



Estimated burden of disease in the Aboriginal population of Western Australia 2011 and 2018

Acknowledgement of Country and People

The Department of Health Western Australia acknowledges the Aboriginal people of the many traditional lands and language groups of Western Australia (WA). It acknowledges the wisdom of Aboriginal Elders both past and present and pays respect to Aboriginal communities of today.

Introduction and methods

The burden of disease is an estimate of the number of years of life lost due to illness or injury (non-fatal burden) and premature death (fatal burden) in a population. It combines deaths and prevalence measures with estimates of disease severity to give an understanding of the total impact of conditions on the health of the population. *The Burden of Disease in WA 2018* report provides estimates of the total non-fatal and fatal burden for the Western Australian population for 219 diseases (1). The Australian Institute of Health and Welfare (AIHW) have estimated the burden among the national and sub-national Aboriginal and Torres Strait Islander population (2,3). The aim of this bulletin is to provide detailed interpretation of the burden of disease (BoD) among Aboriginal Western Australian residents.

To give a broad understanding of the pattern of disease burden in this priority population, estimates are disaggregated by sex, five-year age groups, disease groups, and by fatal and non-fatal component. Changes in disease burden over the period 2011 to 2018 are also provided. Finally, a summary of the difference in burden of disease between Aboriginal and non-Aboriginal residents is given and estimated changes since 2011 are supplied. Key terms used in this bulletin are given in Box 1. Subnational estimates at disease, region, or smaller geographical unit level are not available. The most recent disease level burden of disease estimates for Aboriginal residents of Western Australia are available in the Western Australian Burden of Disease Study 2015 Aboriginal Report available at: <https://www.health.wa.gov.au/Reports-and-publications/Western-Australian-Burden-of-Disease-Study-2015>.

Using the term - Aboriginal

Within WA, the term Aboriginal is used in preference to Aboriginal and Torres Strait Islander, in recognition that Aboriginal people are the original inhabitants of Western Australia. Aboriginal and Torres Strait Islander may be referred to in the national context and Indigenous may be referred to in the international context. No disrespect is intended to our Torres Strait Islander colleagues and community.

Understanding the burden of disease for Aboriginal Western Australians in context

The burden of disease for Aboriginal Western Australians and disparity/gap in outcomes between Aboriginal and non-Aboriginal Western Australians presented in this report need to be understood in context. Colonisation and subsequent discriminatory government policies have had a devastating effect on Aboriginal people, communities, and cultures. This history and the ongoing impacts of entrenched disadvantage, political exclusion, inter-generational trauma, and ongoing institutional racism has affected the social determinants of health and wellbeing for Aboriginal people and this is reflected in the results presented in this report. Aboriginal people can experience poorer health outcomes due to:

- a higher prevalence of personal risk factors associated with poorer outcomes. These risk factors have been transmitted across generations through the trauma and exclusion caused by colonisation and subsequent government policies and programs, which have caused hardship for Aboriginal people, including through the loss of lands, waters, and cultures;
- being affected by structural or systemic barriers, because of the disadvantage now experienced; and
- the ongoing experience of discrimination and racism, which creates barriers to better outcomes and diminishes physical and mental wellbeing (4, 5).

Box 1: Key Terms

Age standardised rate (ASR) - Age standardisation is a method of adjusting the crude rate to eliminate the effect of differences in population age structures when comparing crude rates for different periods of time, different geographic areas and/or different population sub-groups. In this report, ASR are calculated using direct standardisation using all age groups of the 2001 Australian Standard Population and are reported per 1,000 population.

Age specific Rate - the number of events in an age group divided by the population for the age group, expressed per 1,000 population.

Disability-adjusted life years (DALY) - the total fatal and non-fatal years of life lost. DALY is calculated by summing the Years of Life Lost (YLL) and the Years of Life Lost due to Disability (YLD).

Standardised rate ratio (SRR) - the ratio between the Aboriginal population ASR and the non-Aboriginal population ASR. A ratio of one means that the Aboriginal population ASR is the same as the non-Aboriginal population ASR. A value of two indicates the Aboriginal ASR is twice the non-Aboriginal ASR. A rate ratio of 0.5 indicates that the ASR in the Aboriginal population is half that of the non-Aboriginal population.

Years of Life Lost (YLL) - The fatal component of disease burden. The YLL is the difference between a person's age at death and the length of an ideal lifespan.

Years of Life Lost due to Disability (YLD) - The non-fatal component of disease burden. The amount of time a person lives with a condition, multiplied by a disability weighting factor to estimate the disease severity, or impact on life quality.

Results

Demographics of the Aboriginal resident population of Western Australia

In 2018 there were 104,317 Aboriginal residents in Western Australia, an increase of 12,220 people identifying as Aboriginal since 2011 (6). The Aboriginal population in Western Australia has a large proportion of young people. In 2018, 32.6 per cent of Aboriginal people were aged less than 15, and only 4.1 per cent were aged 65 or more, Figure 1.

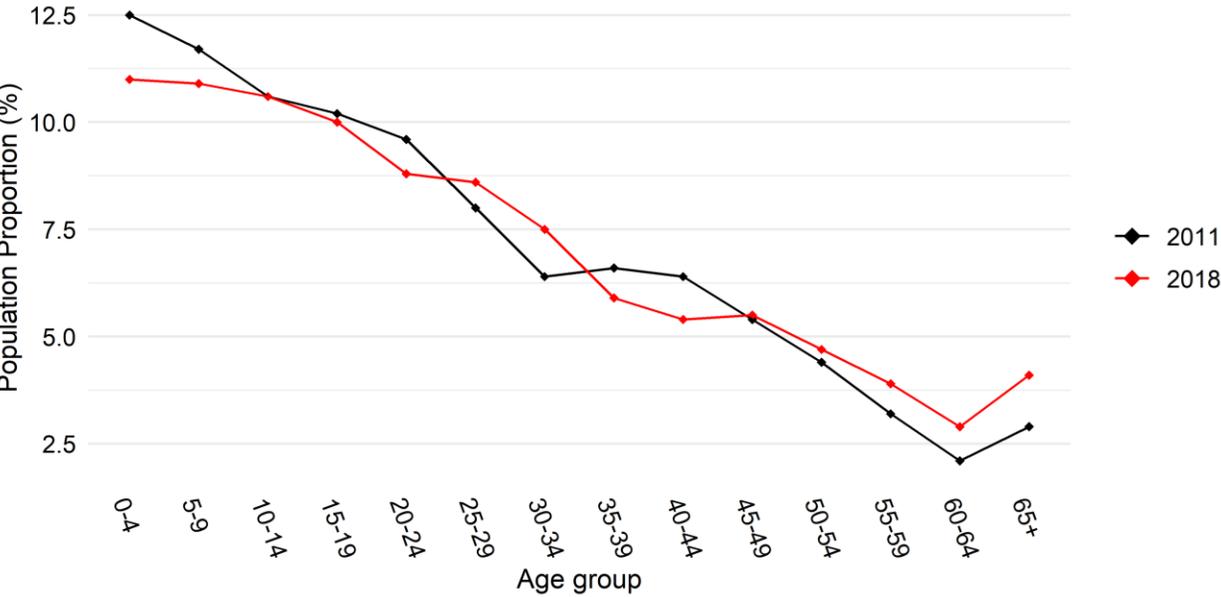


Figure 1. Population proportion (%) by age group for Aboriginal residents of Western Australia in 2011 and 2018.

Healthy Life Expectancy

Health-adjusted life expectancy (HALE) is the number of healthy years a person of a particular age can expect to live. The percentage of healthy life lived is the proportion of HALE divided by the life expectancy for a person of a particular age. Aboriginal Western Australians born in 2018 could expect to live four fifths of their life in good health (79.6 per cent males, 78.9 per cent females), Figure 2. Aboriginal Western Australians aged 15 in 2018 could expect to live three quarters of their remaining life in good health (74.8 per cent females, 75.5 per cent males). Aboriginal males aged 65 in 2018 could expect to live 51.3 per cent of their remaining life in good health, and Aboriginal females the same age could expect to live 54.4 per cent in good health. Aboriginal males aged 80 in 2018 could expect 21.4 per cent of their remaining life to be in good health, and Aboriginal females of the same age could expect to live 39.6 per cent in good health.

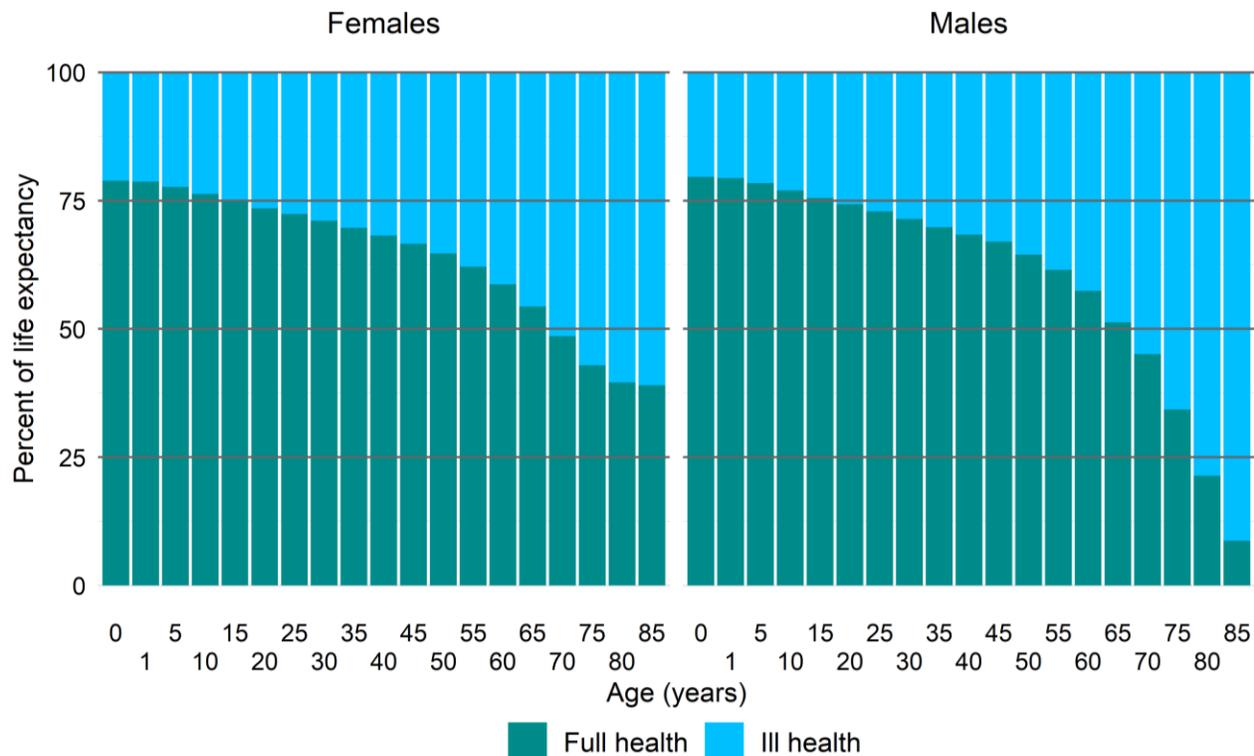


Figure 2. Percentage of remaining life expectancy in full health and ill health, by sex, for Aboriginal Western Australians, 2018.

Total disease burden (DALY)

In 2018, there was a total of 35,441 disability-adjusted life years (DALY) lost among Aboriginal residents of Western Australia. In 2018, the age standardised DALY rate was 467.9 per 1,000 Aboriginal residents. Aboriginal males had a higher age standardised DALY rate compared to females (525.3 and 419.1 years per 1,000 residents, for males and females, respectively). Within each 5 year age group, Aboriginal females had a lower DALY count from birth to age 74, Figure 3.

The total DALY count was highest for Aboriginal males aged 45-49 and females aged 50-54. The DALY count was smallest in Aboriginal males and females over 85 years due to the small size of this population. When the population size of each age group was accounted for, age specific rates per 1,000 residents was highest in Aboriginal males and females over 85 years, and lowest in males and females aged 5-9 years, Figure 3.

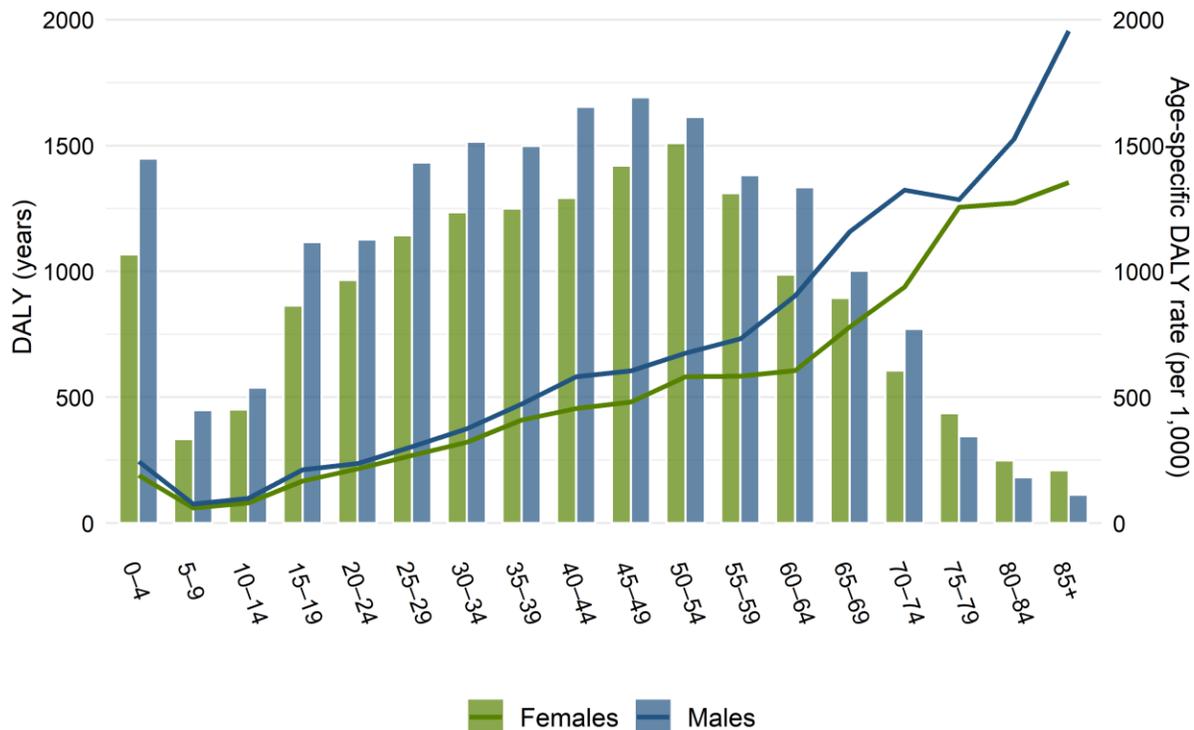


Figure 3. Total DALY (bars) and age specific DALY rate (lines) per 1,000 Aboriginal residents of Western Australia by sex in 2018.

Total burden by disease group

The disease groups causing the most burden (DALY) among Aboriginal persons in 2018 were mental and substance use disorders, and injuries (19.4 per cent and 16.3 per cent of the total burden, respectively), Figure 4. Cardiovascular diseases, ranked third, contributing 12.6 per cent to the total burden, and cancer and other neoplasms, ranked fourth, contributed 9.4 per cent. Respiratory diseases, musculoskeletal conditions, and infant and congenital conditions were also in the top ranked disease groups when ranked by total disease burden. The largest contributors to disease burden among males were for injuries and mental and substance use disorders (19.3 per cent each). For females the largest contributor was mental and substance use disorders (19.6 per cent), followed by injuries (12.8 per cent).

The total age standardised DALY rate was 419 per 1,000 residents, for females, and 525 per 1,000 residents for males. When ordered by age standardised rate, cardiovascular diseases ranked highest for males, with 87 DALY per 1,000 male residents. Mental and substance use disorders, and injuries ranked second and third with age standardised rates exceeding 70 DALY per 1,000 residents. In females, mental and substance use disorders remained highest ranked, and cardiovascular diseases were second, both with age standardised rates of over 60 DALY per 1,000 residents. For females, cancer and other neoplasms ranked third with 46 DALY per 1,000 residents, Table 1.

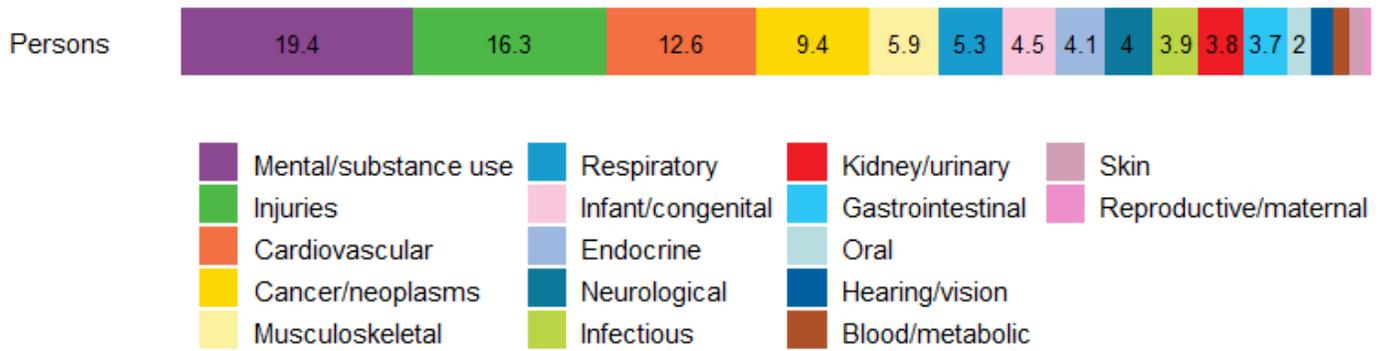


Figure 4. Proportion (per cent) of total burden (DALY), by disease group among Aboriginal residents of Western Australia in 2018. Per cent labels are not shown for disease groups contributing less than 2 per cent of burden.

Table 1. Disease groups by proportion of DALY and age standardised rates (ASR per 1,000 residents), by sex, among Aboriginal residents of Western Australia in 2018. Disease have been ranked by DALY proportion.

Females				Males			
Rank	Disease Group	DALY (%)	ASR	Rank	Disease Group	DALY (%)	ASR
1	Mental/substance use	3180 (19.6)	63.1	1	Injuries	3711 (19.3)	72.6
2	Injuries	2075 (12.8)	41.5	2	Mental/substance use	3704 (19.3)	73.3
3	Cardiovascular	1903 (11.7)	60.4	3	Cardiovascular	2559 (13.3)	87.0
4	Cancer/neoplasms	1457 (9.0)	45.7	4	Cancer/neoplasms	1863 (9.7)	65.7
5	Musculoskeletal	1197 (7.4)	35.8	5	Musculoskeletal	895 (4.7)	29.9
6	Respiratory	1004 (6.2)	28.0	6	Respiratory	887 (4.6)	30.7
7	Neurological	731 (4.5)	25.7	7	Infant/congenital	880 (4.6)	11.2
8	Infant/congenital	716 (4.4)	9.4	8	Endocrine	787 (4.1)	28.4
9	Kidney/urinary	698 (4.3)	23.8	9	Gastrointestinal	776 (4.0)	23.6
10	Infectious diseases	691 (4.3)	17.0	10	Infectious diseases	699 (3.6)	19.1
11	Endocrine	684 (4.2)	21.6	11	Neurological	685 (3.6)	27.7
12	Gastrointestinal	543 (3.3)	14.3	12	Kidney/urinary	658 (3.4)	24.6
13	Oral	324 (2.0)	8.2	13	Oral	368 (1.9)	10.0
14	Hearing/vision	320 (2.0)	9.8	14	Hearing/vision	309 (1.6)	11.1
15	Blood/metabolic	282 (1.7)	6.4	15	Blood/metabolic	217 (1.1)	5.6
16	Skin	230 (1.4)	4.8	16	Skin	211 (1.1)	4.8
17	Reproductive/maternal	192 (1.2)	3.8	17	Reproductive/maternal	7 (0.0)	0.2
	All diseases	16,277 (100)	419.1		All diseases	19,214 (100)	525.3

Disease burden by type - fatal and non-fatal

The total disease burden is comprised of two components, fatal and non-fatal burden. The proportion of fatal and non-fatal components changes with disease groups. Fatal burden (YLL) contributed the most to injuries, cardiovascular diseases, cancer and other neoplasms, and infant and congenital conditions, comprising over 89 per cent of the total burden for these groups, Figure 5. Non-fatal burden (YLD) contributed most to mental and substance use disorders, and musculoskeletal conditions. Non-fatal burden comprised over 92 percent of the burden for these disease groups.

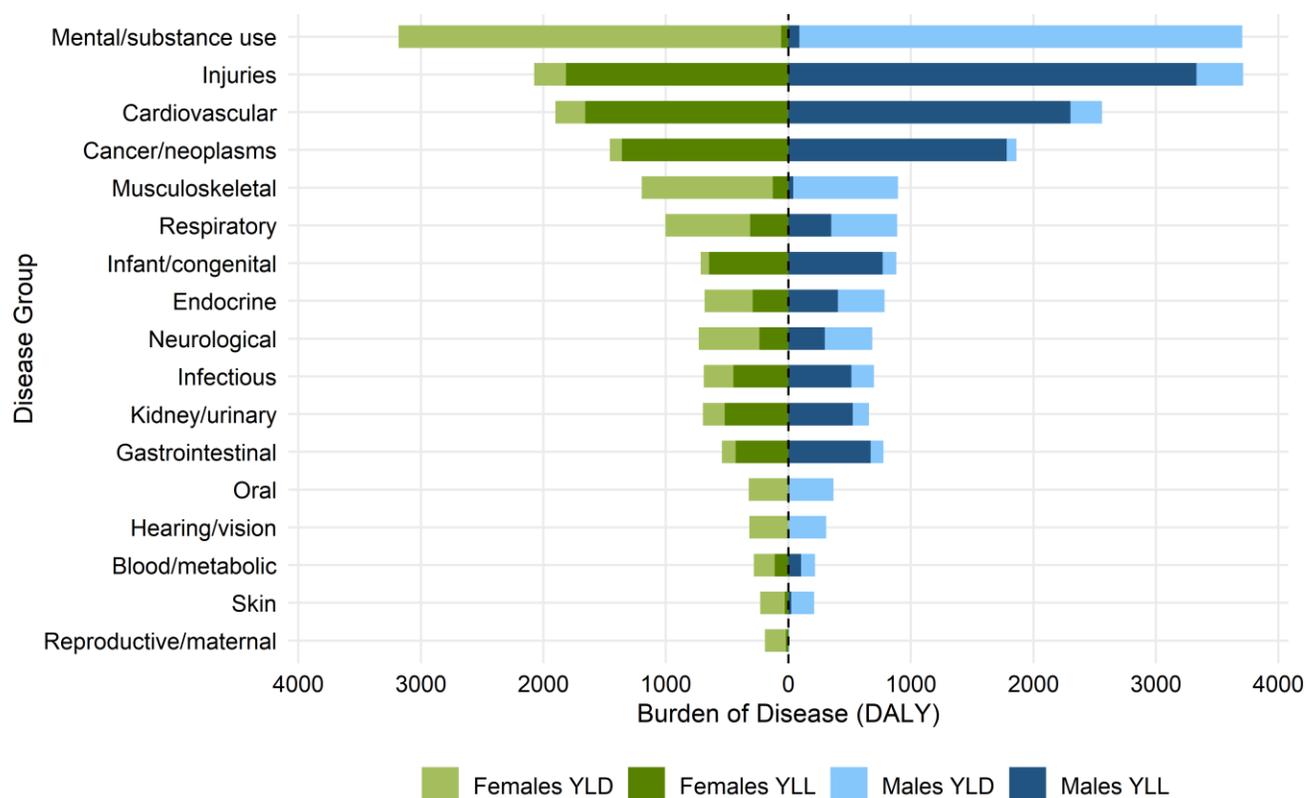


Figure 5. Non-fatal (YLD) and fatal (YLL) burden, by disease group and sex, among Aboriginal residents of Western Australia in 2018.

Disease burden by age group

Most disease groups occur in all age groups, but some show a marked pattern, being much more common at different life stages. These trends can be seen in Figure 6. Injuries, and mental and substance use disorders were more common in the early part of life, while cancer and other neoplasms, cardiovascular diseases, and kidney and urinary diseases increase in the later stages of life. Within age groups, musculoskeletal conditions were responsible for over 10 per cent of disease burden for Aboriginal females in age groups 50-54 and over, and neurological conditions from age group 70-74. For males, respiratory diseases and neurological conditions occurred in higher proportions after age 70.

For young Aboriginal Western Australians, infant and congenital conditions were responsible for 50 per cent of disease burden in children under 5 years. Injuries and infectious diseases were also substantial contributors to total disease burden in this age group in both males and females, together comprising over 30 per cent of the disease burden in children under 5, Figure 6.

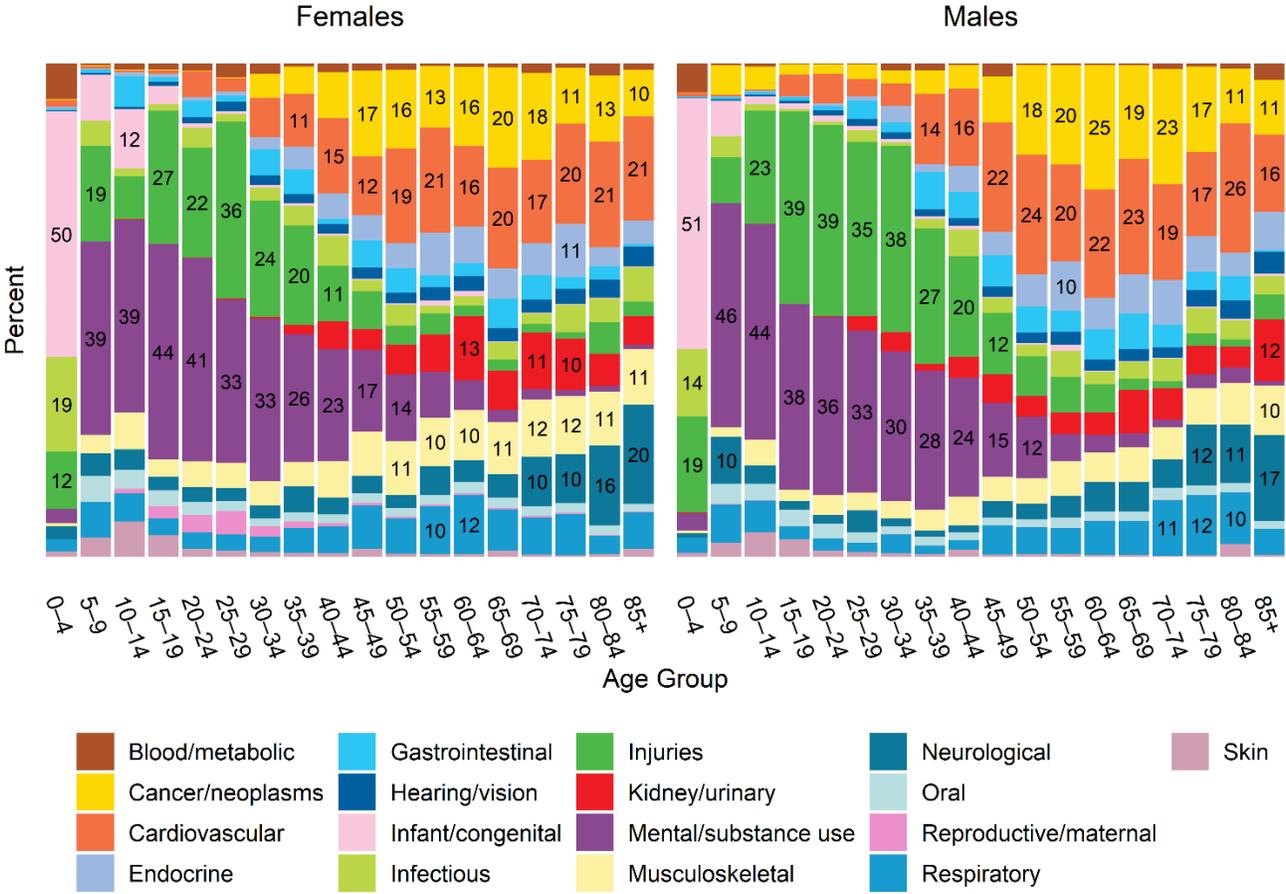


Figure 6. Proportion (per cent) of total burden (DALYs) by age group and sex, among Aboriginal residents of Western Australia in 2018. Note - Per cent labels are not shown for disease groups contributing less than 10 per cent of burden.

Disease burden differences between Aboriginal and non-Aboriginal Western Australians

There have been considerable gains in the health outcomes of Aboriginal residents when compared with non-Aboriginal residents, but large differences remain. Western Australian residents born in 2018 could expect to live just under 90 per cent of their remaining years in full health (1), as compared to just under 80 per cent lived in good health for Aboriginal residents.

The pattern of total disease burden across the lifespan is different in Aboriginal and non-Aboriginal residents, Figure 7. As a population, most of the burden of disease for Aboriginal Western Australians occurs at ages 0-4 and between ages 15-54, after which, due to smaller population sizes at older ages, the size of the burden tapers off until ages 85+. This contrasts with the non-Aboriginal population who experience a higher proportion of the disease burden from age 55-85+, with a much lower proportion of burden below age 55. This is reflected in the DALY burden rate, Figure 8, which increases with age for both Aboriginal and non-Aboriginal residents but is higher for all age-groups in the Aboriginal population.

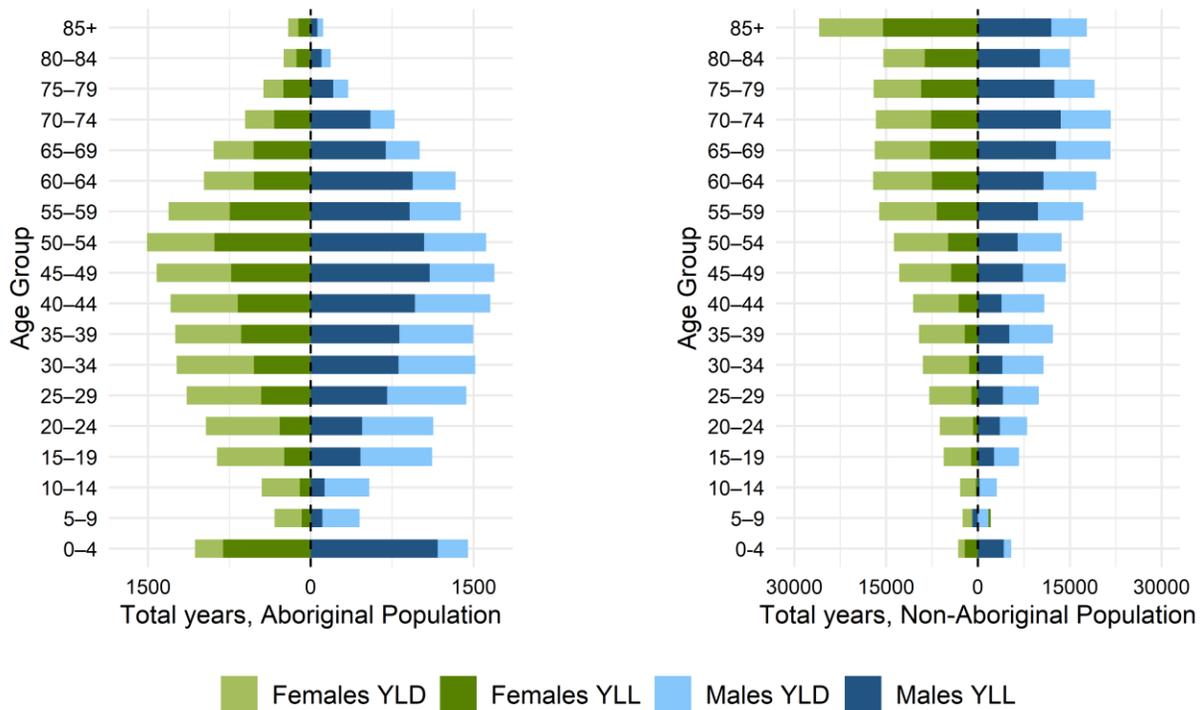


Figure 7. Non-fatal (YLD) and fatal (YLL) composition of the total burden (DALY), by sex and age group, among Aboriginal and non-Aboriginal residents of Western Australia in 2018. Note - the different scale on the bottom (YLD/YLL) axes for Aboriginal and non-Aboriginal persons due to the difference in population size and therefore large differences in absolute numbers of YLD and YLL.

The fatal burden standardised rate ratio (SRR) (the ratio between the Aboriginal population ASR and the non-Aboriginal population ASR), was smallest for Aboriginal people aged over 85 (SRR 1.3 for females and 1.4 for males), and greatest (over 6 times the fatal burden rate) in Aboriginal females aged 25-39, when compared to non-Aboriginal females. The non-fatal burden SRR rate was lowest for Aboriginal females aged 10-14 and over 85 (SRR 1.8 and 1.3, respectively). The non-fatal burden SRR was highest in Aboriginal children under 5 years (SRR 3.1 for females and 2.7 for males) and Aboriginal males aged 35-39 and 40-44 (SRR 2.6 and 2.8, respectively), when compared with the non-Aboriginal population.

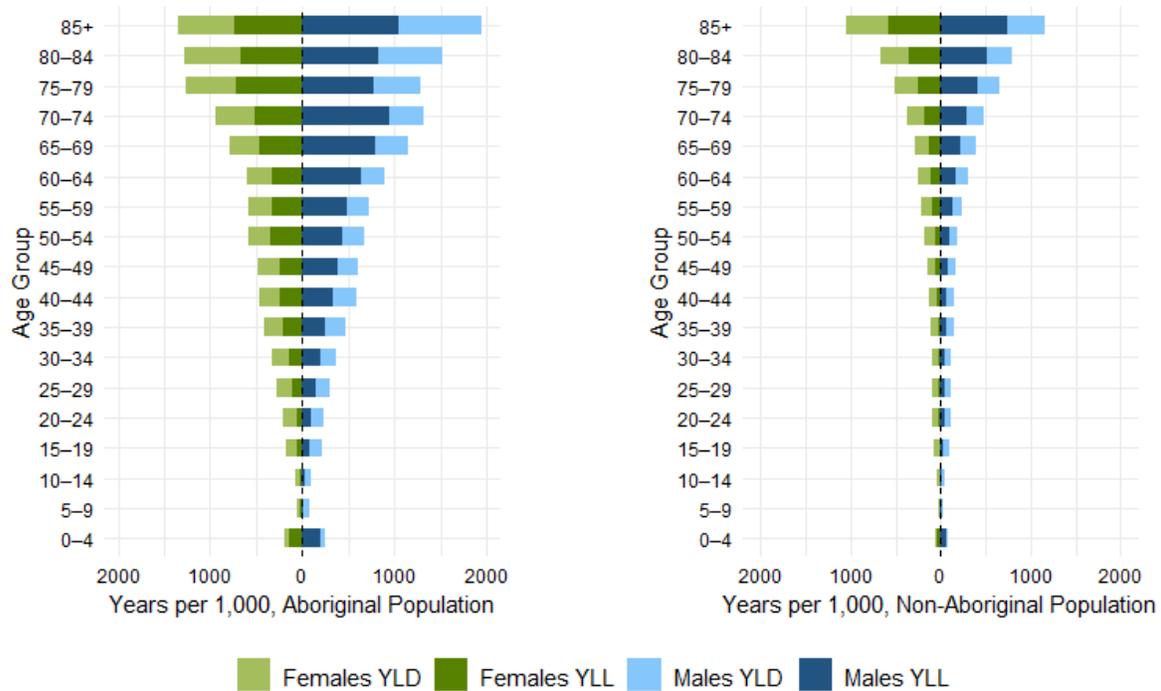


Figure 8. Non-fatal (YLD) and fatal (YLL) composition of the total burden (DALY) rate per 1,000 residents, by sex and age group, among Aboriginal and non-Aboriginal residents of Western Australia in 2018. Note – due to small population in some age group and people can have multiple conditions, the numerator can exceed the population.

In 2018 the total age standardised DALY rate difference between Aboriginal and non-Aboriginal Western Australians was 293.2 per 1,000 (ASR 333.6 and 260.8 per 1,000 for males and female residents, respectively). The disease groups with the largest gap between Aboriginal and non-Aboriginal people were cardiovascular diseases, mental and substance use disorders and injuries, Figure 9. There were gaps of less than 6 DALY per 1,000 residents for blood and metabolic disorders, oral disorders, and skin disorders.

The rate difference was larger for males than females in most disease groups. Aboriginal males had 1.8 times the DALY rate difference due to gastrointestinal disorders compared with Aboriginal females. In 2018 Aboriginal females had a slightly lower DALY rate for reproductive and maternal conditions when compared with non-Aboriginal females. For the remaining disease groups, the 2018 rate difference by sex ranged from an additional 1.2 to 60.7 years per 1,000 residents. Further details of rate differences and standardised rate ratios are given in the Appendix.

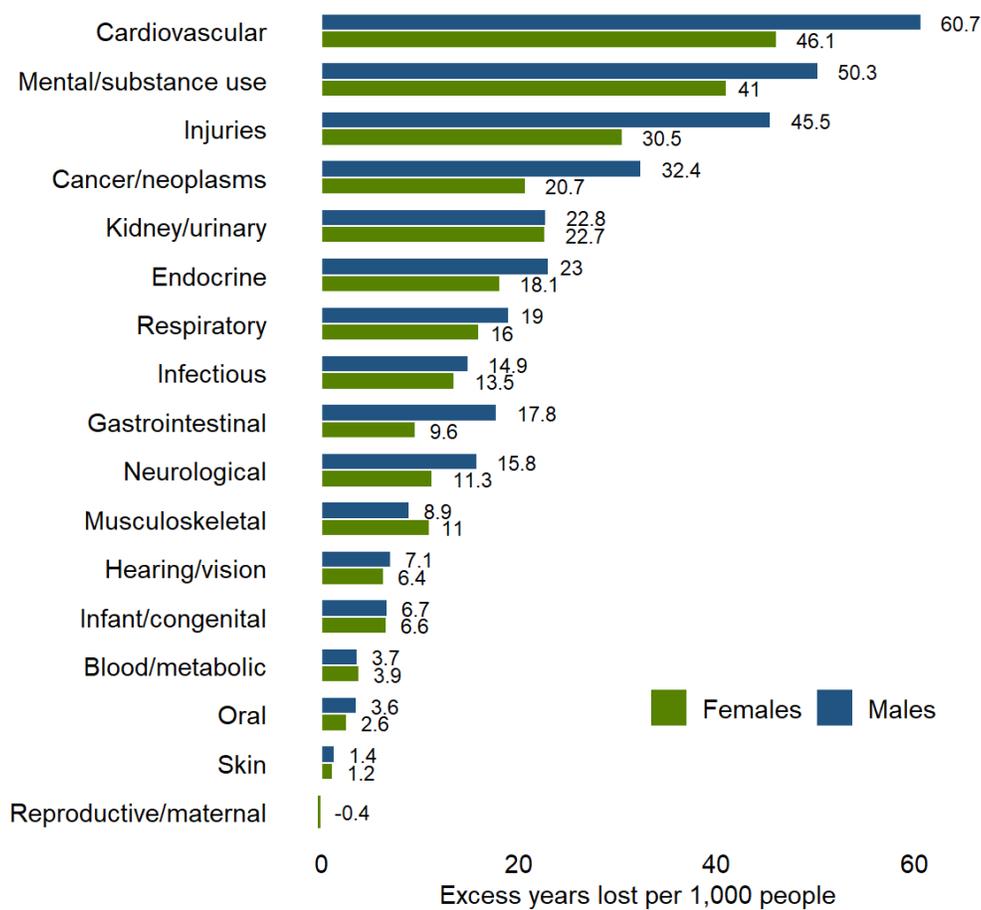


Figure 9. Age standardised DALY rate differences per 1,000 Aboriginal residents of Western Australia by sex, 2018.

Change in disease burden, 2011 to 2018

The size of the Aboriginal population in Western Australia increased by 13.2 per cent from 2011 to 2018 (6). During that period, the DALY count increased by 18.7 per cent, and the crude DALY rate increased by 4.4 per cent (from 324.1 to 338.3 years per 1,000 Aboriginal residents). When the DALY rate is adjusted to account for age and population size, by using age standardised rates, the rate decreased by 8.2 per cent from 2011 to 2018 (from 509.7 to 467.9 years per 1,000 Aboriginal residents). Between 2011 and 2018 the age standardised DALY rate for Aboriginal males and females reduced by 16.8 per cent for males and 4.9 per cent for females.

Over half of age groups had a reduced age specific DALY rate in 2018 when compared to 2011, Figure 10. The age groups with the largest improvement (reduction in age specific DALY rate) were Aboriginal males aged 80-84 and over 85 (62.9 per cent and 48.8 per cent reduction, respectively), and Aboriginal females aged 70-74 (33.2 per cent reduction), however these changes should be interpreted with caution as the population size in these age groups is small and rate changes may be due to a combination of factors including under-identification of Aboriginality (2). The largest increases in DALY rate were for Aboriginal males aged 10-14 (23.2 per cent increase) and Aboriginal females aged 30-34 and 35-39 (25.0 per cent and 29.4 per cent increase, respectively).

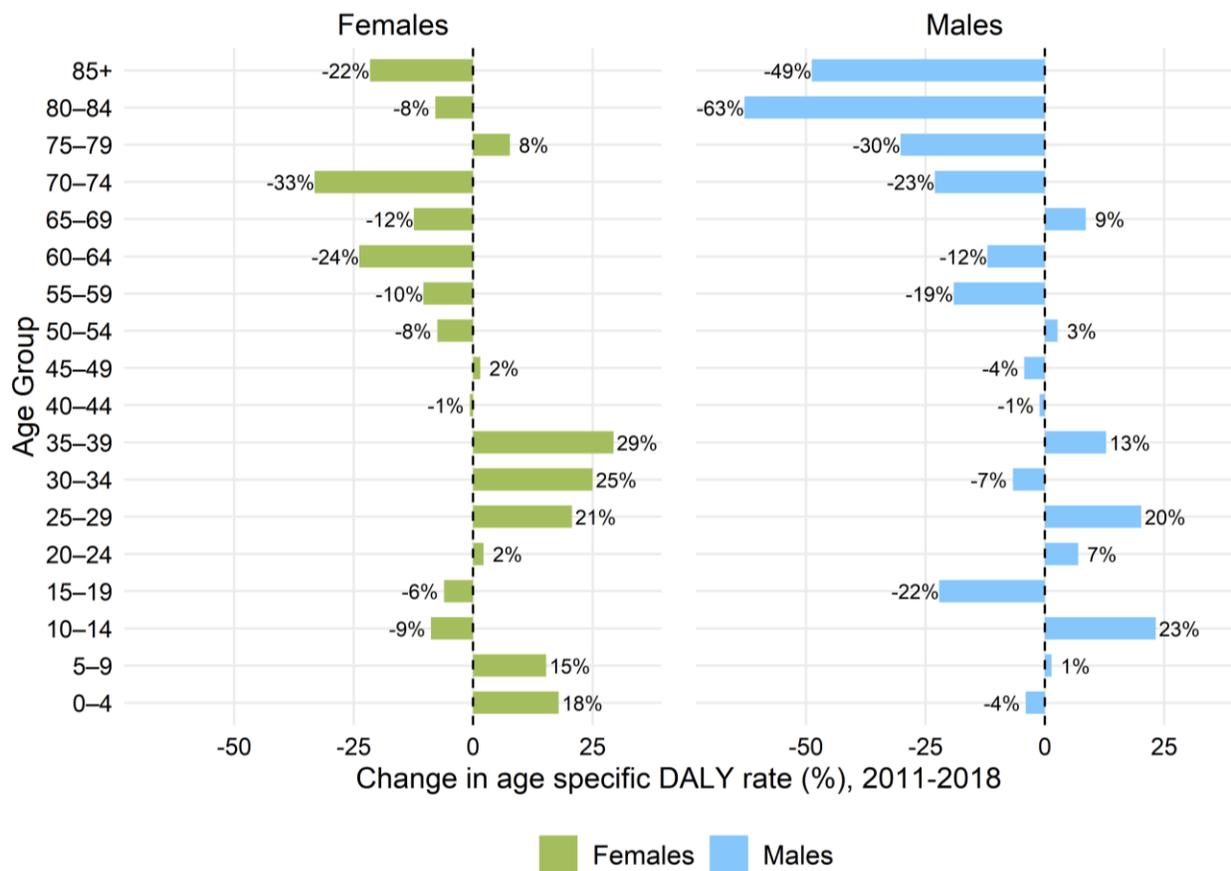


Figure 10. Change in age specific DALY rate by sex and age group, from 2011 to 2018.

The change in age standardised rate for from 2011 to 2018 by fatal and non-fatal component by sex is shown in Figure 11. Cancer and other neoplasms, cardiovascular diseases, endocrine disorders, blood and metabolic disorder, and neurological conditions had lower rates of fatal burden in 2018 when compared to 2011 for males and females. For males, the rate of fatal burden due to injuries, mental and substance use disorders, and respiratory diseases also decreased. For females the rate of fatal burden due to gastrointestinal disorders, reproductive and maternal conditions, and infectious diseases decreased. No disease groups showed marked increase in the age standardised rate of fatal burden, although the fatal burden rate for kidney and urinary diseases increased between 2011 and 2018 (4.2 and 5.2 year increase per 1,000 residents for males and females, respectively). Large improvements were also seen for the fatal burden component of cardiovascular diseases, which reduced by 35.8 years per 1,000 residents between 2011 and 2018 in males, and 13.3 years per 1,000 female residents.

For non-fatal burden, improved age standardised rates were seen for both males and females for respiratory diseases, kidney and urinary diseases, blood and metabolic disorders, cancer and other neoplasms, and cardiovascular diseases. The non-fatal ASR for mental and substance use disorders increased by over 12 years per 1,000 residents in both males and females. The largest improvement in the age standardised rate for non-fatal burden was in musculoskeletal conditions in males (-6.6 years per 1,000 residents), and respiratory diseases in females (-4.1 years per 1,000 residents).

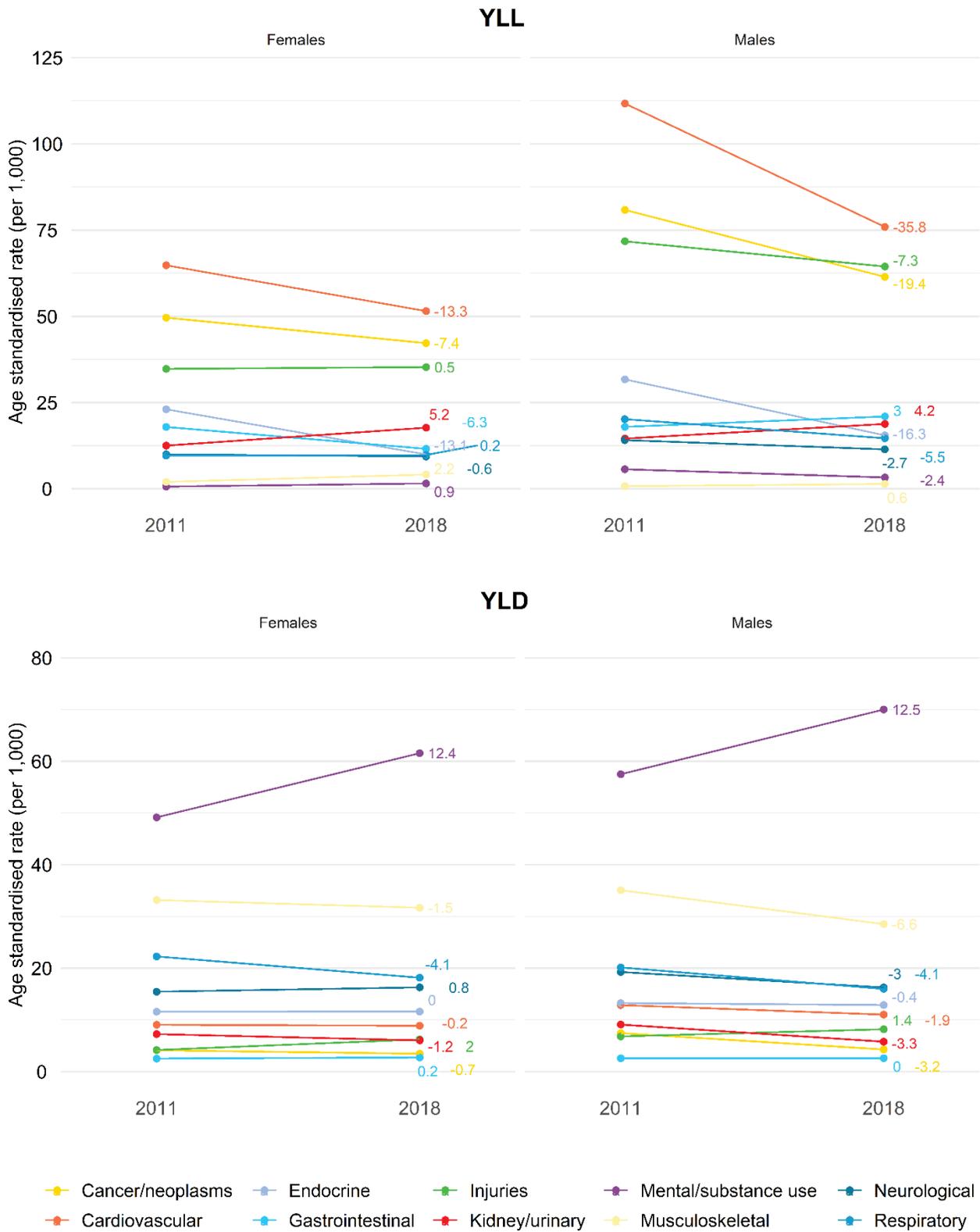


Figure 11. Change in age standardised rate for the 10 highest ranked disease groups from 2011 to 2018, fatal (YLL) and non-fatal (YLD) burden by sex.

Change in the disease burden rate difference between Aboriginal and non-Aboriginal Western Australians, 2011 to 2018

In 2011 the age standardised DALY rate per 1,000 was 325.4 years higher in Aboriginal Western Australian residents than for non-Aboriginal Western Australians. By 2018 the DALY ASR difference had decreased to 293.2 years per 1,000 residents. At the disease group level, the DALY ASR difference decreased among many groups, but remained similar or increased for some, Figure 12.

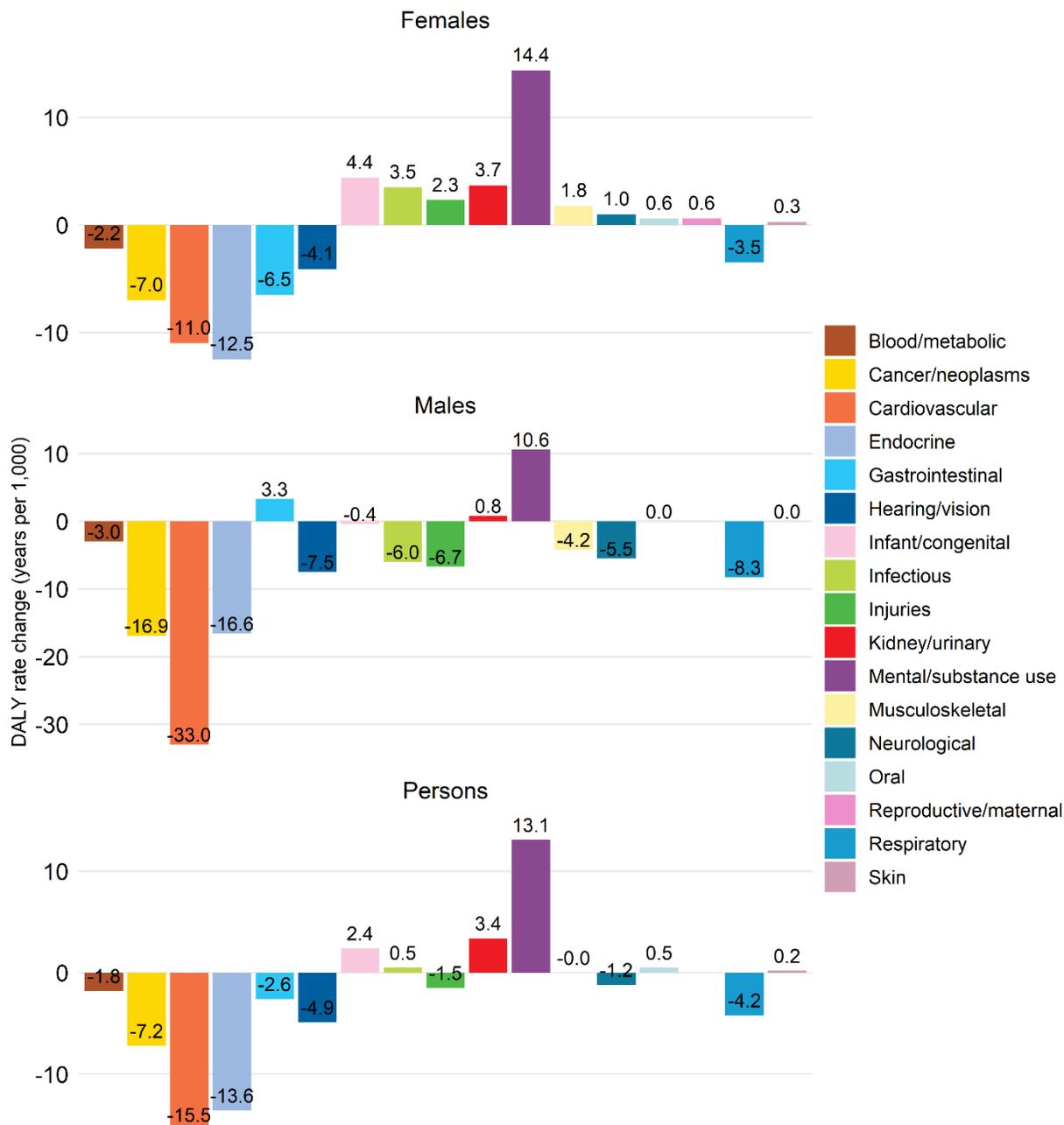


Figure 12. Change in DALY ASR difference between Aboriginal and non-Aboriginal Western Australians by sex, from 2011 to 2018.

The largest improvement in DALY ASR difference was for cardiovascular diseases, which decreased by 15.5 years per 1,000 residents. Cancer and other neoplasms, and endocrine disorders also had large improvements, decreasing by 7.2 and 13.6 years per 1,000 residents, respectively. The largest increase in DALY ASR difference was for mental and substance use conditions, which rose by 13.1 years per 1,000 residents.

When compared to 2011 rates, Aboriginal males had a smaller DALY ASR difference for the majority of disease groups. The largest improvements were for cardiovascular diseases (33.0 year reduction per 1,000 residents), and cancer and other neoplasms (16.9 year reduction per 1,000 residents), and endocrine disorders (16.6 year reduction per 1,000 residents). The DALY ASR difference increased substantially for gastrointestinal diseases (3.3 year increase per 1,000 residents), and mental and substance use disorders (10.6 year increase per 1,000 residents). Aboriginal females had a reduced DALY ASR difference for seven disease groups, the largest improvements were for endocrine disorders (12.5 year reduction per 1,000 residents), cardiovascular diseases (11.0 year reduction per 1,000 residents), and cancer and other neoplasms (7.0 year reduction per 1,000 residents). For females the largest increases were for mental and substance use disorders (14.4 year increase per 1,000 residents), and infant and congenital conditions (4.4 year increase per 1,000 residents).

Summary

An Aboriginal resident of Western Australia born in 2018 could expect to live just under 80 per cent of their lives in good health. In 2018 an estimated 35,441 years of healthy life were lost among Aboriginal Western Australians. There has been a decrease of 8.2 per cent in the DALY ASR since 2011. Aboriginal males had a larger reduction in disease burden rate (16.8 per cent) than females (4.9 per cent), but Aboriginal females had a lower disease burden rate overall.

The largest contributors to disease burden were mental and substance use disorders, injuries, cardiovascular diseases, and cancer and other neoplasms. The burden was predominantly non-fatal for mental and substance use disorders, while the disease burden was predominantly fatal for injuries, cardiovascular diseases, and cancer and other neoplasms. Mental and substance use disorders, and injuries affect people earlier in life, while cardiovascular disease and cancer and other neoplasms affect older age groups. Since 2011, the rate of cardiovascular disease burden has decreased substantially, as has the rate of burden for cancer and other neoplasms, and injuries. The overall rate of burden for mental and substance use disorders has increased, largely due to an increase in non-fatal burden.

At the population level a large proportion of the years of healthy life lost occur in Aboriginal children aged under 5 and those aged 15-54. This is in contrast with non-Aboriginal Western Australians who have higher proportions of healthy years of life lost after age 55. However, for both populations the disease burden rate increases with age, although the rate is higher in all age groups for Aboriginal Western Australians. The disease groups showing the lowest disease burden rate difference were skin disorders, oral disorders, blood and metabolic disorders. The largest disease burden rate difference between Aboriginal and non-Aboriginal residents were for cardiovascular diseases, mental and substance use disorders, injuries, and cancer and other neoplasms. The burden rate for reproductive and maternal conditions, for Aboriginal females was lower than the disease burden rate for non-Aboriginal females in both 2011 and 2018.

Between 2011 and 2018 the disease burden rate difference decreased for many disease groups and increased in others. The difference has decreased considerably for cardiovascular diseases, endocrine disorders, and cancer and other neoplasms, but has increased for mental and substance use disorders.

Overall, there have been substantial improvements in the disease burden among Aboriginal Western Australians, but further work is required to reduce both the total burden experienced by Aboriginal residents and the difference in burden rate between Aboriginal and non-Aboriginal Western Australians. This bulletin provides an overview of the burden by disease group, age group and sex that can assist with public health planning and help government and other agencies continue to work together to further improve health outcomes for Aboriginal Western Australians.

Data Source and Acknowledgements

All data presented in this report and some additional data items are available from the Australian Institute of Health and Welfare website in the form of Excel workbooks. An interactive version of the data from the AIHW is also available at www.aihw.gov.au/burden-of-disease.

We would like to thank the AIHW for provision of the WA burden of disease data that was used to produce, and provide advice and review, of this bulletin. We are grateful for advice provided by Ali Radomiljac and Senkham Boutdara from the Aboriginal Health Policy Directorate. This bulletin was put together by Kerry Staples, Nastassia Gregoriadis and Wendy Sun of the Department of Health, Epidemiology Directorate.

Enquiries

For feedback, queries or further analysis related to this bulletin, contact epi@health.wa.gov.au.

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Appendix

Data visualisations are available from AIHW site [Australian Burden of Disease Study 2018: Interactive data on disease burden among Aboriginal and Torres Strait Islander people, State and territory estimates - Australian Institute of Health and Welfare \(aihw.gov.au\)](https://www.aihw.gov.au/australian-burden-of-disease-study-2018)

Table A1. Age standardised DALY rates (per 1,000 residents), standardised rate ratios (SRR) and rate differences[#], among Aboriginal and non-Aboriginal female residents of Western Australia in 2018.

Females				
Disease Group	DALY ASR per 1000		Health gap	
	Aboriginal	Non-Aboriginal	Rate difference [#]	SRR
Cardiovascular	60.4	14.3	46.1	4.2
Mental/substance use	63.1	22.1	41.0	2.9
Injuries	41.5	11.0	30.5	3.8
Kidney/urinary	23.8	1.1	22.7	22.0
Cancer and other neoplasms	45.7	25.0	20.7	1.8
Endocrine	21.6	3.4	18.1	6.3
Respiratory	28.0	12.0	16.0	2.3
Infectious diseases	17.0	3.5	13.5	4.9
Neurological	25.7	14.4	11.3	1.8
Musculoskeletal	35.8	24.8	11.0	1.4
Gastrointestinal	14.3	4.7	9.6	3.0
Infant/congenital	9.4	2.8	6.6	3.4
Hearing/vision	9.8	3.4	6.4	2.9
Blood/metabolic	6.4	2.5	3.9	2.6
Oral	8.2	5.6	2.6	1.5
Skin	4.8	3.5	1.2	1.3
Reproductive/maternal	3.8	4.2	-0.4	0.9
Total	419.1	158.3	260.8	2.6

[#]The rate difference is the Aboriginal DALY ASR per 1,000 population minus the non-Aboriginal DALY ASR per 1,000 population. A positive rate difference indicates a higher DALY ASR among the Aboriginal population, and a negative rate difference indicates a lower DALY ASR, when compared to the non-Aboriginal population.

Table A2. Age standardised DALY rates (per 1,000 residents), standardised rate ratios (SRR) and rate differences, among Aboriginal and non-Aboriginal male residents of Western Australia in 2018.

Males				
Disease Group	DALY ASR per 1000		Health gap	
	Aboriginal	Non-Aboriginal	Rate difference[#]	SRR
Cardiovascular	87.0	26.2	60.7	3.3
Mental/substance use	73.3	23.0	50.3	3.2
Injuries	72.6	27.1	45.5	2.7
Cancer and other neoplasms	65.7	33.4	32.4	2.0
Endocrine	28.4	5.4	23.0	5.3
Kidney/urinary	24.6	1.8	22.8	13.4
Respiratory	30.7	11.7	19.0	2.6
Gastrointestinal	23.6	5.8	17.8	4.1
Neurological	27.7	11.9	15.8	2.3
Infectious diseases	19.1	4.2	14.9	4.6
Musculoskeletal	30.0	21.0	8.9	1.4
Hearing/vision	11.1	4.0	7.1	2.8
Infant/congenital	11.2	4.4	6.7	2.5
Blood/metabolic	5.6	1.9	3.7	3.0
Oral	10.0	6.5	3.6	1.6
Skin	4.8	3.3	1.4	1.4
Total	525.1	191.5	333.6	2.7

[#]The rate difference is the Aboriginal DALY ASR per 1,000 population minus the non-Aboriginal DALY ASR per 1,000 population. A positive rate difference indicates a higher DALY ASR among the Aboriginal population, and a negative rate difference indicates a lower DALY ASR, when compared to the non-Aboriginal population.