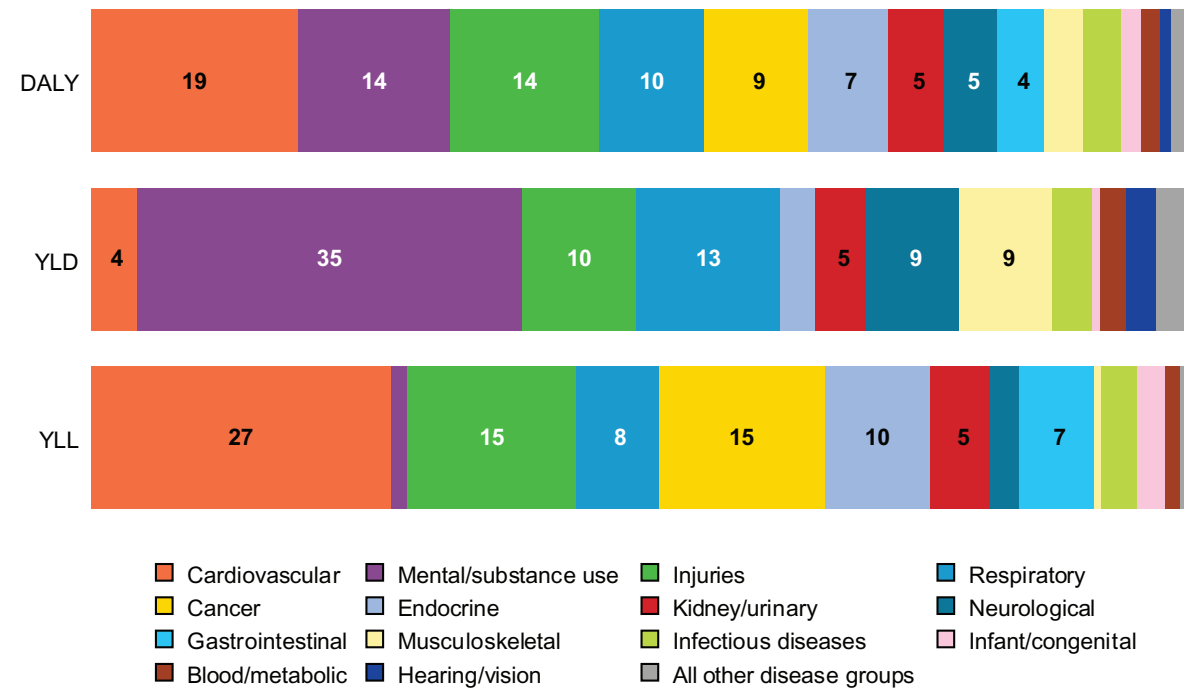
While there are known *associations* between risk factors for many diseases and conditions, burden is attributed to a risk factor where there is sufficient evidence that the risk factor *causes* the disease.

# Gap in health outcomes

- Indigenous Australians were more than twice as likely (2.3 times) to die early or live with poor health as non-Indigenous Australians in 2011.
- Chronic diseases were responsible for more than two-thirds (70%) of the total health gap in 2011. This group includes cardiovascular diseases, mental & substance use disorders, cancer, chronic kidney disease, diabetes, vision loss, hearing loss and selected musculoskeletal, respiratory, neurological and congenital disorders.

## Five disease groups contributed to two-thirds of the gap in total disease burden

- Five disease groups accounted for two-thirds (66%) of the gap in total disease burden between Indigenous and non-Indigenous Australians (based on age-standardised DALY rate differences): cardiovascular diseases, mental & substance use disorders, injuries, respiratory diseases and cancer (Figure 7).
- The specific diseases contributing most to the gap in total disease burden (DALY) between Indigenous and non-Indigenous Australians in 2011 were coronary heart disease (14% of the gap for males; 9% for females) and diabetes (7% males; 8% females).
- Mental & substance use disorders and respiratory diseases were the largest contributors to the gap in the non-fatal burden (YLD) between Indigenous and non-Indigenous Australians, together accounting for 49% of the gap. Cardiovascular diseases, injuries and cancer were the largest contributors to the gap in the fatal burden (YLL), together accounting for 58% of the gap (Figure 7).




*Note:* Per cent labels are not shown for disease groups contributing less than 3% of gap.

**Figure 7: Percentage contribution (%) of leading disease groups to the gap in total, fatal and non-fatal burden, 2011**

- Kidney & urinary diseases and endocrine disorders (including diabetes) had the largest relative disparities in disease burden (based on age-standardised DALY rate ratios). Indigenous Australians experienced disease burden from these 2 disease groups at 7 and 5 times the rate of non-Indigenous Australians, respectively.
- For the 29 risk factors examined, their combined impact accounted for about half (51%) of the health gap between Indigenous and non-Indigenous Australians. Tobacco use contributed the most to the health gap (23%) followed by high body mass (14%). (Note that the gap estimates for individual risk factors cannot be added together due to the complex pathways and interactions between them—see box 'Why risk factor estimates cannot be added together'.)

# Change between 2003 and 2011

This section presents changes over time in the disease burden for Indigenous Australians and then considers whether the gap between Indigenous and non-Indigenous Australians has changed as well. It is important to note that a failure to reduce any health gaps, while disappointing, does not necessarily mean that Indigenous health has not improved or has worsened. For example, although the gap in the overall disease burden has been stable between 2003 and 2011, the Indigenous burden fell by 5% over the period, as shown below.

## Slight reduction in overall burden of disease

- After taking account of the increasing size and age of the Indigenous population (by using age-standardised rates), there was a slight decrease (5%) in total disease burden between 2003 and 2011 (from 454 to 429 DALY per 1,000 Indigenous Australians).

## Reduction in the burden from dying prematurely

- Most of the improvement in overall disease burden for Indigenous Australians came from a reduction of 11% in the age-standardised rate of fatal burden (from 278 to 246 YLL per 1,000 Indigenous Australians). This was a result of preventing or delaying deaths from particular diseases or injuries.
- At the disease group level, the largest decrease in the rate of fatal burden was for cardiovascular diseases.

## Small increase in the impact of people living with disease

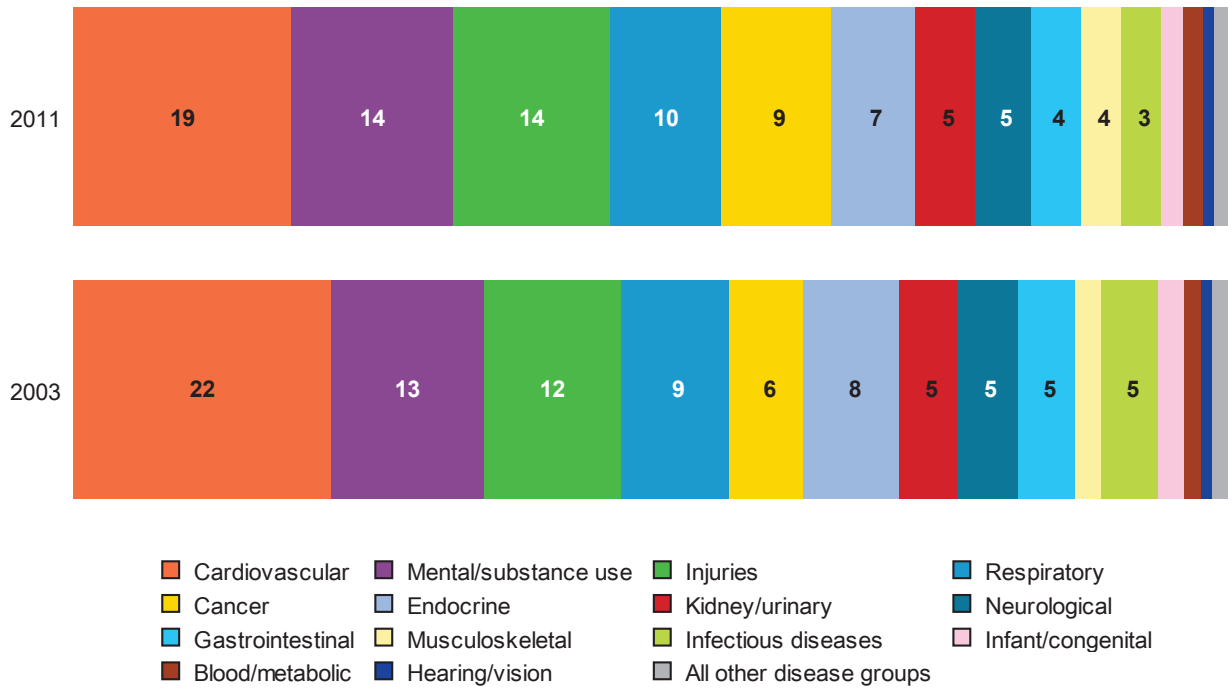
- There was a small increase of 4% in the non-fatal burden between 2003 and 2011 after accounting for population increases and ageing (from 176 to 184 YLD per 1,000 Indigenous Australians).
- Between 2003 and 2011, most disease groups showed little change in the age-standardised rates of non-fatal burden. However, there were notable increases for injuries, mental & substance use disorders, respiratory diseases and endocrine disorders (which include diabetes).

## Reductions in the proportion of the burden due to some risk factors

- There was little change in the proportion of disease burden attributable to the joint effects of the 13 risk factors measured at both time points (from 32% in 2003 to 33% in 2011).
- After removing the impact of the increasing age and size of the Indigenous population (using age-standardised rates), large declines were observed in the rates of burden attributable to high cholesterol (37%), high blood pressure (23%) and physical inactivity (22%). Declines were also observed for diet low in fruit (19%) and diet low in vegetables (21%).
- Between 2003 and 2011, the age-standardised rates of attributable burden increased for intimate partner violence (by 23%).

## Changes in the gap

- The overall gap in total disease burden between Indigenous and non-Indigenous Australians remained relatively stable between 2003 and 2011 based on age-standardised rates (DALY rate differences of 248 and 244 per 1,000; rate ratios of 2.2 and 2.3 respectively). However, the gap in non-fatal burden increased by 15%, while the gap in fatal burden decreased by 9%.
- Cardiovascular diseases, mental & substance use disorders and injuries were the 3 leading disease groups contributing to the gap in total burden in both 2003 and 2011 (Figure 8). However cardiovascular diseases were responsible for a smaller proportion of the gap in 2011 than in 2003. Conversely, injuries, cancer and musculoskeletal conditions were responsible for a larger proportion of the gap in 2011 than in 2003.




*Note:* Per cent labels are not shown for disease groups contributing less than 3% of gap.

**Figure 8: Percentage contribution (%) of leading disease groups to the gap in total disease burden (based on DALY rate differences), 2003 and 2011**

## Changes in the risk factors contributing to the gap

- Between 2003 and 2011, there was a slight widening of the gap in disease burden for Indigenous and non-Indigenous Australians attributed to intimate partner violence, and a narrowing of the gap in burden attributed to physical inactivity (as measured by age-standardised DALY rate ratios and rate differences).

## Changes in overall burden by disease group

- After accounting for population increase and ageing, increases in Indigenous age-standardised DALY rates between 2003 and 2011 were observed for cancer, injuries and mental & substance use disorders (Figure 9).
- Decreases in Indigenous age-standardised DALY rates between 2003 and 2011 were observed for cardiovascular diseases, infectious disease, endocrine disorders (which includes diabetes), gastrointestinal disorders and infant/congenital conditions.
- For all other disease groups, the rates were generally very similar or had only small changes between 2003 and 2011.

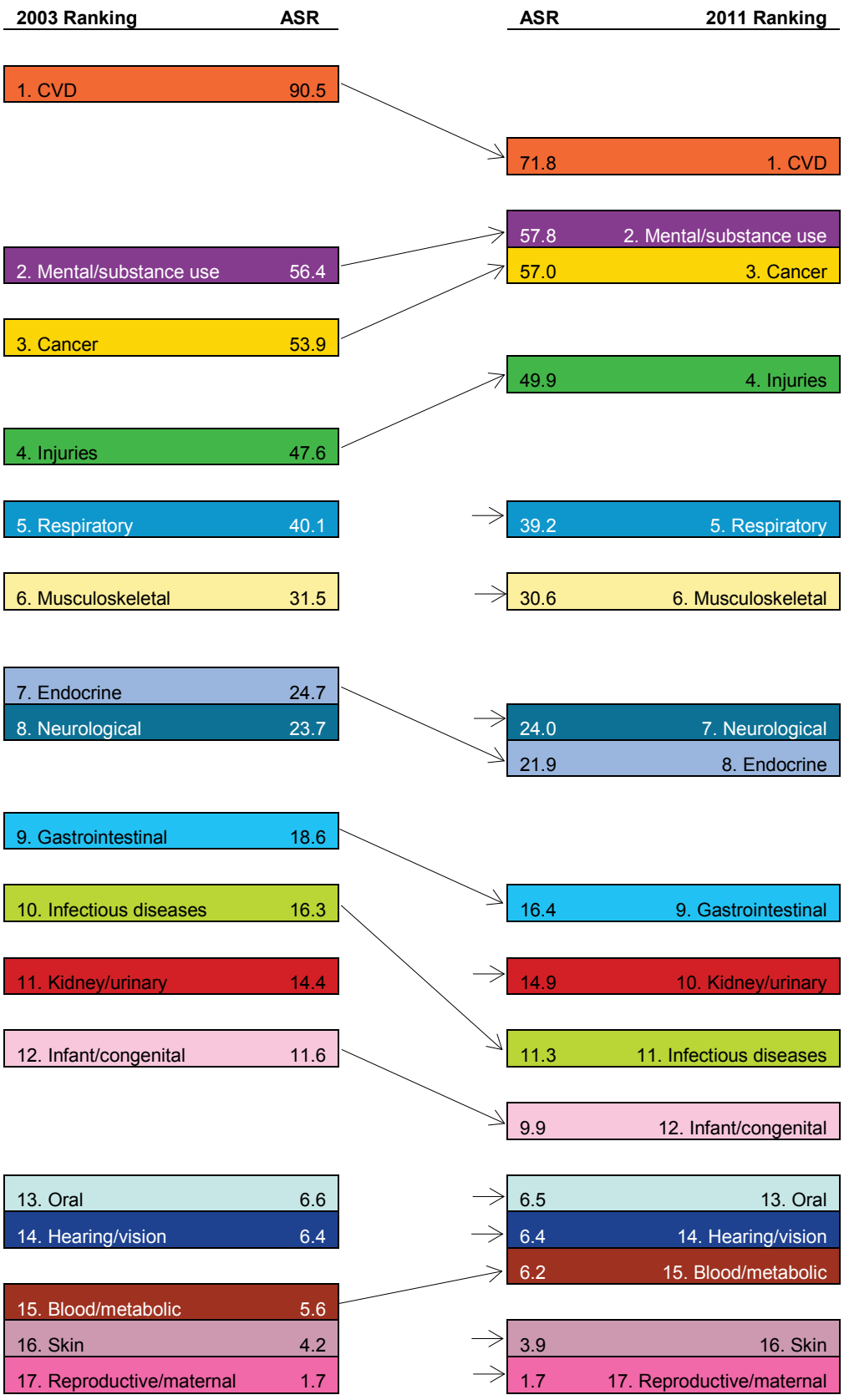



**Figure 9: Change in disease group ranking and age-standardised DALY rate (per 1,000), 2003 and 2011**

# Variations across geographic and population groups

Variations in disease burden across geographic and population groups reflect a complex interaction of factors, such as demographic, socioeconomic and environmental variations and variation in access to services and in the prevalence of risky health behaviours. The differing age structures and size of the various populations are accounted for in the age-standardised rates presented here. The other factors are not controlled for in this analysis.

## State and territory

Indigenous burden of disease estimates are reported for 4 states and territories: New South Wales, Queensland, Western Australia and the Northern Territory.

- In 2011, age-standardised DALY rates were highest in the Northern Territory and Western Australia (Figure 10).

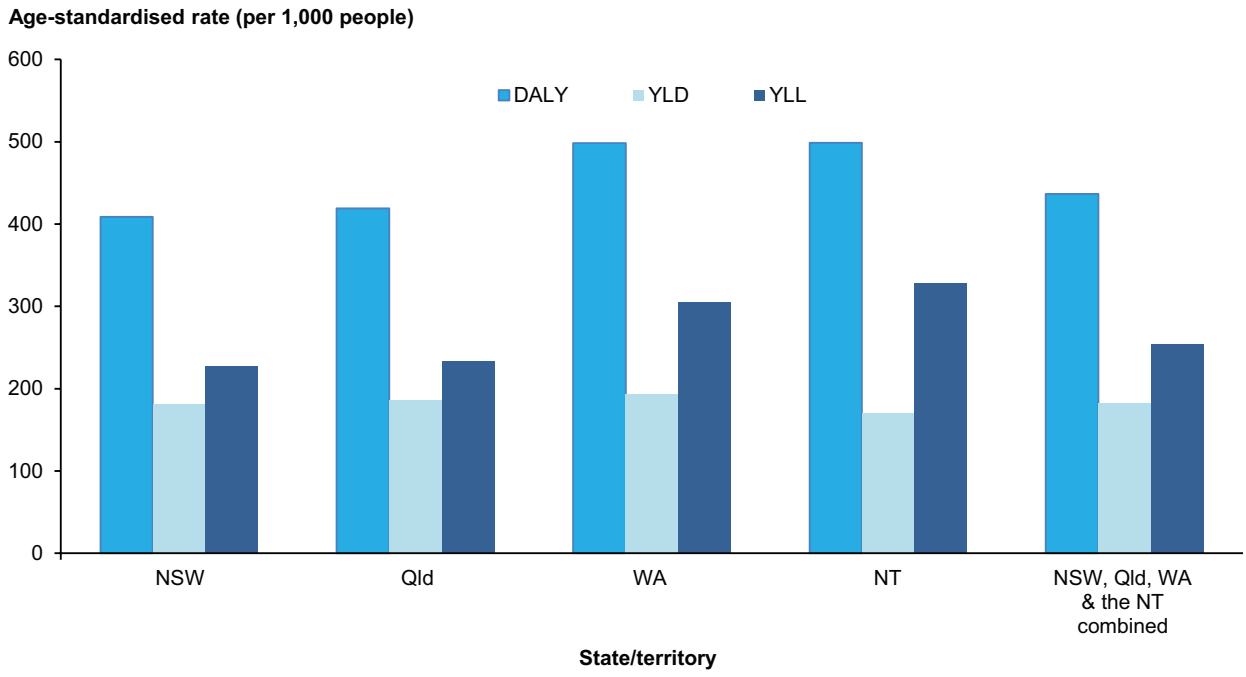
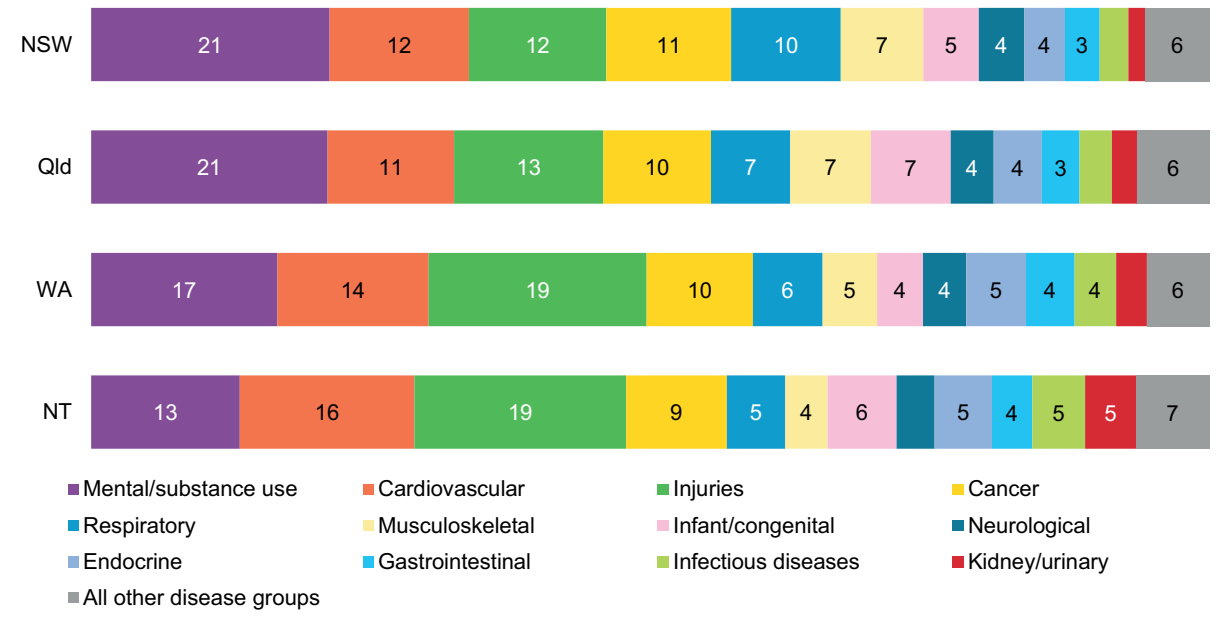



**Figure 10: DALY, YLD and YLL age-standardised rates, by state and territory (NSW, Qld, WA and the NT), Indigenous Australians, 2011**

- Western Australia had the highest age-standardised rate of non-fatal burden and the Northern Territory had the highest age-standardised rate of fatal burden. Rates of non-fatal burden in the Northern Territory are lower than might be expected due to the methods used for estimating jurisdiction-specific YLD and the lower self-reported prevalence of the disease groups contributing most to the non-fatal burden in the Northern Territory (mental & substance use disorders, musculoskeletal conditions and respiratory diseases).
- Mental & substance use disorders were the leading causes of total disease burden for Indigenous Australians in New South Wales and Queensland (Figure 11). This disease group was the second leading cause of total burden in Western Australia and the third in the Northern Territory.
- Injuries were the leading cause of the burden in Western Australia and the Northern Territory, the second leading cause in Queensland and the third in New South Wales.




*Note:* Per cent labels are not shown for disease groups contributing less than 3% of burden.

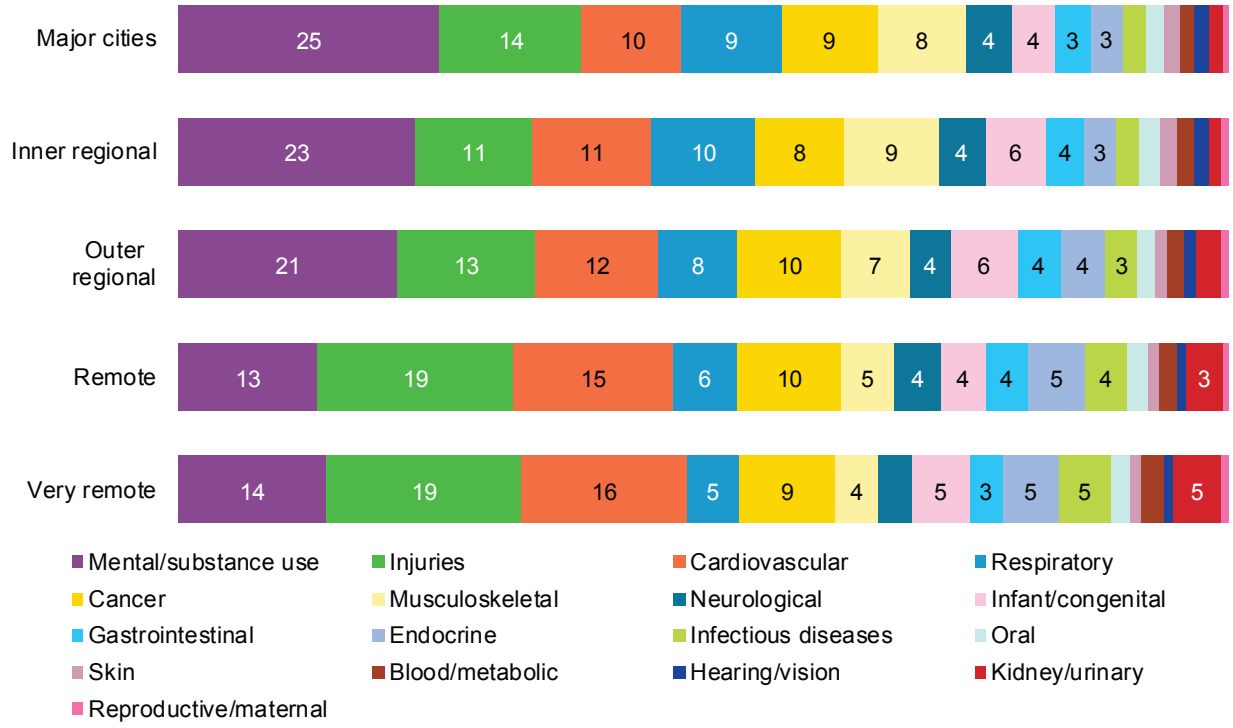
**Figure 11: Leading causes of total burden (proportion of DALY %), by state/territory (NSW, Qld, WA and the NT), Indigenous Australians, 2011**

## Gap in disease burden within states and territories

- Western Australia had the greatest absolute disparity in total disease burden between Indigenous and non-Indigenous Australians (rate difference of 317 DALY per 1,000 population) followed by the Northern Territory (rate difference of 255 DALY per 1,000).
- The gap in overall disease burden between Indigenous and non-Indigenous Australians was greater for the fatal rather than the non-fatal burden for all 4 states and territories, consistent with the national pattern.

## Remoteness

- The age-standardised rate of disease burden that Indigenous Australians experienced was highest in *Remote* areas followed by *Very remote* areas. *Inner regional* areas had the lowest rate of total disease burden.
- Similar to total disease burden, rates of fatal burden were highest in *Remote* and *Very remote* areas. However, there was less variation in Indigenous rates of non-fatal burden, which were highest in *Remote* areas and lowest in *Very remote* areas.
- Mental & substance use disorders were the leading contributor to overall disease burden in *Major cities*, *Inner regional* and *Outer regional* areas. Injuries were the leading contributor to overall disease burden in *Remote* and *Very remote* areas (Figure 12).




*Note:* Per cent labels are not shown for disease groups contributing less than 3% of burden.

**Figure 12: Leading causes of total burden (proportion of DALY %), by state/territory (NSW, Qld, WA and the NT), Indigenous Australians, 2011**

## Gap in disease burden by remoteness

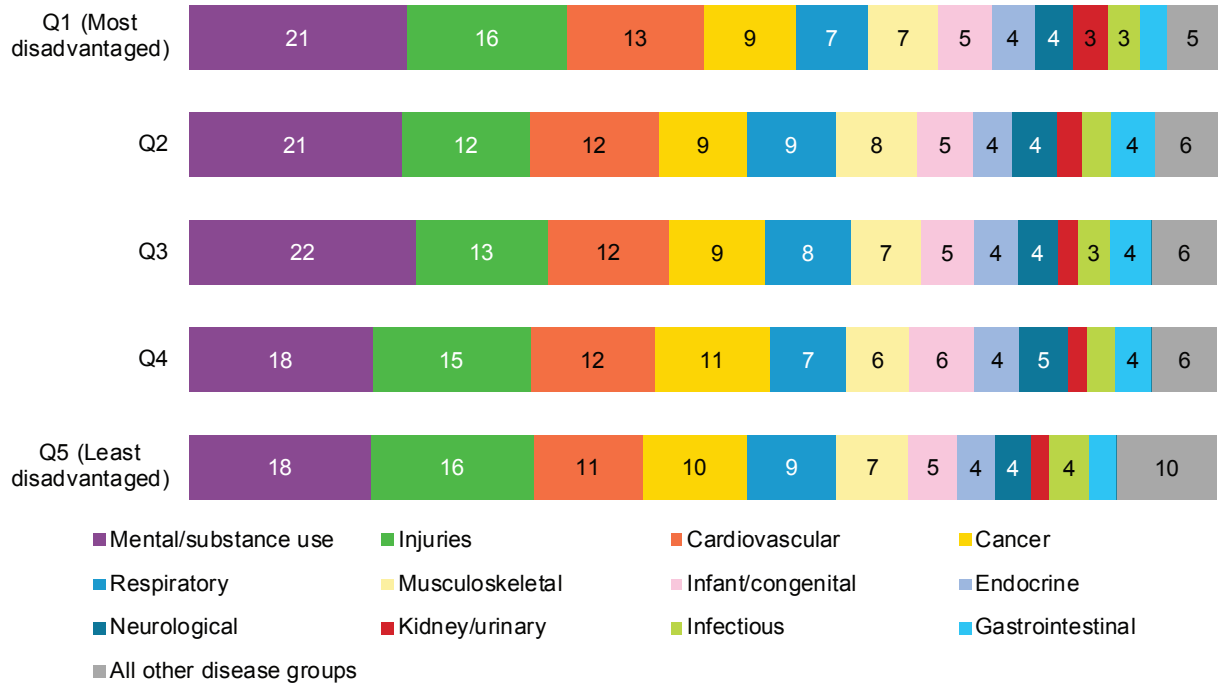
- The greatest disparity in age-standardised rates of disease burden between Indigenous and non-Indigenous Australians was in *Remote* areas (rate ratio of 2.4 and rate difference of 306 per 1,000 population).
- *Inner regional* areas had the lowest DALY rate ratio and rate difference (rate ratio of 1.7 and rate difference of 149 per 1,000 population).

## Socioeconomic group

Socioeconomic groups for Indigenous Australians are based on the Indigenous Relative Socioeconomic Outcomes (IRSEO) index. It combines geographical regions called 'Indigenous Areas' into 5 groups (quintiles) with the most disadvantaged group ranked as 1 and the least disadvantaged as 5.
As the IRSEO quintiles are based on the number of regions in Australia, rather than the number of individuals within each region, differences in the number of YLL, YLD and DALY in each quintile may reflect differences in the size of the population within each quintile.

Crude rather than age-standardised rates have been used in this section as the socioeconomic indexes described above incorporate a population age-weighting which results in little difference in the age profile of the populations assigned to each quintile of socioeconomic disadvantage under the index.

- Indigenous Australians living in areas with the most socioeconomic disadvantage experienced the highest rate of DALY (453 per 1,000 population), more than twice the rate in areas with the least socioeconomic disadvantage (187 per 1,000 population).
- Across each socioeconomic disadvantage quintile, the same disease groups make up the leading 5 contributors to the total disease burden—mental & substance use disorders, injuries, cardiovascular diseases, cancer and respiratory diseases (Figure 13).




*Note:* Per cent labels are not shown for disease groups contributing less than 3% of burden.

**Figure 13: Leading causes of total disease burden (proportion of DALY %), by socioeconomic disadvantage quintile (IRSEO index), 2011**

# Where can I find out more?

More information on the ABDS 2011 can be found on the AIHW website <http://www.aihw.gov.au/burden-of-disease/>.

# Abbreviations

| | |
|---|---|
| ASR | age-standardised rate |
| CHD | Coronary heart disease |
| COPD | chronic obstructive pulmonary disease |
| DALY | disability-adjusted life years |
| IRSEO | Indigenous Relative Socioeconomic Outcomes |
| NSW | New South Wales |
| NT | Northern Territory |
| Qld | Queensland |
| SA | South Australia |
| WA | Western Australia |
| YLD | years lived with disability |
| YLL | years of life lost |

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This summary report presents key findings from the Australian Institute of Health and Welfare's report *Australian Burden of Disease Study: Impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2011*. It provides estimates of the burden due to different diseases and injuries for Indigenous Australians, estimates of the gap in burden between Indigenous and non-Indigenous Australians and the contribution of various risk factors to this burden.