Australian Burden of Disease Study 2018: Interactive data on risk factor burden

Web report | Last updated: **24 Nov 2021** | Topic: <u>Burden of disease</u>

About

Burden of disease is a measure of the years of healthy life lost from living with, or dying from disease and injury. A portion of this burden is preventable, being due to modifiable risk factors. This report provides information on the deaths and burden of disease due to risk factors included in the Australian Burden of Disease Study 2018.

There is also another interactive data set to explore: <u>disease burden</u>.

Cat. no: BOD 35

- <u>Frequently asked questions</u>
- <u>Data</u>
  Findings from this report:

- <u>38% of disease burden in Australia in 2018 is preventable and due to the modifiable risk factors included in this study</u>

- <u>Overweight (including obesity) was the leading contributor to non-fatal burden in 2018</u>

- <u>8.6% of the disease burden in 2018 was due to tobacco use and was the leading risk factor</u>

- <u>8.4% of the disease burden in 2018 was due to overweight (including obesity)</u>

Summary

The disease burden due to risk factors is known as attributable burden. It is the amount by which disease burden would be reduced if exposure to the risk factor had been avoided or reduced to the lowest possible exposure. Deaths can also be attributed to risk factors using the same methods.

The Australian Burden of Disease Study 2018, published in 2021, estimated the disease burden and deaths due to 40 risk factor components or exposures (such as cannabis use) that combine into 20 individual risk factors (such as illicit drug use). The risk factors are categorised into 4 groups: behavioural, dietary, metabolic/biomedical and environmental. Risk factors included in this interactive web report are listed below.

This interactive report provides dynamic data displays of attributable burden and attributable deaths in Australia as part of the Australian Burden of Disease Study 2018.

The available estimates include:

- Non-fatal, fatal and total attributable burden estimates by age, sex and linked disease for 2018, and for most risk factors for 2003, 2011 and 2015
- Attributable deaths estimates by sex for 2003, 2011, 2015 and 2018
- Attributable burden estimates by socioeconomic group for selected risk factors in 2015 and 2018.

Risk factor estimates for a particular disease cannot simply be added together as they are estimated independently, with some risk factors being on the same causal pathway. Further information on estimating PAFs and the data and methods used in the Australian Burden of Disease Study 2018 can be found in the Australian Burden of Disease Study 2018: methods and supplementary material report. Further information on how to interpret specific measures in the visualisations is shown when hovering over the information icons on available pages.

Data visualisations displaying estimates of disease burden are available in the interactive web report: Interactive data on disease burden.

Risk factors included in the Australian Burden of Disease Study 2018

Behavioural risks

- Alcohol use
- Bullying victimisation
- Child abuse & neglect
- Illicit drug use
    - Opioid use
    - Amphetamine use
    - Cocaine use
    - Cannabis use
    - Other illicit drug use
    - Unsafe injecting practices
- Intimate partner violence
- Physical inactivity
- Tobacco use
- Unsafe sex

Metabolic/Biomedical risks

- High blood plasma glucose (including diabetes)
- High blood pressure
- High cholesterol
- Impaired kidney function (including chronic kidney disease)
- Iron deficiency
- Low bone mineral density
- Low birth weight & short gestation
- Overweight (including obesity)

Dietary risks

- Diet high in processed meat
- Diet high in red meat
- Diet high in sodium
- Diet high in sugar sweetened beverages

- Diet low in fish & seafood
- Diet low in fruit
- Diet low in legumes
- Diet low in milk
- Diet low in nuts and seeds
- Diet low in polyunsaturated fat
- Diet low in vegetables
- Diet low in whole grains & high fibre cereals

Environmental risks

- Air pollution
- High sun exposure
- Occupational exposures & hazards

Leading risk factors

Around 38% of the burden of disease in Australia in 2018 could have been prevented by reducing exposure to all the modifiable risk factors included in the Australian Burden of Disease Study 2018. This estimate has taken into account the complex pathways and interactions between diseases and risk factors.

The leading five risk factors contributing to total burden were: tobacco use, overweight (including obesity), all dietary risks, high blood pressure and alcohol use.

Tobacco use contributed the greatest amount of fatal burden and deaths in Australia while overweight (including obesity) contributed the most non-fatal burden in both males and females.

The burden attributable to most (14 out of 20) risk factors was higher in males than in females; with the exception of bullying victimisation, child abuse & neglect, low bone mineral density, unsafe sex, iron deficiency and intimate partner violence (only estimated in females). This interactive data visualisation shows the leading risk factors by attributable burden. The main section shows a horizontal bar graph which can be customised to report data according to sex, year and measure of attributable burden.

Leading risk factors contributing to disease burden in Australia
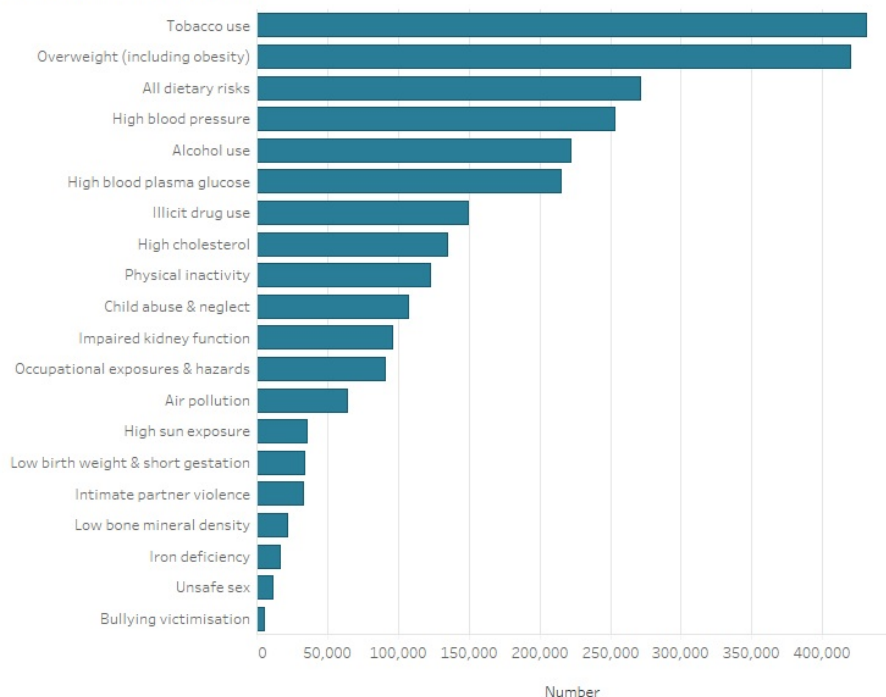
Select from the following:

Measure:	Year:	Sex:
Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost
ASR= Age-standardised rate per 1,000 population

Notes:
Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
The risk factors high blood plasma glucose, air pollution, and low birth weight & short gestation were not estimated for all reference years.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Changes in leading risk factors over time

Attributable burden was estimated for the years 2003, 2011, 2015 and 2018 for selected risk factors. Due to lack of suitable data, air pollution was estimated in 2015 and 2018 only; high blood plasma glucose levels in 2011, 2015 and 2018 only; and low birth weight and short gestation in 2018 only.

For risk factors where data was available over time, the risk factors contributed 37% of the total burden in Australia in 2003 compared with 35% in 2018. This decrease demonstrates a small improvement in the amount of health loss attributable to modifiable risk factors.

Tobacco use, overweight (including obesity), all dietary risks and high blood pressure were consistently the leading 4 risk factors in each of the years of 2003, 2011, 2015 and 2018. High blood pressure decreased from the 2nd highest risk factor in 2003 to the 4th highest in 2018, whereas the reverse was seen in overweight (including obesity) rankings— moving from the 4th highest risk factor in 2003 to the 2nd highest risk factor in 2018.

There were decreases between 2003 and 2018 in the age-standardised rate of total burden attributable to risk factors for high cholesterol by 53%, for high blood pressure by 49%, for dietary risks by 42%, for physical inactivity by 34%, and for tobacco use by 32%. Decreases in burden from cardiovascular diseases linked to these risk factors contributed to the decrease in rate of attributable burden.

In females, child abuse & neglect ranked high (6th in 2018) compared with males (not in the 10 leading risk factors in 2018). Conversely, occupational exposures & hazards ranked higher in males compared with females (ranked 9th and not in the 10 leading risk factors in 2018, respectively).

When looking at non-fatal burden, overweight (including obesity) and tobacco use were consistently the leading 2 risk factors in the years 2003, 2011, 2015 and 2018. High blood glucose ranked 5th in 2015, and 6th in 2011 and 2018, however was not included in the rankings for 2003 due to lack of suitable data.

In males, alcohol use, occupational exposures & hazards and illicit drug use ranked higher for non-fatal burden (2nd, 5th and 6th respectively in 2018) compared with females. Intimate partner violence ranked 6th for non-fatal burden in 2018, however this risk factor was only estimated in females due to lack of suitable data in males.

When looking at the number of deaths attributable to risk factors, tobacco use, overweight (including obesity), dietary risks and high blood pressure consistently contributed the most in Australia across all years, for both males and females.
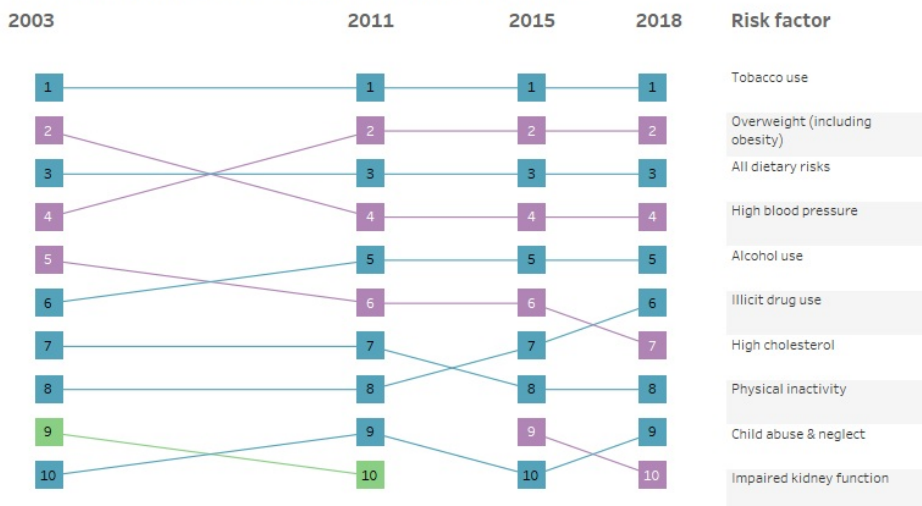
Tab 1: This interactive data visualisation shows the ranking of risk factors by amount of attributable burden. The main section shows these rankings by year which can be customised to report data according to sex and measure of attributable burden.

Tab 2: This interactive data visualisation shows the ranking of risk factors by rate of attributable burden. The main section shows these rankings by year which can be customised to report data according to sex and measure of attributable burden.

Ranking by number of leading risk factors contributing to disease burden in Australia

Select measure: Attributable DALY
Select sex: Persons
Type of risk factor: Behavioural | Environmental | Metabolic/Biomedical

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

2003	2011	2015	2018	Risk factor

Risk factor (by rank):
Tobacco use
Overweight (including obesity)
All dietary risks
High blood pressure
Alcohol use
Illicit drug use
High cholesterol
Physical inactivity
Child abuse & neglect
Impaired kidney function

Notes:
Risk factors ranked in the leading 10 in 2003 which are not ranked in 2011, 2015 or 2018 will not have connecting lines and rankings.
The risk factors high blood plasma glucose, air pollution, and low birth weight & short gestation were not estimated for all reference years and are not included here.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Tobacco use

On this page

- How much burden was attributable to tobacco use?
- How did burden attributable to tobacco use vary by age and sex?
- Did attributable burden vary by socioeconomic group?
- How has disease burden attributable to tobacco use changed over time?

In 2018, 8.6% of the total disease burden in Australia was due to tobacco use, making it the leading risk factor that contributed to disease burden and deaths.

These estimates reflect the amount of disease burden that could have been avoided if all people in Australia had not used tobacco or been exposed to second hand smoke in their lifetime.

Tobacco use was causally linked to the burden of 41 individual diseases including: 19 types of cancer; 7 cardiovascular diseases; chronic obstructive pulmonary disease (COPD); and asthma (see ABDS 2018 Risk factor estimates data table).

How much burden was attributable to tobacco use?

Tobacco use was responsible for over 76% of the total disease burden due to lung cancer, 73% of the burden due to COPD and over 50% of the burden from oesophageal cancer.

Tobacco use contributed the most to fatal burden, with almost 20,500 deaths (13% of all deaths) in 2018.
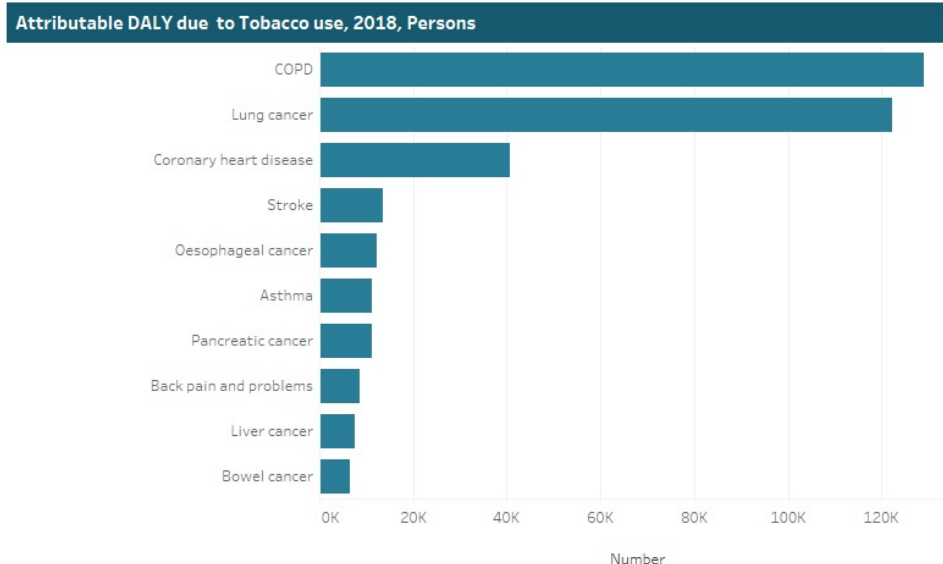
Note that the following visualisation displays the top 10 linked diseases due to tobacco use by the selected measure.

This interactive data visualisation shows the burden attributable to tobacco use by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to tobacco use.

Select from the following:

Measure:	Year:	Sex:
Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to Tobacco use, 2018, Persons

Note: Only the leading 10 linked diseases for each selected measure are presented.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to tobacco use vary by age and sex?

Tobacco use contributed to total disease burden across all age groups, including infants and young children exposed to second hand smoke. Most of the tobacco use attributable burden was experienced in both males and females aged 45 and over.

Males experienced a greater amount of burden attributable to tobacco use compared with females in all ages up to 84 years, after which it was higher in females. In 2018, the largest number of deaths (4,531) occurred in the 65–84 age group.

This interactive data visualisation shows the amount of burden attributable to tobacco use by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to tobacco use.
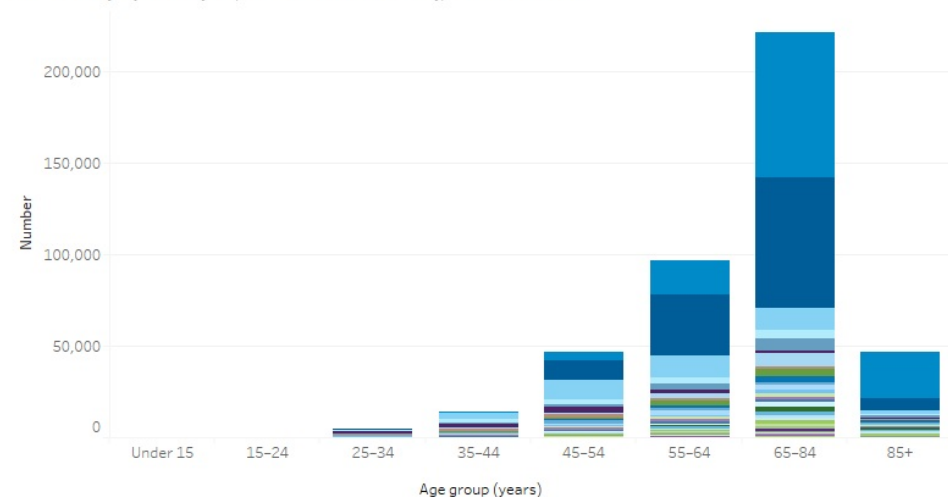
Select from the following:

	Measure: Attributable DALY	Year: 2018	Sex: Persons	Disease group: All

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Linked disease

COPD	Back pain and problems	Rheumatoid arthritis	Kidney cancer	Na
Lung cancer	Liver cancer	Type 2 diabetes mellitus	Laryngeal cancer	M
Coronary heart disease	Bowel cancer	Bladder cancer	Prostate cancer	Ga
Stroke	Other cardiovascular diseases	Dementia	Acute myeloid leukaemia (AML)	Ot
Oesophageal cancer	Lip and oral cavity cancer	Breast cancer	Aortic aneurysm	Ce
Asthma	Lower respiratory infections	Other respiratory disease	Hypertensive heart disease	Ch
Pancreatic cancer	Atrial fibrillation and flutter	Stomach cancer	Peripheral vascular disease	Ag

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden attributable to tobacco use was 3.1 times higher in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to tobacco use by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to tobacco use.

Select from the following:

	Measure: Attributable DALY	Sex: Persons	Year: 2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden attributable to tobacco use changed over time?

The rate of total burden attributable to tobacco use (from all linked diseases) decreased by 32% between 2003 and 2018 (from 21.5 DALY to 14.6 DALY per 1,000 population). The rate of deaths associated with tobacco use decreased by 31% between 2003 and 2018 (from 1.0 to 0.7 deaths per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to tobacco use by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to tobacco use.
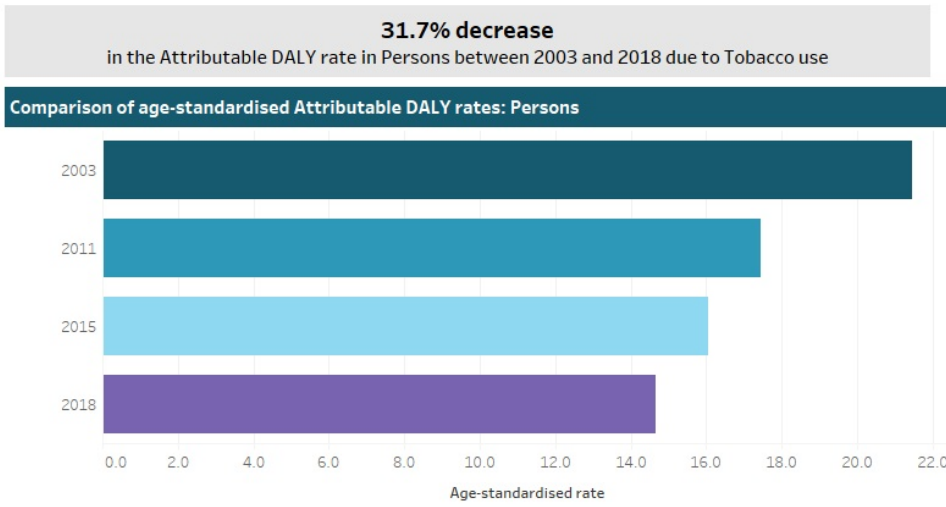
Select from the following:

	Measure:	Sex:	Start year:	End year:
ⓘ	Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

31.7% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to Tobacco use

Comparison of age-standardised Attributable DALY rates: Persons

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Overweight (including obesity)

In this page

- How much burden was attributable to overweight (including obesity)?
- How did burden attributable to overweight (including obesity) vary by age?
- Did attributable burden vary by socioeconomic group?
- How has disease burden due to overweight (including obesity) changed over time

In 2018, 8.4% of the total disease burden in Australia was due to overweight (including obesity), making it the second leading risk factor contributing to disease burden after tobacco use.

These estimates reflect the amount of burden that could have been avoided if all people in Australia were in the normal weight range (body mass index of 20–25).

Overweight (including obesity) contributed to the burden of 30 diseases including: 17 types of cancer, 4 cardiovascular diseases, 3 musculoskeletal conditions, type 2 diabetes, dementia, asthma and chronic kidney disease (see ABDS 2018 Risk factor estimates data table).

How much burden was attributable to overweight (including obesity)

Overweight (including obesity) was responsible for over 55% of the total disease burden due to type 2 diabetes, 51% of the burden due to hypertensive heart disease, 42% of the burden due to chronic kidney disease, 28% of the burden due to coronary heart disease burden, and over 28% of the burden from osteoarthritis.

Overweight (including obesity) was the second-leading contributor to fatal burden, with 16,400 deaths (10% of all deaths) in 2018.
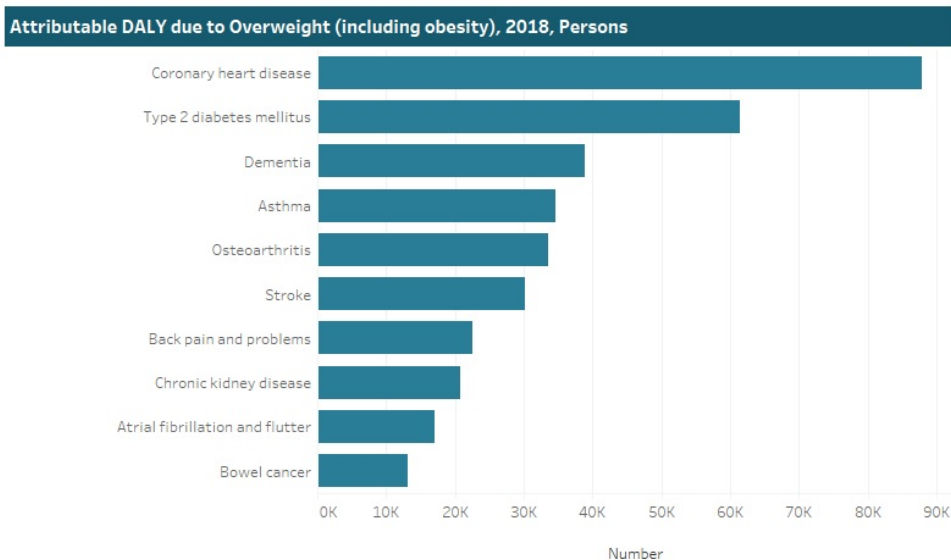
Note that the following visualisation displays the top 10 linked diseases due to overweight (including obesity) by the selected measure.

This interactive data visualisation shows the burden attributable to overweight (including obesity) by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to overweight (including obesity).

Select from the following:

Measure:	Year:	Sex:
Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to Overweight (including obesity), 2018, Persons

Note: Only the leading 10 linked diseases for each selected measure are presented.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to overweight (including obesity) vary by age?

Overweight (including obesity) contributed to disease burden across all age groups, however asthma was the only disease linked to overweight (including obesity) in children aged less than 15 years.
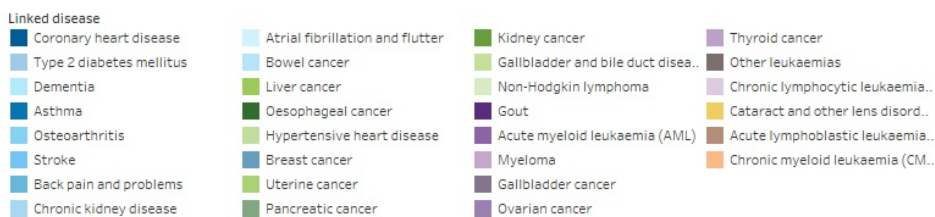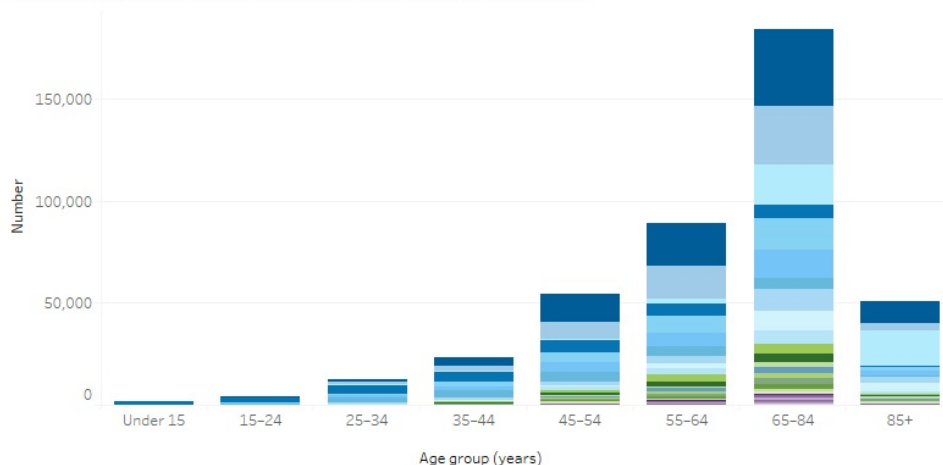
In males aged 35-84 years, the most burden due to overweight (including obesity) was from coronary heart disease. By comparison, the most burden due to overweight (including obesity) in females aged 45-84 years was from coronary heart disease.

This interactive data visualisation shows the amount of burden attributable to overweight (including obesity) by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to overweight (including obesity).

Select from the following:

| Measure: | Year: | Sex: | Disease group: |
| Attributable DALY | 2018 | Persons | All |

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Linked disease
- Coronary heart disease
- Type 2 diabetes mellitus
- Dementia
- Asthma
- Osteoarthritis
- Stroke
- Back pain and problems
- Chronic kidney disease
- Atrial fibrillation and flutter
- Bowel cancer
- Liver cancer
- Oesophageal cancer
- Hypertensive heart disease
- Breast cancer
- Uterine cancer
- Pancreatic cancer
- Kidney cancer
- Gallbladder and bile duct disea..
- Non-Hodgkin lymphoma
- Gout
- Acute myeloid leukaemia (AML)
- Myeloma
- Gallbladder cancer
- Ovarian cancer
- Thyroid cancer
- Other leukaemias
- Chronic lymphocytic leukaemia..
- Cataract and other lens disord..
- Acute lymphoblastic leukaemia..
- Chronic myeloid leukaemia (CM..

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

## Did attributable burden vary by socioeconomic group?

Total disease burden attributable to overweight (including obesity) was 2 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to overweight (including obesity) by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to overweight (including obesity).

Select from the following:

| Measure: | Sex: | Year: |
| Attributable DALY | Persons | 2018 |

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018
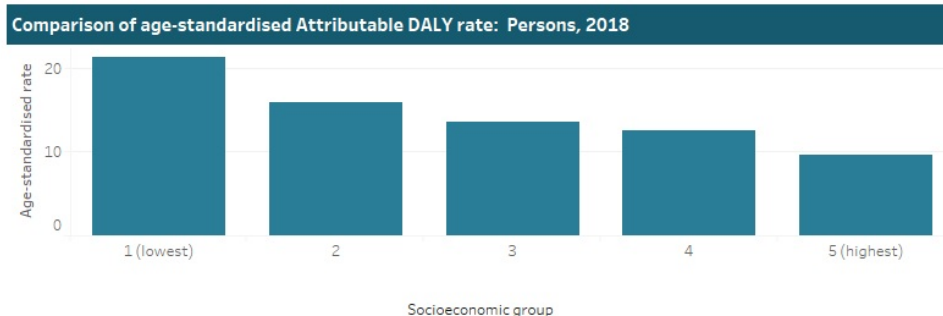
Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to overweight (including obesity) changed over time?

The rate of total burden due to overweight (including obesity) (from all linked diseases) decreased by 4% between 2003 and 2018 (from 15.2 DALY to 14.5 DALY per 1,000 population), though there was a 3% increase between 2015 and 2018 (from 14.1 DALY to 14.5 DALY per 1,000 population). For more detail on the changes in burden over time for this risk factor see Impact and causes of illness and death in Australia

2018 report.

This interactive data visualisation shows the rate of burden attributable to overweight (including obesity) by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to overweight (including obesity).
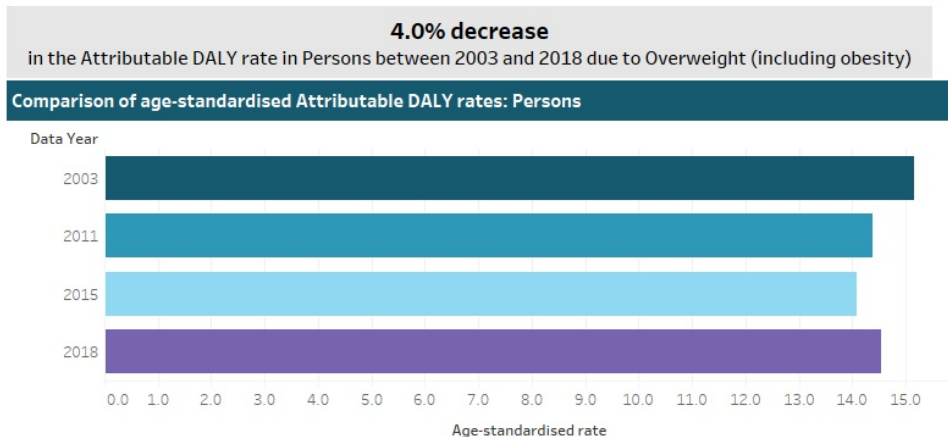
Select from the following:

Measure:	Sex:	Start year:	End year:
Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

4.0% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to Overweight (including obesity)

Comparison of age-standardised Attributable DALY rates: Persons

Data Year

Year	
2003	
2011	
2015	
2018	

0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0

Age-standardised rate

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Dietary risk factors

In this page

- Individual dietary risks
- How much disease burden does each dietary risk factor cause?
- How did burden attributable to dietary risks vary by age and sex?
- Did attributable burden vary by socioeconomic group?
- How has disease burden due to dietary risk factors changed over time?

In total, 12 dietary risk factors were included in the Australian Burden of Disease Study 2018. Each dietary risk was assessed independently and included dietary components where adequate amounts in the diet are required to prevent disease, as well diets where excessive consumption contributes to disease development. Information on the recommended dietary intake as part of Australian Dietary Guidelines can be found at the Eat for Health website.

> **All dietary risks combined**
>
> All dietary risks were responsible for 5.4% of burden of disease in Australia in 2018.
>
> Due to the complex relationships and interactions between risk factors, the individual dietary risks cannot be summed together. To overcome this issue a combined dietary estimate was calculated, referred to as 'all dietary risks'. These estimates reflect the amount of burden that could have been avoided if all people in Australia ate a healthy diet (see ABDS 2018 Risk factor estimates data table).

Individual dietary risks

The dietary risks included were a diet low in: fruit, vegetables, milk, nuts & seeds, whole grains & high fibre cereals, legumes, polyunsaturated fat and fish & seafood, as well as a diet high in: sodium, sugar sweetened beverages, red meat and processed meat.

Diet low in legumes was the leading dietary risk contributing to 1.2% of the total burden in Australia in 2018. This was followed by diet low in wholegrains & high fibre cereals (0.9% of total burden in 2018), diet high in sodium (0.9%) and diet high in red meat (0.9%).

This interactive data visualisation shows the burden attributable to dietary risks by type of dietary risk. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden due to a particular type of dietary risk.
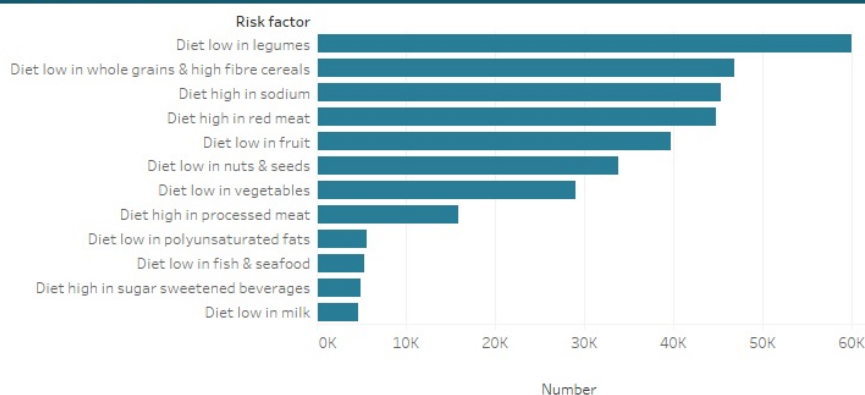
Select from the following:

Measure:	Year:	Sex:
Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How much disease burden does each dietary risk factor cause?

All dietary risks combined contributed 50% of coronary heart disease total burden, 26% of bowel cancer burden, 26% of type 2 diabetes burden, and 26% of stroke burden.

The combination of dietary risks were linked to 16 diseases. Note that the following visualisation displays the top 10 linked diseases due to dietary risks by selected measure (see ABDS 2018 Risk factor estimates data table).

This interactive data visualisation shows the burden attributable to dietary risks by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex, type of dietary risk and measure of attributable burden. Each bar represents the attributable burden of the disease linked to the type of dietary risk.
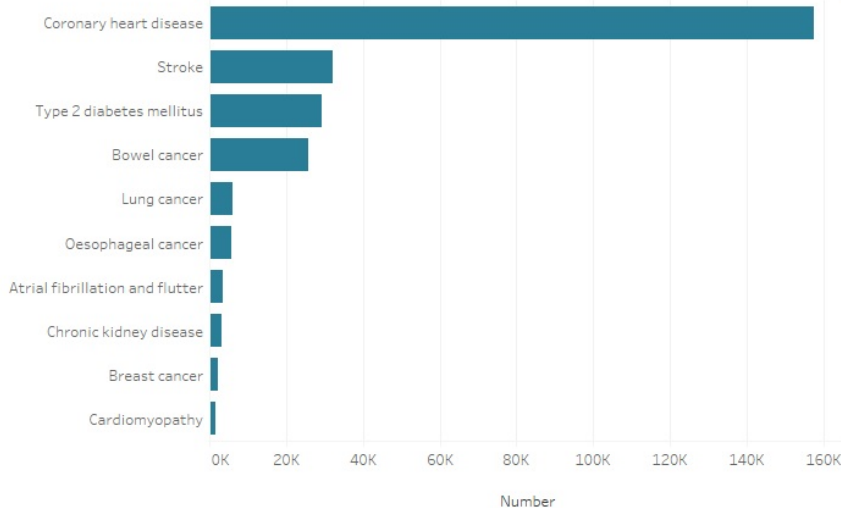
Select from the following:

Measure:	Year:	Sex:	Dietary risk:
Attributable DALY	2018	Persons	All dietary risks

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to All dietary risks, 2018, Persons

Note: Only the leading 10 linked diseases for each selected measure are presented.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to dietary risks vary by age and sex?

Total burden due to all dietary risks increased with age from age 25 up until age 84, then decreased among those aged 85 and over.

Males experienced a greater amount of disease burden due to all dietary risks than females in all ages up to age 84. The burden due to all dietary risks was greater in females than in males for those aged 85 years and over.

This interactive data visualisation shows the amount of burden attributable to dietary risks by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to dietary risks.

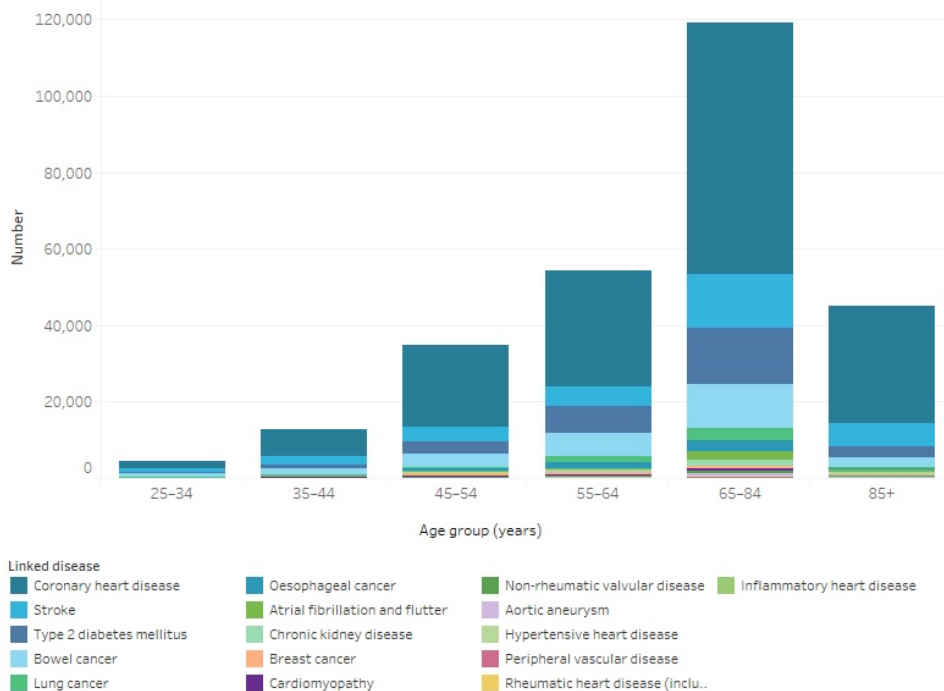Measure: Year: Sex: Disease group:
Attributable DALY   2018   Persons   All

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Linked disease
- Coronary heart disease
- Oesophageal cancer
- Non-rheumatic valvular disease
- Inflammatory heart disease
- Stroke
- Atrial fibrillation and flutter
- Aortic aneurysm
- Type 2 diabetes mellitus
- Chronic kidney disease
- Hypertensive heart disease
- Bowel cancer
- Breast cancer
- Peripheral vascular disease
- Lung cancer
- Cardiomyopathy
- Rheumatic heart disease (inclu..

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden attributable to all dietary risks was twice as high in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to dietary risks by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to dietary risks.
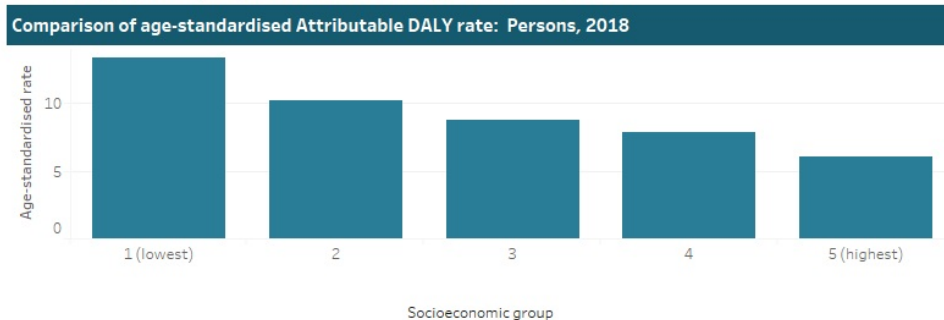
Select from the following:

Measure: Sex: Year:
Attributable DALY   Persons   2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to dietary risk factors changed over time?

The rate of total burden due to all dietary risks (from all linked diseases) decreased by 42% between 2003 and 2018 (from 15.8 DALY to 9.2 DALY per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to dietary risks by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to dietary risks.

Select from the following:

ⓘ
| Measure:
Attributable DALY | Sex:
Persons | Start year:
2003 | End year:
2018 |

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

41.7% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to All dietary risks

Comparison of age-standardised Attributable DALY rates: Persons

Data Year

Age-standardised rate

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

High blood pressure

In this page

- How much burden was attributable to high blood pressure?
- How did burden attributable to high blood pressure vary by age and sex?
- Did attributable burden vary by socioeconomic group?
- How has disease burden due to high blood pressure changed over time?

In 2018, 5.1% of the total burden in Australia was due to high blood pressure. High blood pressure was the 4th leading risk factor contributing to disease burden.

These estimates reflect the amount of burden that could have been avoided if all people in Australia did not have high blood pressure.

High blood pressure was causally linked to 12 diseases including 10 cardiovascular diseases, chronic kidney disease and dementia (see ABDS 2018 Risk factor estimates data table).

How much burden was attributable to high blood pressure?

High blood pressure contributed 63% of hypertensive heart disease, 42% of coronary heart disease, 39% of stroke, 37% of chronic kidney disease, and 31% of atrial fibrillation & flutter total burden.
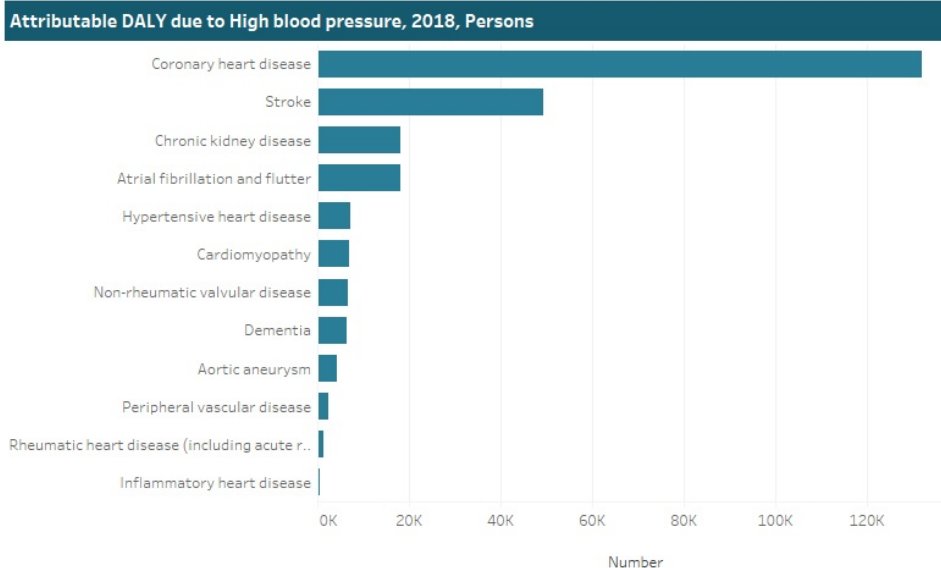
Note that the following visualisation displays the top 10 linked diseases due to high blood pressure by the selected measure.

This interactive data visualisation shows the burden attributable to high blood pressure by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to high blood pressure.

Select from the following:

	Measure:	Year:	Sex:
(i)	Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to High blood pressure, 2018, Persons

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au
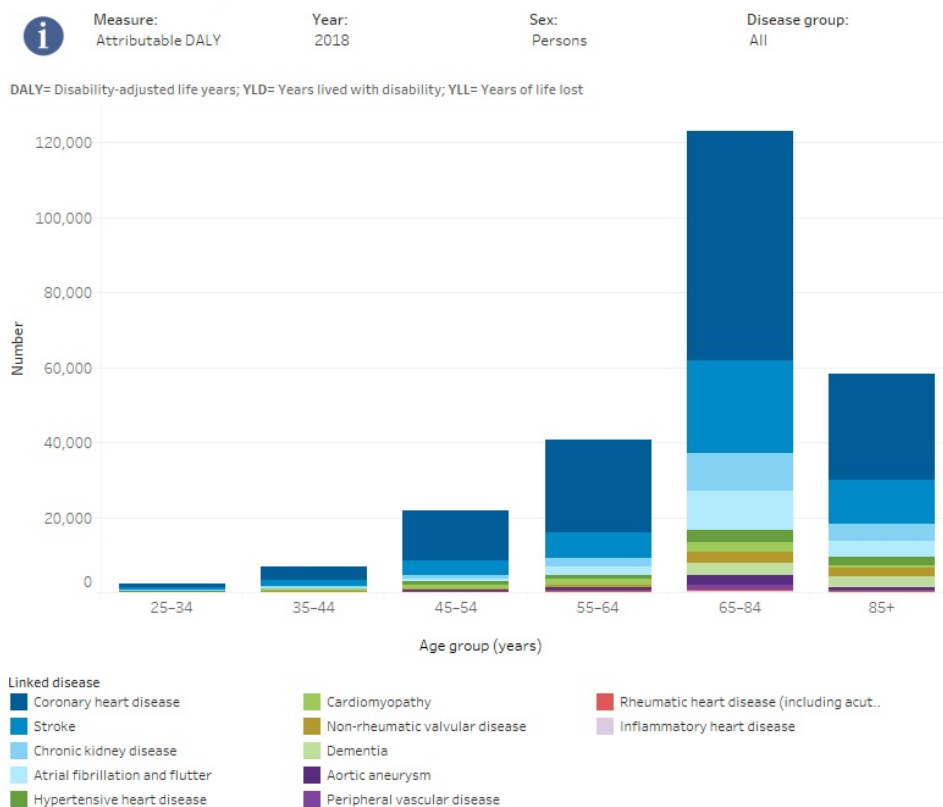
How did burden attributable to high blood pressure vary by age and sex?

The burden from high blood pressure was estimated in adults aged 25 and over. Total burden due to high blood pressure increased with age, peaking at age 65-84 years.

Males experienced a greater amount of disease burden from high blood pressure than females in all ages up to age 84. Of the diseases linked to high blood pressure, coronary heart disease contributed the most burden from high blood pressure.

This interactive data visualisation shows the amount of burden attributable to high blood pressure by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to high blood pressure.
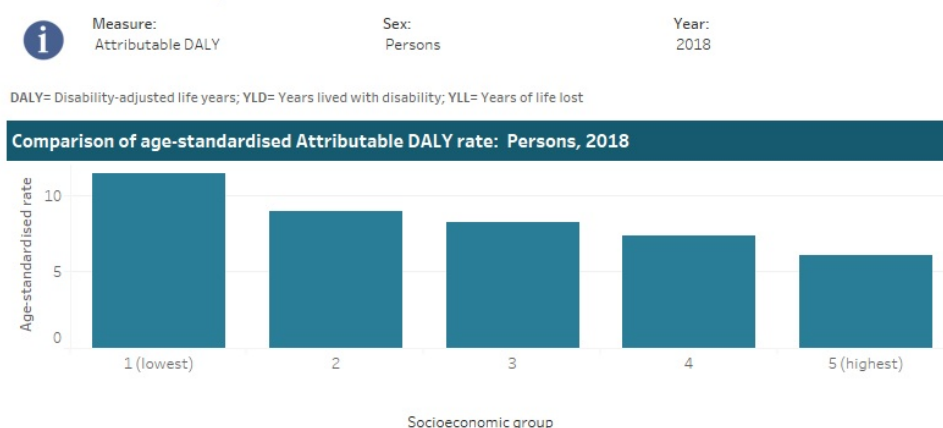
Select from the following:

Measure:	Year:	Sex:	Disease group:
Attributable DALY	2018	Persons	All

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Age group (years)

Linked disease
- Coronary heart disease
- Stroke
- Chronic kidney disease
- Atrial fibrillation and flutter
- Hypertensive heart disease
- Cardiomyopathy
- Non-rheumatic valvular disease
- Dementia
- Aortic aneurysm
- Peripheral vascular disease
- Rheumatic heart disease (including acut..
- Inflammatory heart disease

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden due to high blood pressure was 1.9 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to high blood pressure by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to high blood pressure.

Select from the following:

Measure:	Sex:	Year:
Attributable DALY	Persons	2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018

Socioeconomic group

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to high blood pressure changed over time?

The rate of total burden due to high blood pressure (from all linked diseases) decreased by 49% (from 16 DALY to 8 DALY per 1,000 population) between 2003 and 2018.

This interactive data visualisation shows the rate of burden attributable to high blood pressure by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to high blood pressure.

Select from the following:

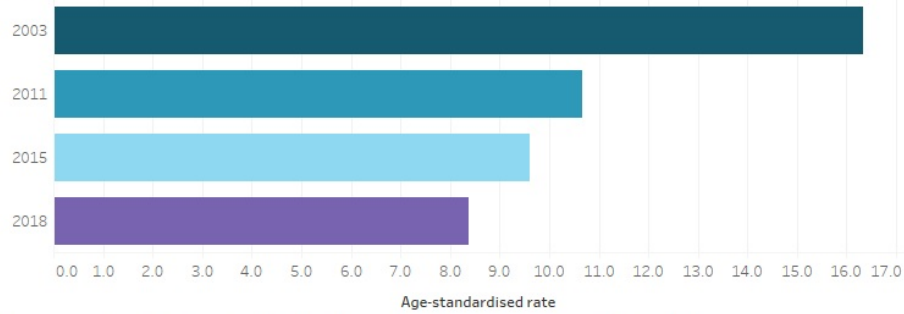|	Measure:	Sex:	Start year:	End year:
i	Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

48.7% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to High blood pressure

Comparison of age-standardised Attributable DALY rates: Persons

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Alcohol use

In this page

In 2018, 4.5% of the total disease burden in Australia was due to alcohol use, making it the 5th leading risk factor contributing to disease burden.

These estimates reflect the amount of disease burden that could have been avoided if all people in the Australian population had not consumed alcohol.

Alcohol use contributed to the burden of 30 diseases and injuries including alcohol use disorders, 8 types of cancer, chronic liver disease and 12 types of injury— predominantly road traffic injuries and suicide & self-inflicted injuries (see ABDS 2018 Risk factor estimates data table).

How much burden was attributable to alcohol use?

Alcohol use was responsible for the entire burden due to alcohol use disorders and 40% of liver cancer.

Note that the following visualisation displays the top 10 linked diseases due to alcohol use.

This interactive data visualisation shows the burden attributable to alcohol use by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to alcohol use.

Select from the following:

Measure:	Year:	Sex:
Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Attributable DALY due to Alcohol use, 2018, Persons

Note: Only the leading 10 linked diseases for each selected measure are presented.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to alcohol use vary by age and sex?

Males experienced a greater amount of total burden due to alcohol use than females in most age groups. For males, alcohol use attributable burden peaked during ages 25-44, primarily due to alcohol use disorders and suicide & self-inflicted injuries.

By comparison, burden attributable to alcohol use was experienced in older age groups in females, peaking in ages 65-84. The burden experienced was due to a number of diseases including coronary heart disease, breast cancer, liver cancer and chronic liver disease.

A large amount of the burden attributable to alcohol use was due to alcohol use disorders—50% of the attributable burden (DALY) in people aged between 15 and 34, and 87% of attributable non-fatal burden (YLL) between people aged 15 and 44.

This interactive data visualisation shows the amount of burden attributable to alcohol use by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to alcohol use.
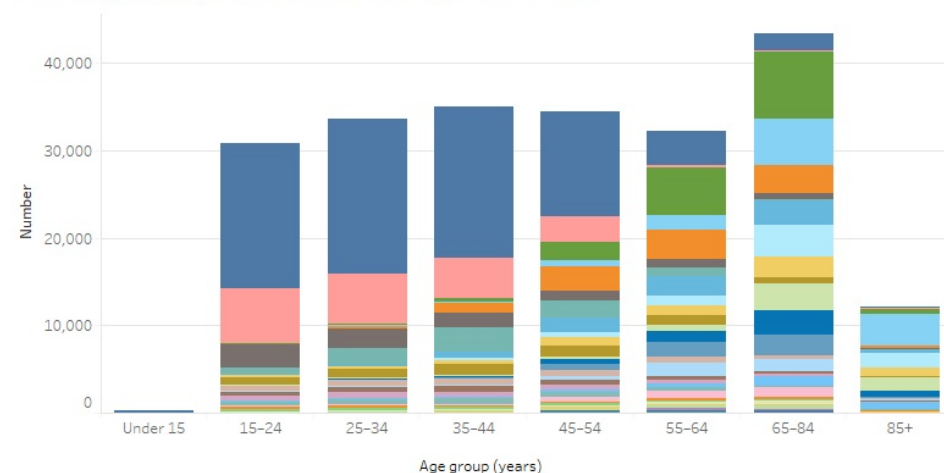
Select from the following:

Measure:	Year:	Sex:	Disease group:
Attributable DALY	2018	Persons	All

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Linked disease

Alcohol use disorders	Stroke	Road traffic injuries - motorcycl..	Road traffic injuries - pedal cycl..
Suicide and self-inflicted injuries	Falls	Other land transport injuries	Laryngeal cancer
Liver cancer	Epilepsy	Lower respiratory infections	Nasopharyngeal cancer
Coronary heart disease	Atrial fibrillation and flutter	Homicide and violence	Pancreatitis
Chronic liver disease	Bowel cancer	Other oral cavity and pharynx c..	Fire, burns and scalds
Road traffic injuries - motor veh..	Oesophageal cancer	Road traffic injuries - pedestria..	
Poisoning	Other unintentional injuries	Drowning	
Breast cancer	Lip and oral cavity cancer	Hypertensive heart disease	

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden attributable to alcohol use was 1.9 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to alcohol use by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to alcohol use.
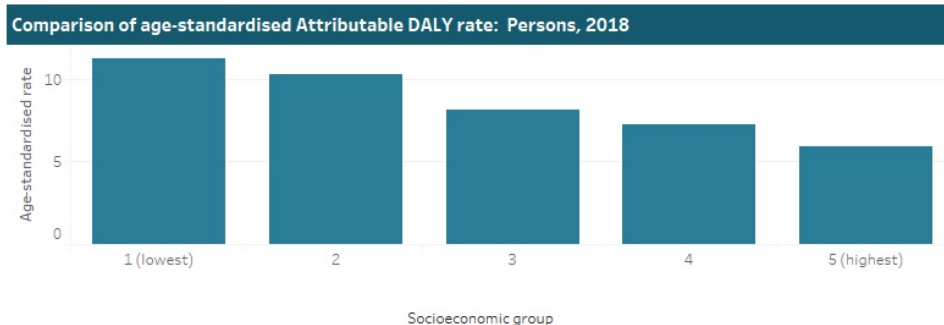
Select from the following:

Measure:	Sex:	Year:
Attributable DALY	Persons	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to alcohol use changed over time?

The rate of total burden due to alcohol use (from all linked diseases) decreased by 9.9% between 2003 and 2018 (from 9.5 DALY to 8.5 DALY per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to alcohol use by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to alcohol use.

Select from the following:

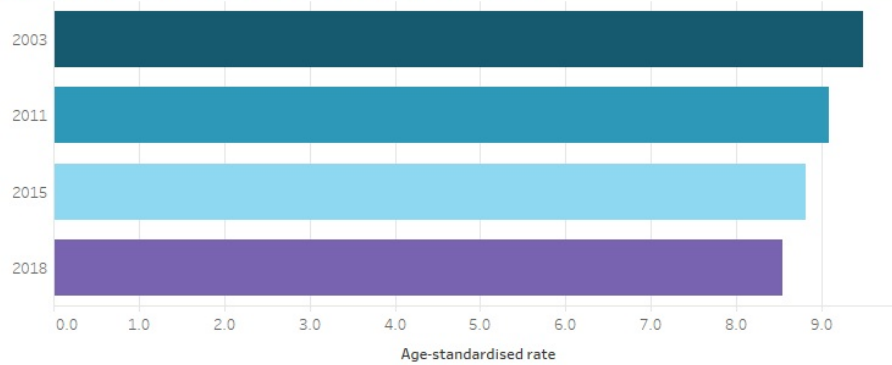|	Measure:	Sex:	Start year:	End year:
i	Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

9.9% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to Alcohol use

Comparison of age-standardised Attributable DALY rates: Persons

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

High blood plasma glucose

In this page

- How much burden was attributable to high blood plasma glucose?
- How did burden attributable to high blood plasma glucose vary by age and sex?
- Did attributable burden vary by socioeconomic group?

In 2018, 4.3% of the total disease burden in Australia was due to high blood plasma glucose (including intermediate hyperglycaemia and diabetes). High blood plasma glucose was the 6th leading risk factor that contributed to disease burden.

These estimates reflect the amount of burden that could have been avoided if all people in Australia did not have high blood plasma glucose levels (including diabetes and intermediate hyperglycaemia).

High blood plasma glucose was linked to 17 diseases including type 1 diabetes, type 2 diabetes and other diabetes, 7 cancer types, 3 cardiovascular diseases, chronic kidney disease and dementia (see ABDS 2018 Risk factor estimates data table).

How much burden was attributable to high blood plasma glucose?

High blood plasma glucose was responsible for the entire burden of each type of diabetes, 20% of chronic kidney disease burden, 19% of peripheral vascular disease burden and 7% of dementia burden.

Note that the following visualisation displays the top 10 linked diseases due to high blood plasma glucose by the selected measure.

This interactive data visualisation shows the burden attributable to high blood plasma glucose by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to high blood plasma glucose.

Select from the following:

Measure:	Year:	Sex:
Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to High blood plasma glucose, 2018, Persons
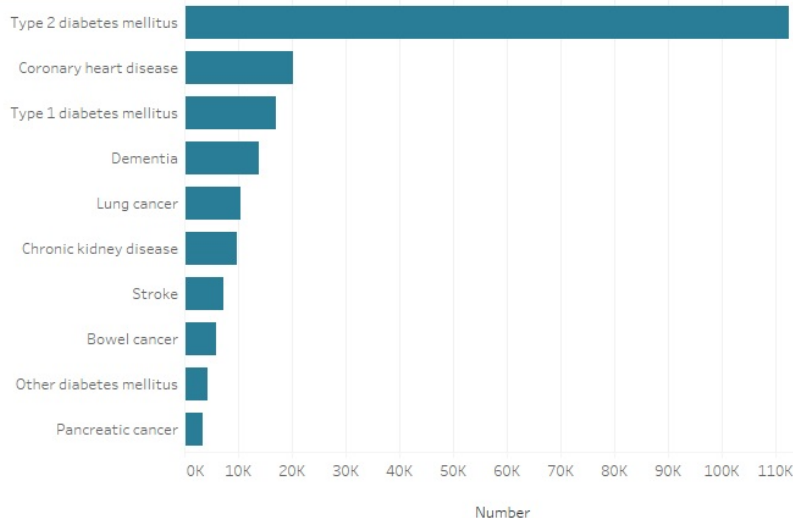
Note: Only the leading 10 linked diseases for each selected measure are presented.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to high blood plasma glucose vary by age and sex?

High blood plasma glucose contributed to disease burden across all age groups.

Total burden due to high blood plasma glucose increased with age, peaking at ages 65–84 in both males and females. Males and females experience a similar amount of disease burden from high blood plasma glucose up to age 34. Between ages 35 and 84 years, males experience 10–70% more burden due to high blood pressure than females.
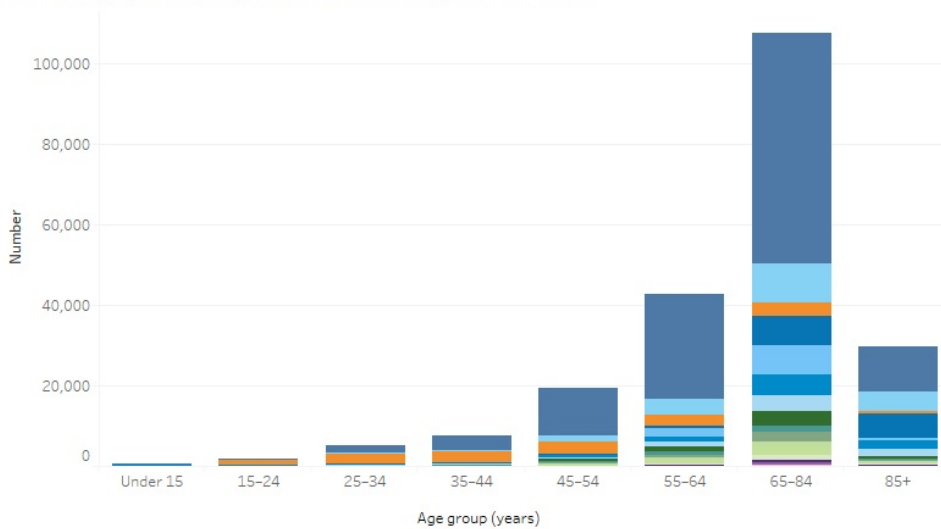
Of the diseases linked to high blood plasma glucose, type 2 diabetes contributed the most burden from high blood plasma glucose.

This interactive data visualisation shows the amount of burden attributable to high blood plasma glucose by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to high blood plasma glucose.

Select from the following:

Measure:	Year:	Sex:	Disease group:
Attributable DALY	2018	Persons	All

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Linked disease
- Type 2 diabetes mellitus
- Coronary heart disease
- Type 1 diabetes mellitus
- Dementia
- Lung cancer
- Chronic kidney disease
- Stroke
- Bowel cancer
- Other diabetes mellitus
- Pancreatic cancer
- Breast cancer
- Liver cancer
- Peripheral vascular disease
- Bladder cancer
- Ovarian cancer
- Cataract and other lens disorders
- Glaucoma

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden due to high blood plasma glucose was 2.4 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to high blood plasma glucose by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to high blood plasma glucose.

Select from the following:

Measure:	Sex:	Year:
Attributable DALY	Persons	2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

Illicit drug use

In this page

In 2018, 3% of the total disease burden in Australia was due to illicit drug use. Illicit drug use includes burden from opioids, amphetamines, cocaine and cannabis and other illicit drug use, as well as unsafe injecting practices.

These estimates reflect the amount of disease burden that could have been avoided if all people in Australia had not used illicit drugs.

Illicit drug use contributed to burden for 15 diseases and injuries; 4 types of injuries, 3 infections, liver cancer, chronic liver disease and 4 types of mental and substance use disorders (see ABDS 2018 Risk factor estimates data table). The linked diseases differed by type of illicit drug.

Individual drug use types

Of the individual drug use types, opioid use was the leading illicit drug use risk, contributing to 0.9% of the total burden in Australia in 2018. This was followed by amphetamine use (0.7% of total burden in 2018) and unsafe injecting practices (0.5%).

This interactive data visualisation shows the burden attributable to illicit drug use by type of illicit drug. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden due to a particular type of illicit drug.

Select from the following:

	Measure:	Year:	Sex:
	Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Illicit drug use risk by ranking, 2018, Persons
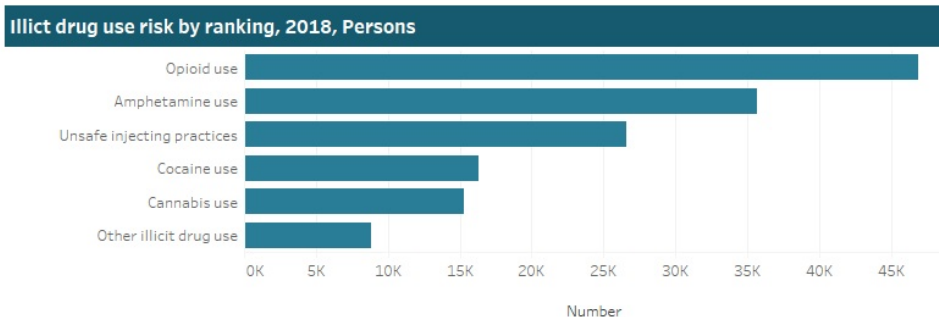
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How much burden was attributable to illicit drug use?

Illicit drug use was responsible for almost all burden due to drug use disorders (excluding alcohol), 74% due to acute hepatitis C, 72% of poisoning, 27% of chronic liver disease and liver cancer, and 15% of suicide and self-inflicted injuries.
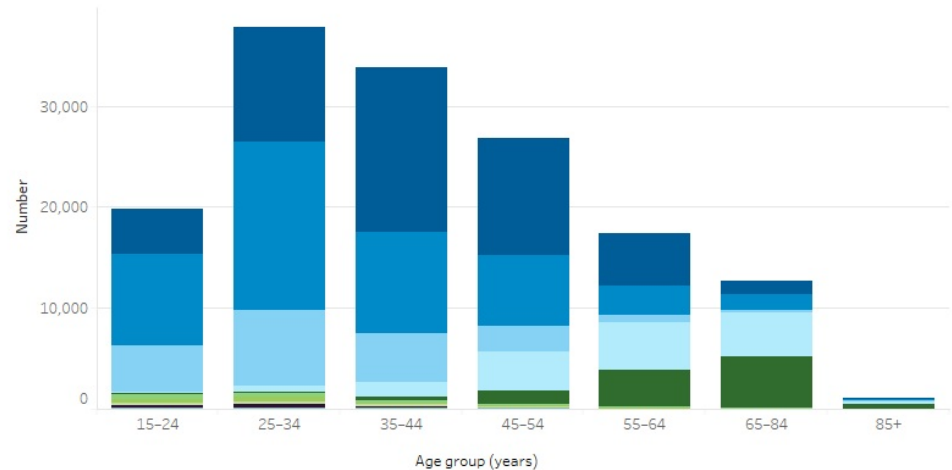
This interactive data visualisation shows the burden attributable to illicit drug use by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex, type of illicit drug and measure of attributable burden. Each bar represents the attributable burden of the disease linked to illicit drug use.

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to Illicit drug use (combined), 2018, Persons
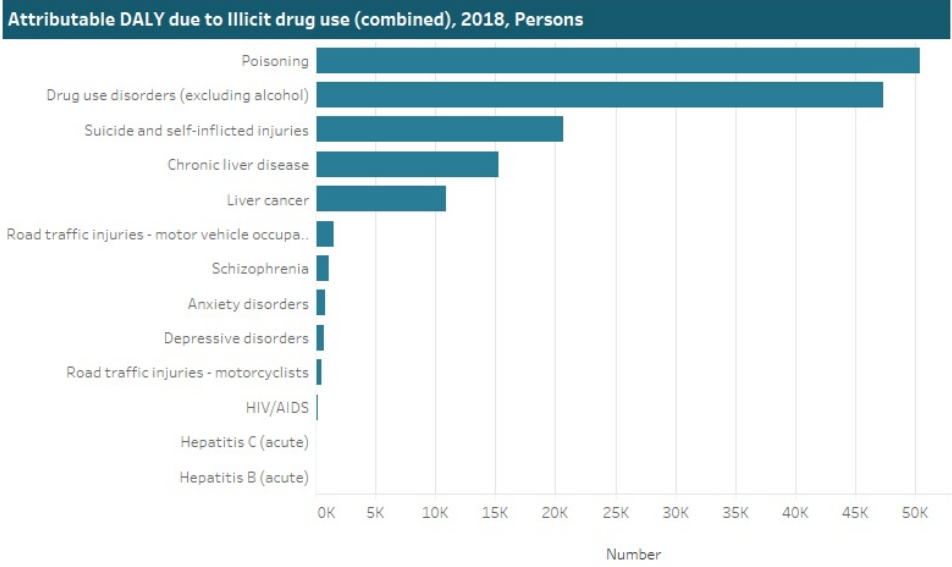
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to illicit drug use vary by age and sex?

The burden due to illicit drug use was estimated in people aged 15 and over. Disease burden due to illicit drug use was highest in people aged between 25 and 44, peaking in ages 25–34 years.

Males experienced more than twice the total burden from illicit drug use than females up to age 84 years. Drug use disorders (excluding alcohol) were the largest contributor to the illicit drug use attributable burden in people aged 15–34 years. Poisoning was the main contributor to the attributable burden in both males and females aged 35-64.

This interactive data visualisation shows the amount of burden attributable to illicit drug use by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group, type of illicit drug and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to illicit drug use.

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden attributable to illicit drug use was 2.1 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to illicit drug use by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to illicit drug use.

Select from the following:

	Measure:	Sex:	Year:
(i)	Attributable DALY	Persons	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018
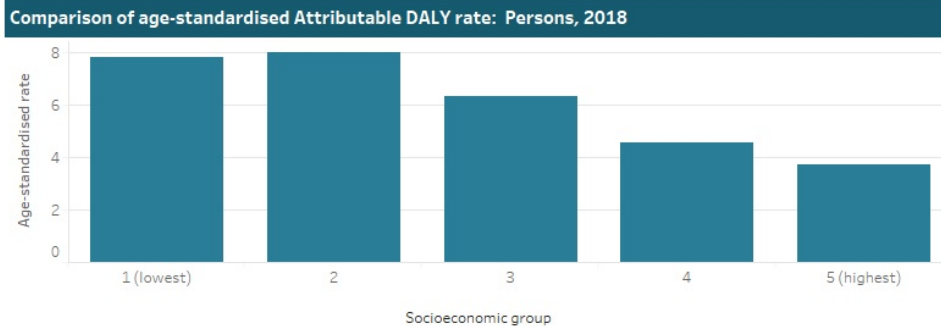
Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to illicit drug use changed over time?

The rate of total burden attributable to illicit drug use increased by 35% between 2003 and 2018 (from 4.5 DALY to 6.0 DALY per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to illicit drug use by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to illicit drug use.
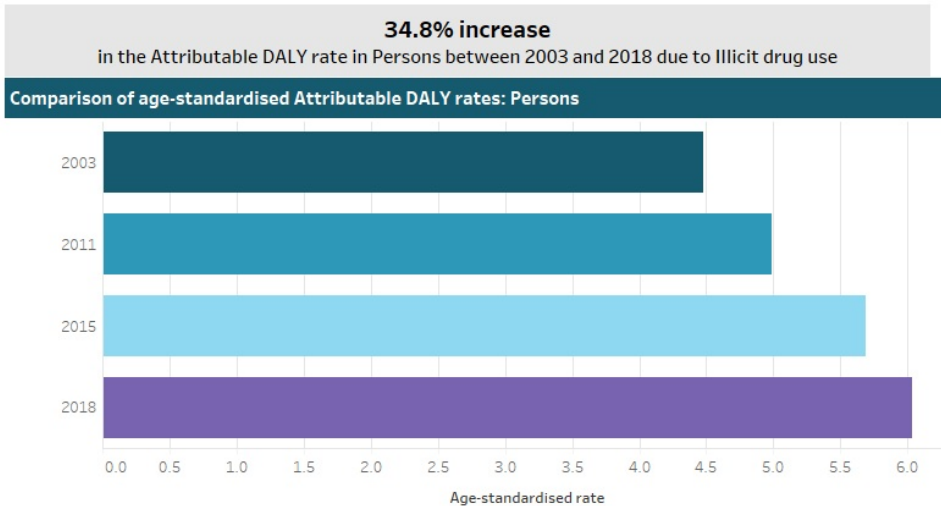
Select from the following:

	Measure:	Sex:	Start year:	End year:
(i)	Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

34.8% increase
in the Attributable DALY rate in Persons between 2003 and 2018 due to Illicit drug use

Comparison of age-standardised Attributable DALY rates: Persons

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

High cholesterol

In this page

- How much burden was attributable to high cholesterol?
- How did burden attributable to high cholesterol vary by age and sex?
- Did attributable burden vary by socioeconomic group?
- How has disease burden due to high cholesterol changed over time?

In 2018, 2.7% of the total disease burden in Australia was due to high cholesterol, contributing to coronary heart disease and stroke burden (see ABDS 2018 Risk factor estimates data table).

These estimates reflect the amount of burden that could have been avoided if all people in Australia did not have high cholesterol.

How much burden was attributable to high cholesterol?

In 2018, high cholesterol contributed 37% of coronary heart disease total burden and 16% stroke burden.
This interactive data visualisation shows the burden attributable to high cholesterol by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to high cholesterol.


Select from the following:

Measure: Attributable DALY Year: 2018 Sex: Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to High cholesterol, 2018, Persons

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to high cholesterol vary by age and sex?

Burden due to high cholesterol was estimated in people aged 25 and over. Total burden due to high cholesterol increased with age, peaking at age 65–84 years. Between ages 25–64 years, males experienced almost 3 times as much disease burden due to high cholesterol compared with females.

In both males and females, the most burden due to high cholesterol was from coronary heart disease.
This interactive data visualisation shows the amount of burden attributable to high cholesterol by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to high cholesterol.

Measure:
Attributable DALY

Year:
2018

Sex:
Persons

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost
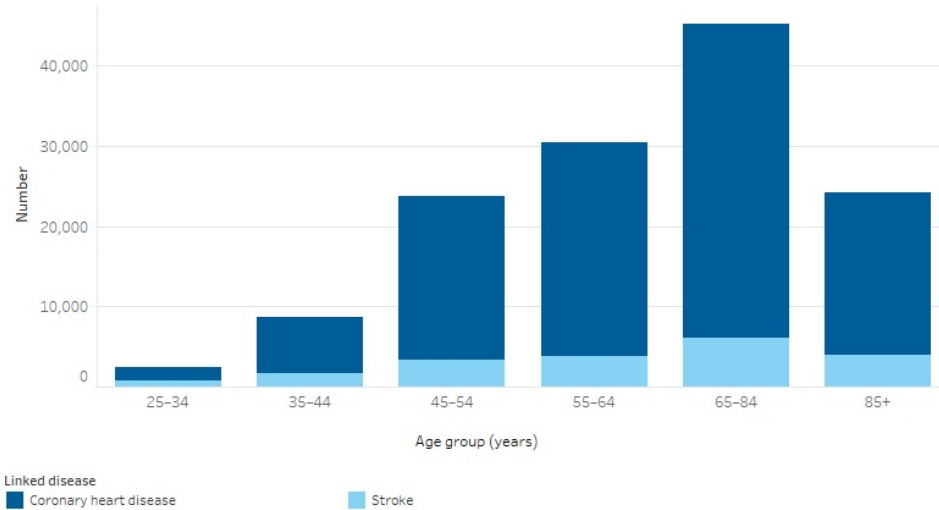
Linked disease
■ Coronary heart disease   ■ Stroke

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden due to high cholesterol was 2.1 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to high cholesterol by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to high cholesterol.
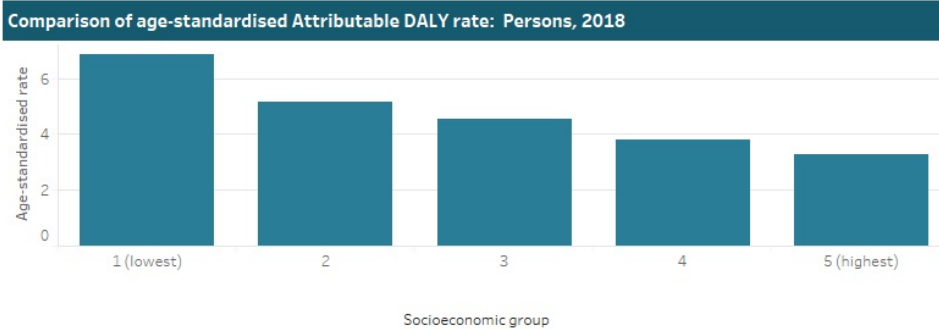
Select from the following:

Measure:
Attributable DALY

Sex:
Persons

Year:
2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to high cholesterol changed over time?

The rate of total burden due to high cholesterol (from all linked diseases) between 2003 and 2018 decreased by 53% (from 10.0 DALY to 4.7 DALY per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to high cholesterol by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to high cholesterol.

Select from the following:

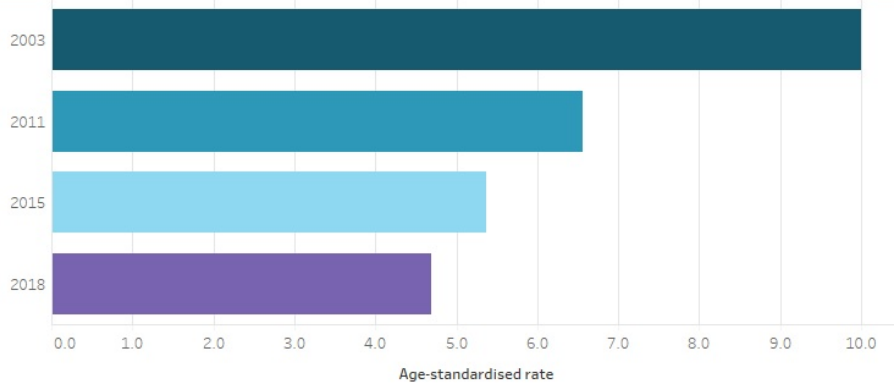| Measure:	Sex:	Start year:	End year:
Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

53.2% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to High cholesterol

Comparison of age-standardised Attributable DALY rates: Persons

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

Physical inactivity

In this page

- How much burden was attributable to physical inactivity?
- How did burden attributable to physical inactivity vary by age and sex?
- Did attributable burden vary by socioeconomic group?
- How has disease burden due to physical inactivity changed over time?

In 2018, physical inactivity accounted for 2.5% of the total disease burden in Australia.

These estimates reflect the amount of disease burden that could have been avoided if all people in Australia were sufficiently physically active (see ABDS 2018 Risk factor estimates data table).

Physical inactivity was causally linked to the burden from type 2 diabetes, bowel cancer, dementia, coronary heart disease and stroke, as well as uterine and breast cancer in females.
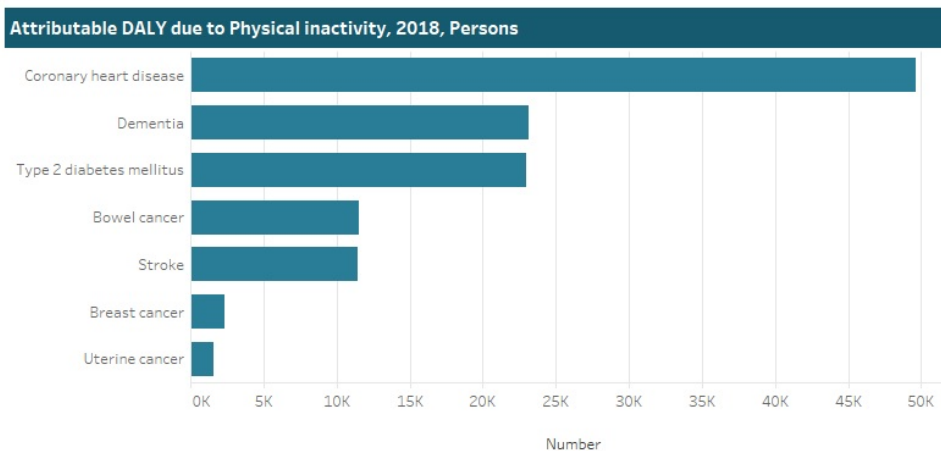
How much burden was attributable to physical inactivity?

In 2018, physical inactivity was responsible for 20% of the total disease burden due to type 2 diabetes, 17% of the uterine cancer burden, 16% of coronary heart disease burden, 12% of dementia burden, 12% due to bowel cancer, 9% of stroke burden and 3% of breast cancer. This interactive data visualisation shows the burden attributable to physical inactivity by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to physical inactivity.

Select from the following:

	Measure:	Year:	Sex:
(i)	Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to Physical inactivity, 2018, Persons

Disease	
Coronary heart disease	
Dementia	
Type 2 diabetes mellitus	
Bowel cancer	
Stroke	
Breast cancer	
Uterine cancer	

(Number: 0K, 5K, 10K, 15K, 20K, 25K, 30K, 35K, 40K, 45K, 50K)

Number

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to physical inactivity vary by age and sex?

Disease burden due to physical inactivity was measured in people aged 15 and over. Total burden due to physical inactivity was low in people aged 15–34 and increased with age, peaking in ages 65–84.

In males of all ages, the most burden due to physical inactivity was from coronary heart disease.
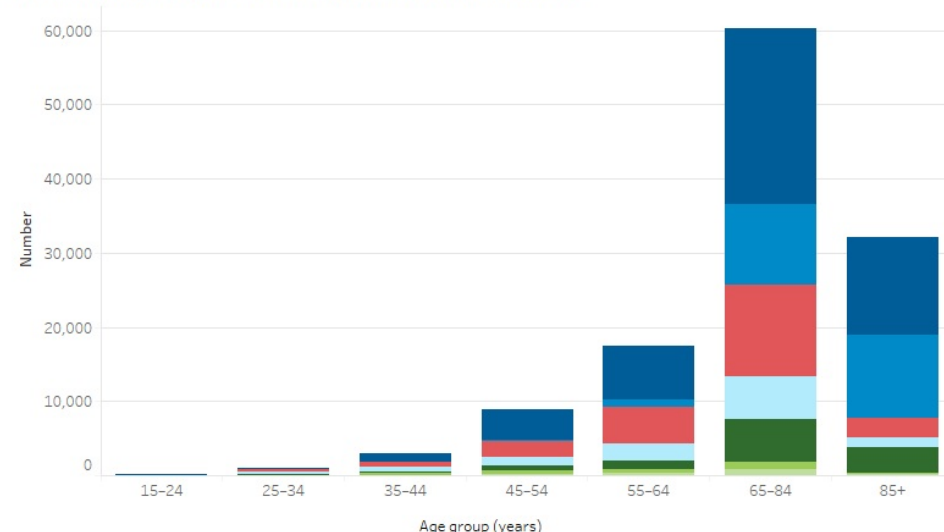
By comparison, in females aged 55–64 years, the most burden due to physical inactivity was from type 2 diabetes. Among females aged 65–84 years, the most burden due to physical inactivity was from coronary heart disease. For females aged 85 and over, the most burden was from dementia.

This interactive data visualisation shows the amount of burden attributable to physical inactivity by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to physical inactivity.

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Linked disease
- Coronary heart disease
- Dementia
- Type 2 diabetes mellitus
- Bowel cancer
- Stroke
- Breast cancer
- Uterine cancer

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden attributable to physical inactivity was 1.9 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to physical inactivity by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to physical inactivity.

Select from the following:

Measure: Sex: Year:
Attributable DALY   Persons   2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018
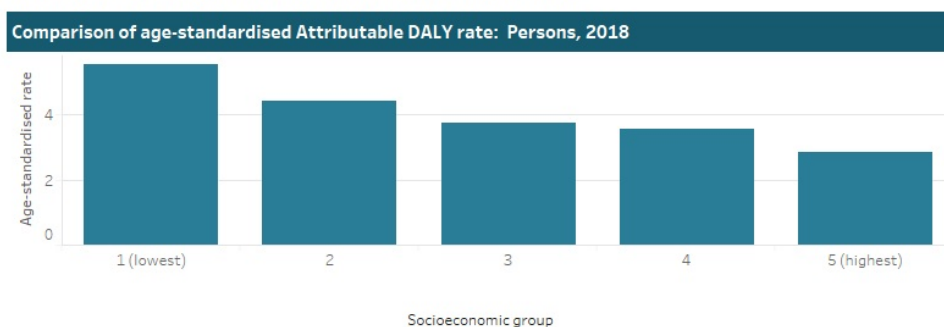
Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to physical inactivity changed over time?

The rate of total burden attributable to physical inactivity (from all linked diseases) decreased by 34% between 2003 and 2018 (from 6.1 DALY to 4.1 DALY per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to physical inactivity by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to physical inactivity.
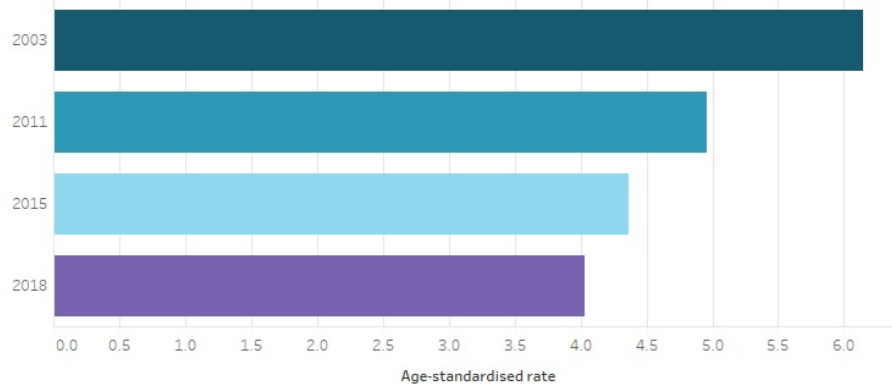
Select from the following:

	Measure:	Sex:	Start year:	End year:
(i)	Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

34.4% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to Physical inactivity

Comparison of age-standardised Attributable DALY rates: Persons

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

Child abuse and neglect

In this page

- How much burden was attributable to child abuse and neglect?
- How did burden attributable to child abuse and neglect vary by age and sex?
- How has disease burden due to child abuse and neglect changed over time?

In 2018, 2.2% of the total disease burden in Australia was due to child abuse and neglect.

These estimates reflect the amount of burden that could have been avoided if all people in Australia were not exposed to child abuse & neglect.

This estimate attributes the mental health and injury outcomes experienced at all ages attributable to exposure during childhood. Child abuse & neglect were causally linked to anxiety disorders, depressive disorders and suicide & self-inflicted injuries (see ABDS 2018 Risk factor estimates data table).

How much burden was attributable to child abuse and neglect?

Child abuse & neglect was responsible for 27% of the total disease burden due to anxiety disorders, 26% of suicide & self-inflicted injuries burden, and 20% of depressive disorders burden.

This interactive data visualisation shows the burden attributable to child abuse by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to child abuse.
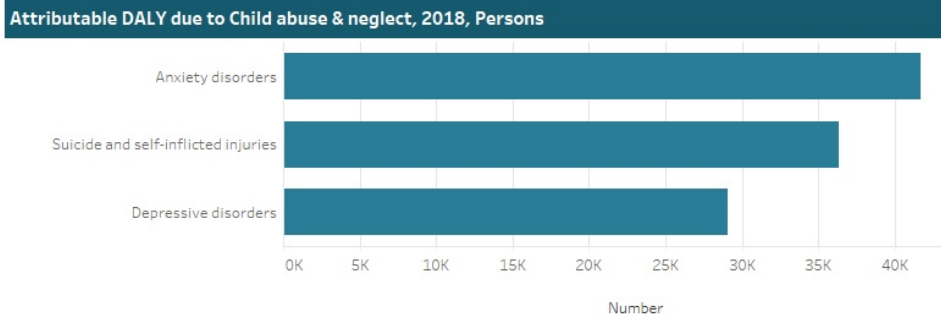
Select from the following:

	Measure: Attributable DALY	Year: 2018	Sex: Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to Child abuse & neglect, 2018, Persons

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to child abuse and neglect vary by age and sex?

Burden due to child abuse & neglect estimates the mental health and injury outcomes experienced at all ages attributable to exposure during childhood.

The majority of the total burden due to child abuse & neglect was experienced in those aged 15-54 years, peaking for those aged 25-34 years.

Of the burden due to child abuse & neglect, most was from suicide & self-inflicted injuries in males and anxiety disorders in females. This interactive data visualisation shows the amount of burden attributable to child abuse by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to child abuse.
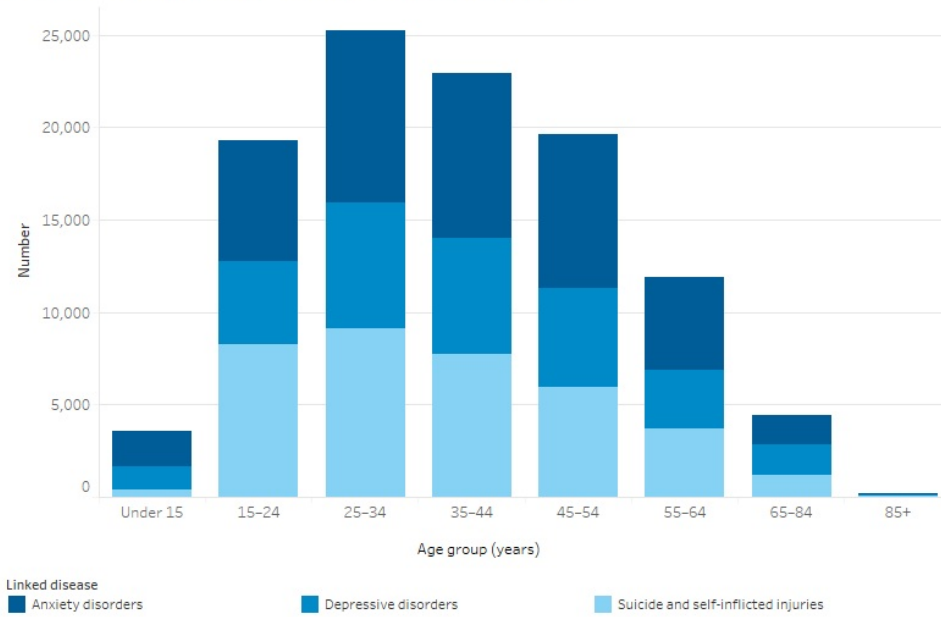
Measure:
Attributable DALY

Year:
2018

Sex:
Persons

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Linked disease
- Anxiety disorders
- Depressive disorders
- Suicide and self-inflicted injuries

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to child abuse and neglect changed over time?

The rate of total burden due to child abuse & neglect (from all linked diseases) increased by 3.6% between 2003 and 2018 (from 4.2 DALY to 4.4 DALY per 1,000 population). This increase was only due to changes in the linked disease burden. The same exposure to child abuse & neglect was applied for all 4 years due to lack of suitable data.

This interactive data visualisation shows the rate of burden attributable to child abuse by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to child abuse.
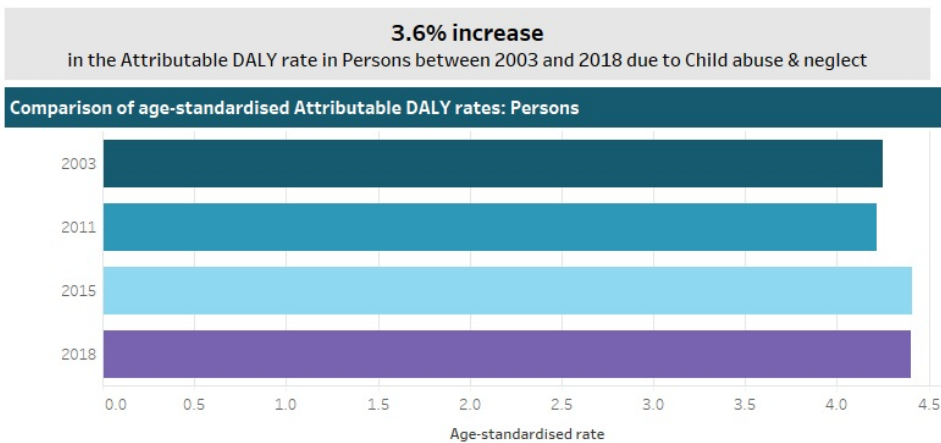
Select from the following:

Measure:
Attributable DALY

Sex:
Persons

Start year:
2003

End year:
2018

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

3.6% increase
in the Attributable DALY rate in Persons between 2003 and 2018 due to Child abuse & neglect

Comparison of age-standardised Attributable DALY rates: Persons

Notes:
1. Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
2. The same population attributable fractions were used for each year, therefore changes in attributable burden is due to changes in the age-standardised rate of the linked disease only.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

Impaired kidney function

In this page

- How much burden was attributable to impaired kidney function?
- How did burden attributable to impaired kidney function vary by age and sex?
- Did attributable burden vary by socioeconomic group?
- How has disease burden due to impaired kidney function changed over time?

In 2018, 1.9% of the total disease burden in Australia was due to impaired kidney function (including chronic kidney disease).

These estimates reflect the amount of burden that could have been avoided if all people in Australia did not have impaired kidney function.

Impaired kidney function was causally linked to 6 diseases—chronic kidney disease, coronary heart disease, dementia, stroke, gout and peripheral vascular disease (see ABDS 2018 Risk factor estimates data table).

How much burden was attributable to impaired kidney function?

Impaired kidney function was responsible for the entire burden of chronic kidney disease, 12% of gout burden, 10% of peripheral vascular disease burden, 8% of dementia burden, and 6% of coronary heart disease and stroke burden.

This interactive data visualisation shows the burden attributable to impaired kidney function by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to impaired kidney function.
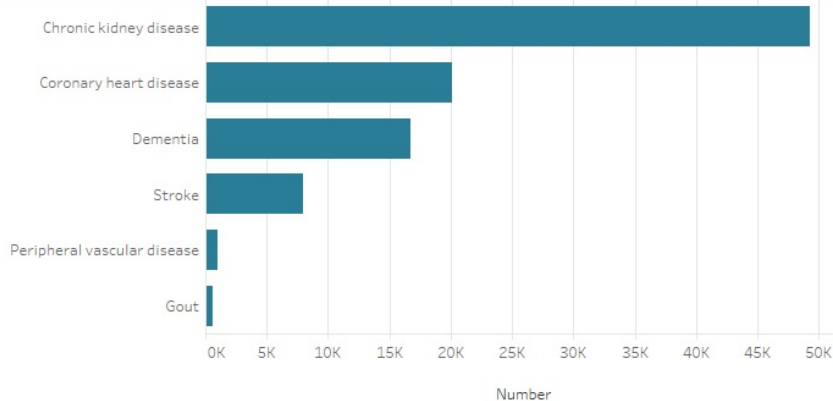
Select from the following:

Measure:	Year:	Sex:
Attributable DALY	2018	Persons

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Attributable DALY due to Impaired kidney function, 2018, Persons

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to impaired kidney function vary by age and sex?

Burden due to impaired kidney function was estimated in people aged 15 and over. The majority of the total burden due to impaired kidney diseases occurred in older Australians— over the age of 65.

In people aged 65 years and over, the most burden due to impaired kidney function was from chronic kidney disease followed by coronary heart disease. In ages 65 and under, the most burden due to impaired kidney function was from chronic kidney disease.
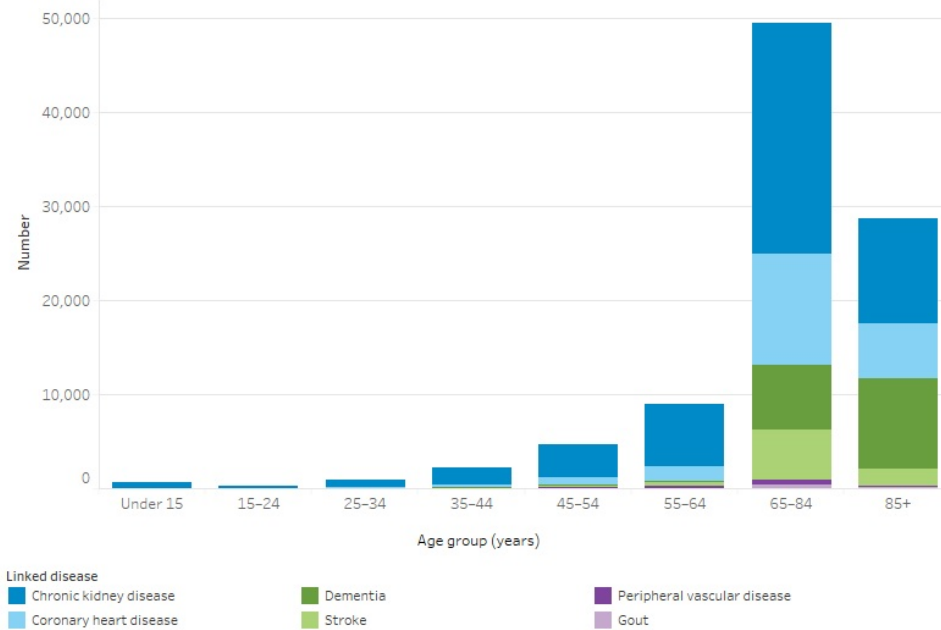
Males experienced more burden due to impaired kidney function compared with females up to age 84; whereas females experience almost twice as much burden from impaired kidney function from age 85 onwards.

This interactive data visualisation shows the amount of burden attributable to impaired kidney function by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to impaired kidney function.

Measure: Year: Sex: Disease group:
Attributable DALY   2018   Persons   All

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Linked disease
■ Chronic kidney disease   ■ Dementia   ■ Peripheral vascular disease
■ Coronary heart disease   ■ Stroke   ■ Gout

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

## Did attributable burden vary by socioeconomic group?

Total disease burden attributable to impaired kidney function was 2.2 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to impaired kidney function by socioeconomic group. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to impaired kidney function

Select from the following:

Measure: Sex: Year:
Attributable DALY   Persons   2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost
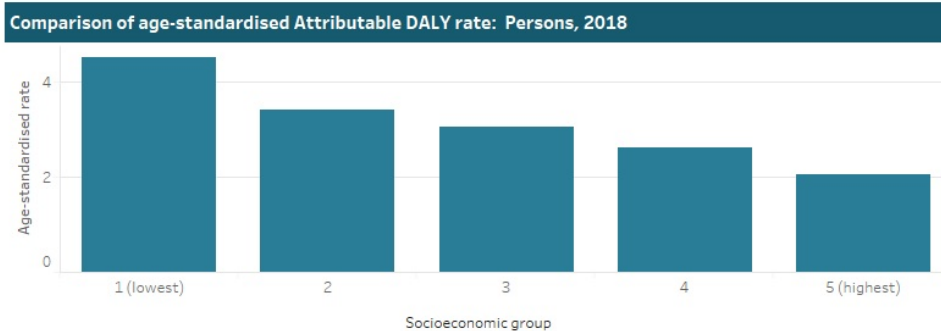
Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to impaired kidney function changed over time?

Between 2003 and 2018, the age-standardised DALY rate attributable to impaired kidney function decreased 20% (from 3.9 DALY to 3.1 DALY per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to impaired kidney function by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to impaired kidney function.
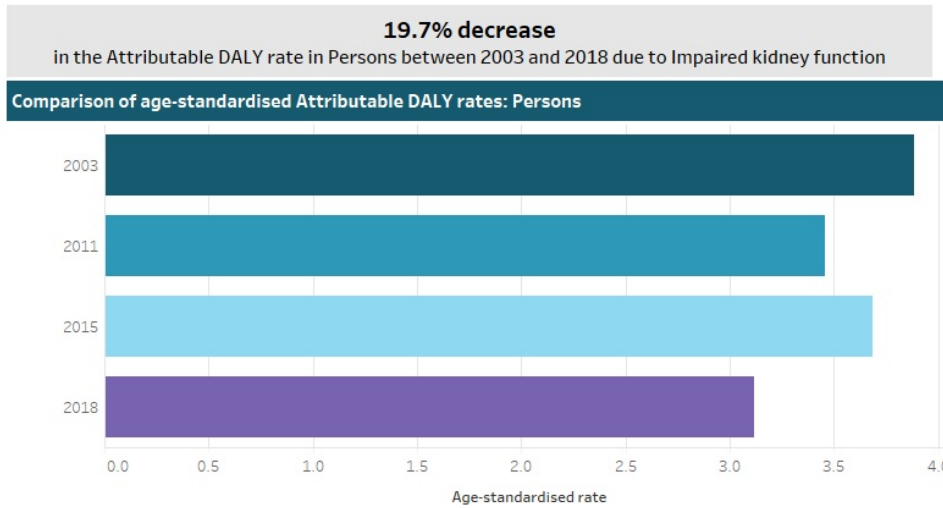
Select from the following:

	Measure:	Sex:	Start year:	End year:
(i)	Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

19.7% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to Impaired kidney function

Comparison of age-standardised Attributable DALY rates: Persons

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

Occupational exposures and hazards

In this page

- How much burden was attributable to occupational exposures and hazards?
- How did burden attributable to occupational exposures and hazards vary by age and sex?
- Did attributable burden vary by socioeconomic group?
- How has disease burden due to occupational risks changed over time?

In 2018, 1.8% of the total burden in Australia was due to occupational exposures & hazards.

These estimates reflect the amount of burden that could have been avoided if all people in Australia were not exposed to occupational exposures & hazards including injuries, loud noise, carcinogens, particulate matter, gas and fumes, asthmagens and ergonomic factors.

In 2018, occupational exposures & hazards was linked to 26 diseases and injuries including 11 types of cancer, 8 types of injury, hearing loss, back pain & problems, asthma, chronic obstructive pulmonary disease (COPD), silicosis, asbestosis and other pneumoconiosis (see Table 1 below and ABDS 2018 Risk factor estimates data table).

Table 1: Type of occupational exposures and hazards and corresponding linked diseases as estimated in the Australian Burden of Disease Study 2018

Occupational exposure or hazard	Linked disease
Injury	Drowning, falls, fire, burns and scalds, homicide and violence, road traffic injuries—motor vehicle occupants, road traffic injuries—motorcyclists, other unintentional injuries, other land transport injuries
Benzene or formaldehyde	Acute myeloid leukaemia, Chronic myeloid leukaemia, Chronic lymphocytic leukaemia, Acute lymphoblastic leukaemia, Other leukaemias, nasopharyngeal cancer
Noise	Hearing loss
Arsenic, beryllium, cadmium chromium, diesel engine exhaust, polycyclic aromatic hydrocarbons, nickel, second-hand smoke, silica	Lung cancer
Sulfuric acid	Laryngeal cancer
Trichloroethylene	Kidney cancer
Particulate matter, gas and fumes	COPD
Asbestos	Laryngeal cancer, lung cancer, ovarian cancer mesothelioma
Asbestos, silicone and particulate matter	Silicosis, asbestosis and other pneumoconiosis
Asthmagens	Asthma
Ergonomic factors	Back pain & problems

How much burden was attributable to occupational exposures and hazards?

Occupational exposures & hazards were responsible for the entire burden from silicosis asbestosis and other pneumoconiosis, 65% of mesothelioma burden, 22% of burden from other unintentional injuries, 17% of back pain & problems burden, 12% of burden from fire, burns and scalds, 9% of burden from other land transport injuries, 9% of asthma burden and 8% of road traffic injuries of motor vehicle occupants burden.

Note that the following visualisation displays only the top 10 linked diseases due to occupational exposures & hazards.
This interactive data visualisation shows the burden attributable to occupational exposures and hazards by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to occupational exposures and hazards.

ℹ️ Measure: Year: Sex:
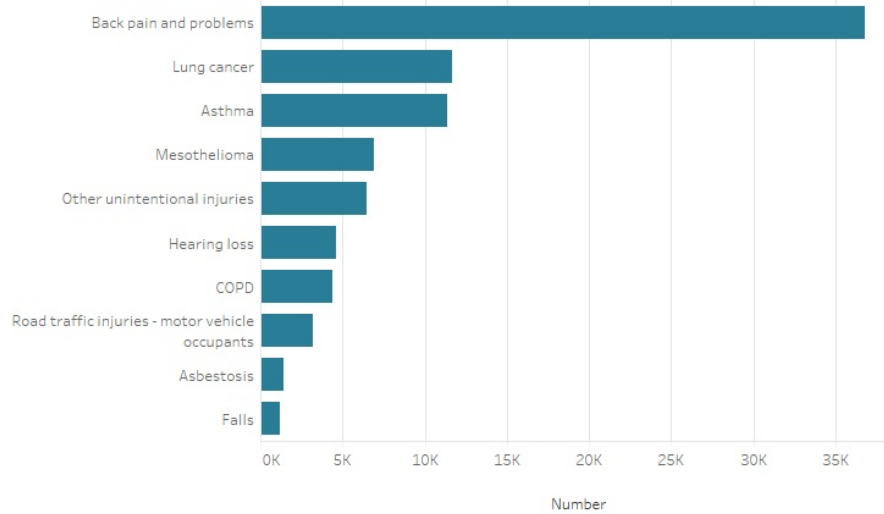   Attributable DALY   2018   Persons

DALY= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

Attributable DALY due to Occupational exposures & hazards, 2018, Persons

Note: Only the leading 10 linked diseases for each selected measure are presented.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to occupational exposures and hazards vary by age and sex?

Burden due to occupational exposures & hazards was estimated in people aged 15 and over. Total burden increased with age, peaking at ages 55–64 years.

In people aged 15–64 years, the most burden due to occupational exposures & hazards was from back pain & problems followed by asthma. In ages 65 and over, the most burden due to occupational exposures & hazards was from lung cancer and mesothelioma.
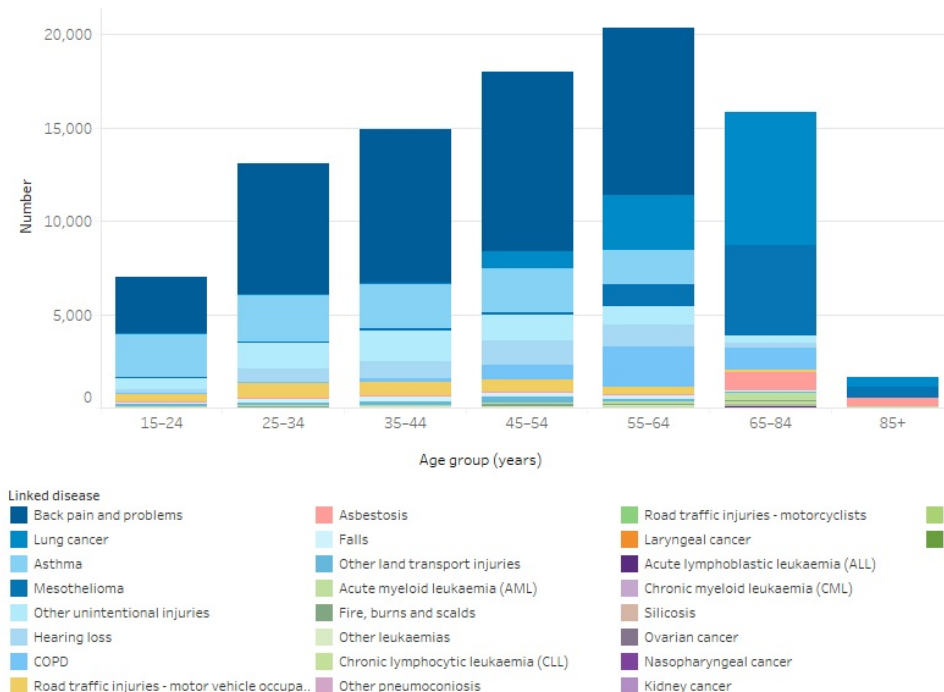
Across all ages, males experienced almost three times the amount of total burden due to occupational exposures & hazards compared with females.

This interactive data visualisation shows the amount of burden attributable to occupational exposures and hazards by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to occupational exposures and hazards.

Measure: Year: Sex: Disease group:
Attributable DALY   2018   Persons   All

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

## Did attributable burden vary by socioeconomic group?

Total disease burden attributable to occupational exposures & hazards was 1.9 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to occupational exposures and hazards by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to occupational exposures and hazards.

Select from the following:

Measure: Sex: Year:
Attributable DALY   Persons   2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost
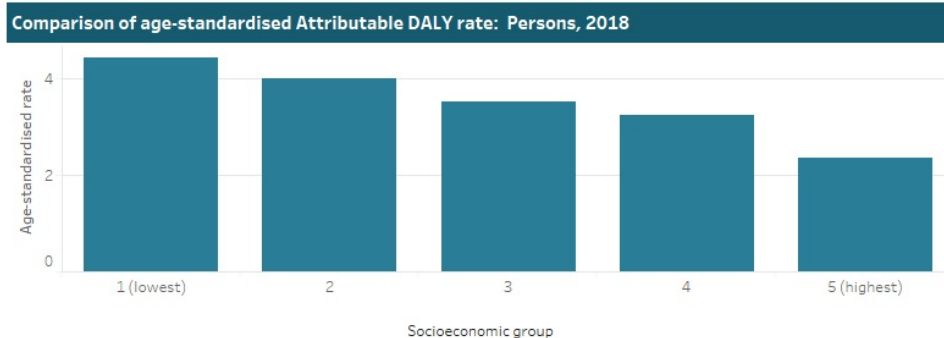
Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to occupational risks changed over time?

The rate of total burden due to occupational exposures & hazards (from all linked diseases) decreased by 17% between 2003 and 2018 (from 4.2 DALY to 3.5 DALY per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to occupational exposures and hazards by year. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to occupational exposures and hazards

Select from the following:

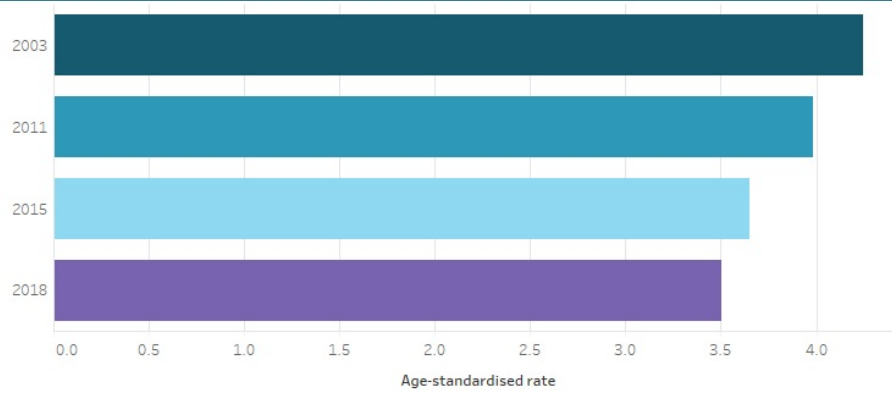|	Measure:	Sex:	Start year:	End year:
ⓘ	Attributable DALY	Persons	2003	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

17.5% decrease
in the Attributable DALY rate in Persons between 2003 and 2018 due to Occupational exposures & hazards

Comparison of age-standardised Attributable DALY rates: Persons

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

Air pollution

In this page

- How much burden was attributable to air pollution?
- How did burden attributable to air pollution vary by age and sex?
- Did attributable burden vary by socioeconomic group?

In 2018, 1.3% of the total disease burden in Australia was due to air pollution.

These estimates reflect the amount of burden that could have been avoided if all people in Australia were not exposed to particulate matter 2.5µg/m3 (PM2.5).

Air pollution was causally linked to 6 diseases—coronary heart disease, chronic obstructive pulmonary disease (COPD), stroke, type 2 diabetes mellitus, lung cancer and lower respiratory infections (see ABDS 2018 Risk factor estimates data table).

How much burden was attributable to air pollution?

Air pollution was responsible for 8.6% of coronary heart disease total burden, 8.3% of stroke burden, 6.7% of both COPD and type 2 diabetes burden, 5.7% of lower respiratory infections burden and 3.4% of lung cancer burden.

This interactive data visualisation shows the burden attributable to air pollution by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to air pollution.
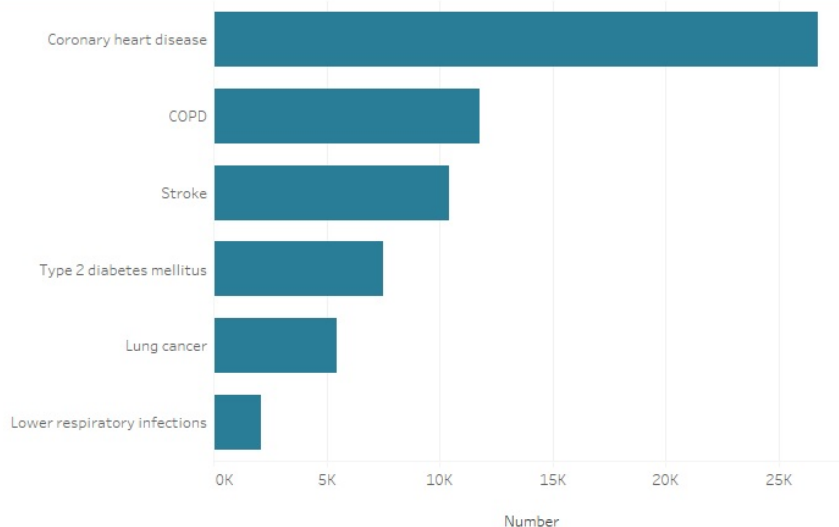

Select from the following:

Measure: Attributable DALY   Year: 2018   Sex: Persons

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to air pollution vary by age and sex?

The majority of the total burden due to air pollution occurred in older Australians— over the age of 65.

In people aged 65 years and over, the most burden due to air pollution was from coronary heart disease followed by COPD. For those under 65 years, most burden was also from coronary heart disease followed by stroke.

Males experienced more burden due to air pollution compared with females up to age 84; whereas females experienced more total burden due to air pollution from age 85 onwards.

This interactive data visualisation shows the amount of burden attributable to air pollution by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to air pollution.
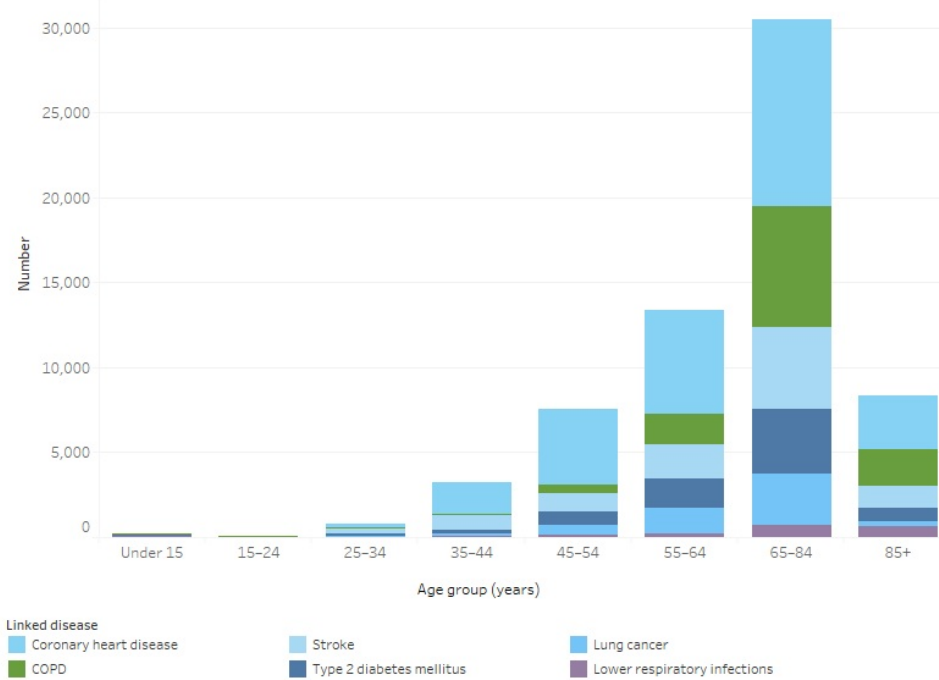
Measure: Year: Sex: Disease group:
Attributable DALY   2018   Persons   All

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Linked disease
■ Coronary heart disease   ■ Stroke   ■ Lung cancer
■ COPD   ■ Type 2 diabetes mellitus ■ Lower respiratory infections

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden attributable to air pollution was 2.2 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to air pollution by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to air pollution.
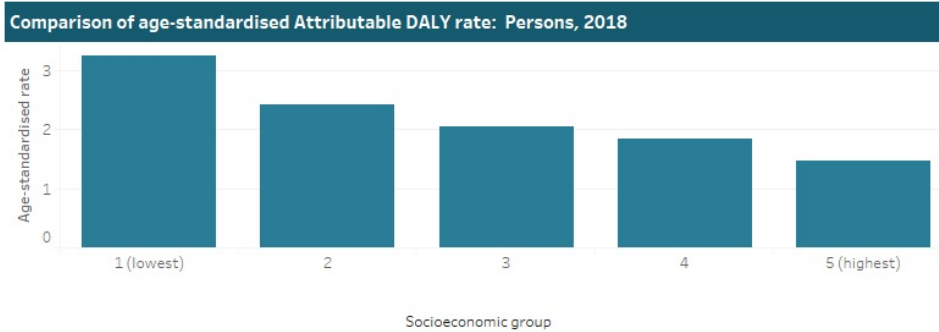
Select from the following:

Measure: Sex: Year:
Attributable DALY   Persons   2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Comparison of age-standardised Attributable DALY rate: Persons, 2018

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

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Intimate partner violence

In this page

- How much burden was attributable to intimate partner violence?
- How did burden attributable to intimate partner violence vary by age?
- Did attributable burden vary by socioeconomic group?
- How has disease burden due to intimate partner violence changed over time?
- References

In 2018, intimate partner violence contributed to 1.4% of the total disease burden in Australian women.

These estimates reflect the amount of disease burden that could have been avoided if all women aged 15 and over in Australia were not exposed to intimate partner violence, which for this study included emotional, physical and sexual intimate partner violence by a cohabiting current or previous intimate partner.

Intimate partner violence was causally linked to homicide & violence, suicide & self-inflicted injuries, alcohol use disorders, depression, anxiety and early pregnancy loss (see ABDS 2018 Risk factor estimates data table). The impact of this risk factor was estimated only in women as sufficient evidence in the literature to identify the causally linked diseases and the amount of increased risk (relative risk) is not currently available for men (AIHW unpublished; Ayre et al. 2016; GBD 2019 Risk Factor Collaborators 2019).

How much burden was attributable to intimate partner violence?

Intimate partner violence contributed 46% of homicide & violence total burden, 19% of suicide & self-inflicted injuries burden, 15% of depressive disorders burden, 17% of early pregnancy loss burden, 11% of anxiety disorders burden and 4% of alcohol use burden in females. This interactive data visualisation shows the burden attributable to intimate partner violence by linked disease. The main section shows a horizontal bar graph which can be customised to report data according to year and measure of attributable burden. Each bar represents the attributable burden of the disease linked to intimate partner violence.
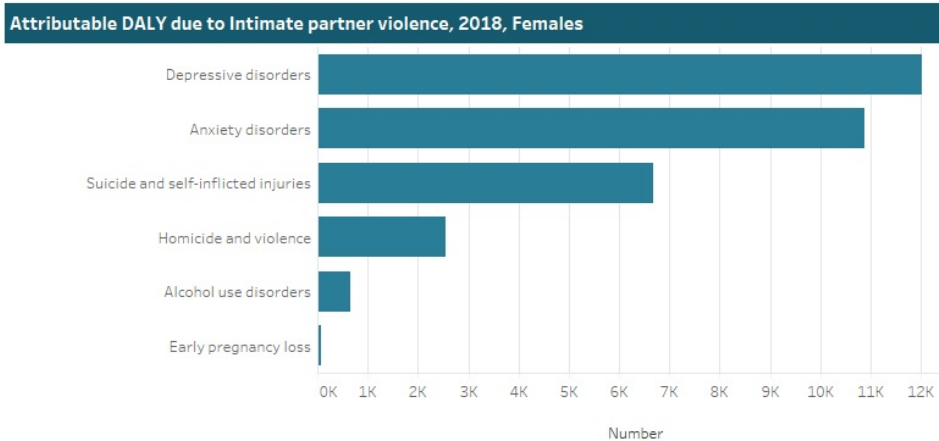
Select from the following:

Measure:
Attributable DALY

Year:
2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to Intimate partner violence, 2018, Females

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

How did burden attributable to intimate partner violence vary by age?

Burden from intimate partner violence was estimated in women aged 15 and over.

Total burden due to intimate partner violence was highest for women between ages 35–44 years. The most burden due to intimate partner violence in this age group was from depressive disorders, anxiety disorders, and suicide & self-inflicted injuries.
This interactive data visualisation shows the amount of burden attributable to intimate partner violence by age group and linked disease. The main section shows a stacked bar graph which can be customised to report data according to year, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to intimate partner violence.
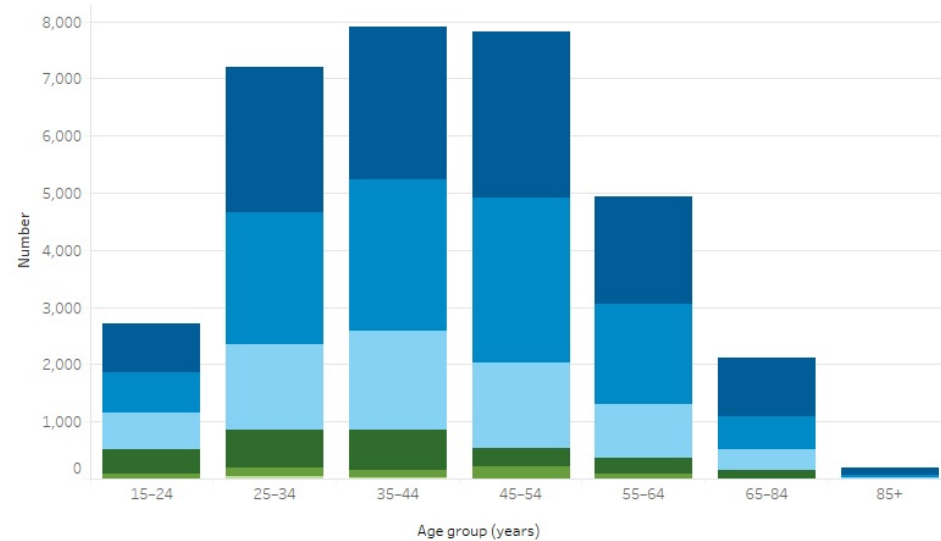
Measure:
Attributable DALY

Year:
2018

Disease group:
All

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Linked disease

- Depressive disorders
- Anxiety disorders
- Suicide and self-inflicted injuries
- Homicide and violence
- Alcohol use disorders
- Early pregnancy loss

Note: Intimate partner violence was estimated in females only.
Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Did attributable burden vary by socioeconomic group?

Total disease burden attributable to intimate partner violence was 2.5 times greater in the lowest (most disadvantaged) socioeconomic group compared with the highest (least disadvantaged) group.

This interactive data visualisation shows the rate of burden attributable to intimate partner violence by socioeconomic group. The main section shows a bar graph which can be customised to report data according to year and measure of attributable burden. Each bar represents the attributable burden within a particular socioeconomic group due to intimate partner violence.
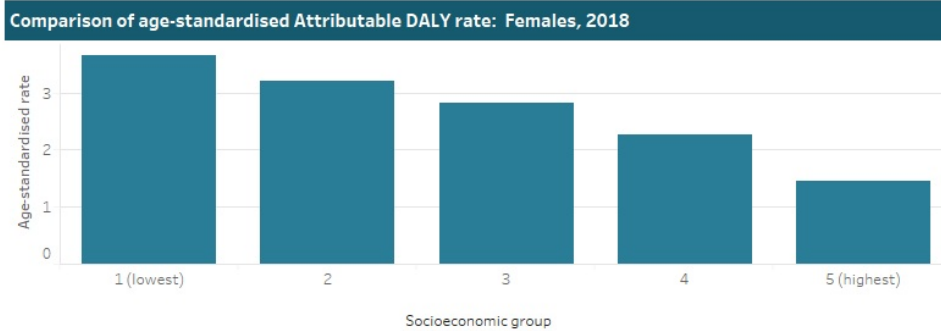
Select from the following:

Measure:
Attributable DALY

Year:
2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Comparison of age-standardised Attributable DALY rate: Females, 2018

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

How has disease burden due to intimate partner violence changed over time?

There was a 3% decrease in the rate of total burden due to intimate partner violence between 2003 and 2018 (from 2.7 DALY to 2.6 DALY per 1,000 population).

This interactive data visualisation shows the rate of burden attributable to intimate partner violence by year. The main section shows a horizontal bar graph which can be customised to report data according to year and measure of attributable burden. Each bar represents the attributable burden within a particular year due to intimate partner violence.

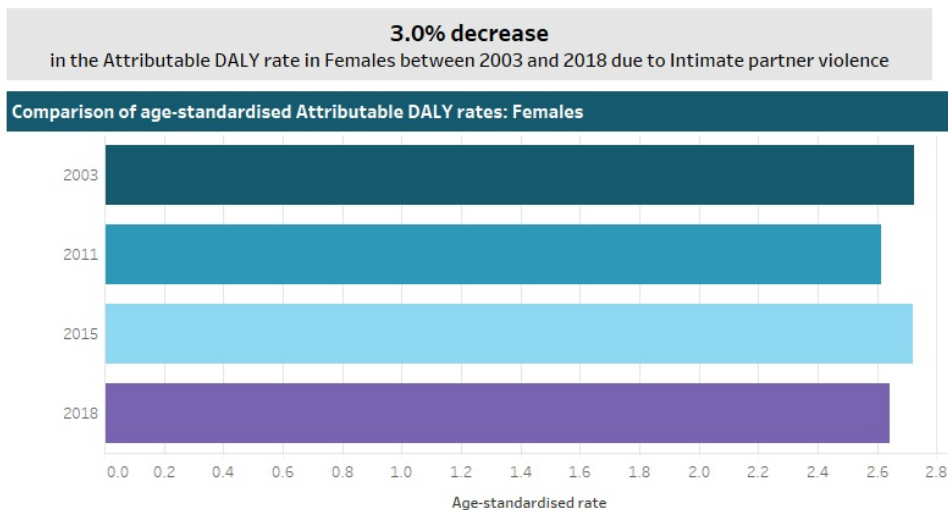DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

3.0% decrease
in the Attributable DALY rate in Females between 2003 and 2018 due to Intimate partner violence

Comparison of age-standardised Attributable DALY rates: Females

Note: Rates were age-standardised to the 2001 Australian Standard Population and expressed as per 1,000 population.
Source: Australian Burden of Disease Database. http://www.aihw.gov.au

References

AIHW unpublished. Health outcomes of violence: A review of data sources and evidence. Report to the Australian Government Department of Social Services.

Ayre J, Lum On M, Webster K & Moon L 2016. Examination of the burden of disease of intimate partner violence against women: Final report, 2011. Sydney: Australian National Research Organisation for Women's Safety.

GBD 2016 Risk Factors Collaborators 2017. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. The Lancet 390:1345–422.

All other risk factors

The risk factors presented in this section contributed less than 1% of the total burden in Australia in 2018. This includes: high sun exposure, low birth weight and short gestation, low bone mineral density, iron deficiency, unsafe sex and bullying victimisation (see ABDS 2018 Risk factor estimates data table).

Changes over time due to bullying victimisation, sun exposure, low bone mineral density and iron deficiency are due to changes in the linked disease burden as the same estimate of exposure to the risk factor or population attributable fraction is used for each year.

Use the interactive graphs on each tab to explore the burden due to each risk factor by:

- sex by linked disease (number and percent of linked disease)
- age and sex by linked disease (number and percent of linked disease)
- changes over time by sex (number and age-standardised rate).

Tab 1: This interactive data visualisation shows attributable burden by linked disease due to either bullying victimisation, high sun exposure, iron deficiency, low birth weight and short gestation, low bone mineral density and unsafe sex. The main section shows a horizontal bar graph which can be customised to report data according to risk factor, year, sex and measure of attributable burden. Each bar represents the attributable burden of the disease linked to the risk factor.
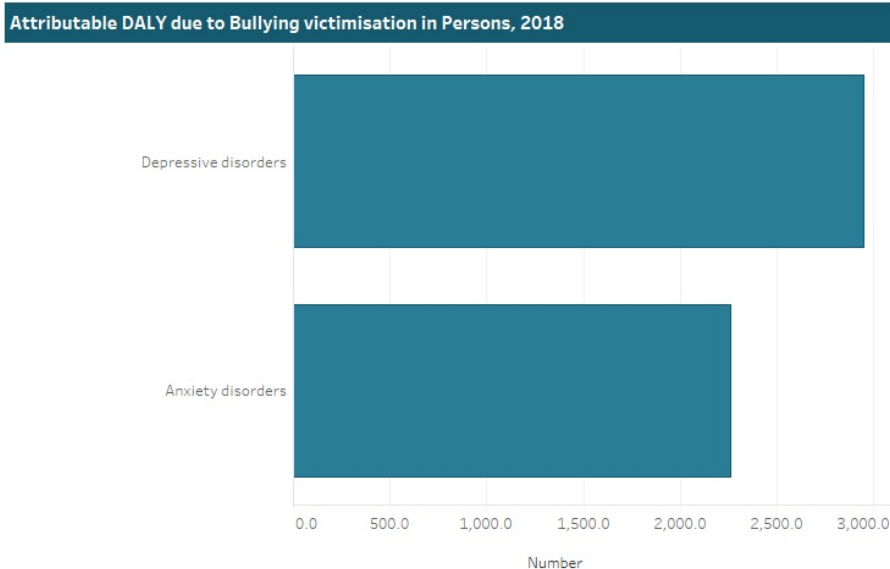
Tab 2: This interactive data visualisation shows the amount of attributable burden by age group and linked disease due to either bullying victimisation, high sun exposure, iron deficiency, low birth weight and short gestation, low bone mineral density and unsafe sex. The main section shows a stacked bar graph which can be customised to report data according to risk factor, year, sex, disease group and measure of attributable burden. Each bar represents the attributable burden within a particular age group. Each bar is also split into separate components with each colour representing a disease linked to the risk factor.

Tab 3: This interactive data visualisation shows the rate of attributable burden by year due to either bullying victimisation, high sun exposure, iron deficiency, low birth weight and short gestation, low bone mineral density and unsafe sex. The main section shows a horizontal bar graph which can be customised to report data according to year, sex and measure of attributable burden. Each bar represents the attributable burden within a particular year due to tobacco use.

Select from the following:

Risk factor:	Measure:	Sex:	Year:
Bullying victimisation	Attributable DALY	Persons	2018

DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

Attributable DALY due to Bullying victimisation in Persons, 2018

Source: AIHW Australian Burden of Disease Database. http://www.aihw.gov.au

Diseases and associated risk factors

Use the interactive graph below to explore a disease or injury to find out their associated risk factors and the impact on burden in Australia in 2018.

The disease groups or diseases shown are limited to those contributing a significant amount of burden in Australia and have risk factors that were investigated in the Australian Burden of Disease Study 2018.

By selecting a disease group and a specific disease or injury, the risk factors that contribute to the development of the disease or injury, the proportion of disease burden each risk factor contributes and the number of total burden in 2018 (DALY) are displayed. Note that it is not appropriate to sum the proportion of disease burden contributed by each risk factor displayed as the calculations were produced independently.
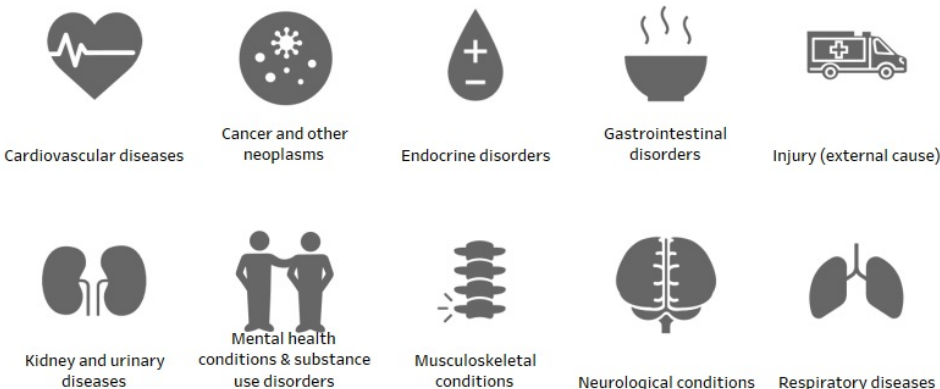
Note that attributable burden estimates by risk factor here may differ to the estimates provided in the risk factor-specific visualisations provided elsewhere. This is due to a proportional scaling applied to each risk factor's estimates to account for the relative impact of the joint effect calculation and mediation occurring between interrelated risk factors.

Further information on the combined impact of associated risk factors for a specific disease or injury are shown when hovering over the disease or injury.
This interactive data visualisation shows the contribution of individual risk factors to the burden of a specific disease or injury. The first section allows you to select the disease group of interest. The second section allows you to select the disease of interest. The main section shows four horizontal bar graphs depicting the amount and proportion of the disease burden attributable to associated risk factors for males and females. The graphs can be customised to report data according to the measure of attributable burden.

Impact of Risk Factors on Disease Burden in Australia 2018

1. Select a disease group

Cardiovascular diseases

Cancer and other neoplasms

Endocrine disorders

Gastrointestinal disorders

Injury (external cause)

Kidney and urinary diseases

Mental health conditions & substance use disorders

Musculoskeletal conditions

Neurological conditions

Respiratory diseases

2. Select a disease to explore its related risk factor(s)

Related risk factor(s)

Select measure:
Attributable DALY

DALY = Disability-adjusted life years
YLD = Years lived with disability
YLL = Years of life lost

Proportion of **None** None due to risk factors by sex, 2018

Amount of None attributable None by sex and risk factor, 2018

Drivers of change in risk factor attributable burden

This webpage presents analyses undertaken using data from the Australian Burden of Disease Study 2018 to explore the different drivers of change over time in burden of disease attributable to 5 selected risk factors: tobacco use, alcohol use, overweight and obesity, high blood pressure and dietary risk factors.

The disease burden attributed to a selected risk factor is referred to as 'attributable burden' and is measured in terms of Disability Adjusted Life Years (or DALY). It reflects the reduction in fatal burden (measured by years of life lost (YLL)) and non-fatal burden (measured by years lived with disability (YLD)) that would have occurred if exposure to the risk factor had been avoided or reduced to its lowest level. For more information on how attributable burden is calculated, see Australian Burden of Disease Study 2018: methods and supplementary material.

Between 2003 and 2018, there was a 12% increase in the total number of DALY attributable to all risk factors included in the Australian Burden of Disease Study (for those that were measured in both 2003 and 2018). Note this is different to changes in the age-standardised rate of attributable DALY per 1,000 population (which was 76.7 DALY per 1,000 in 2003 and 60.9 DALY per 1,000 in 2018).

The main factors contributing to the increase in the total number of attributable DALY were population growth (the Australian population increased by 27% between 2003 and 2018), population ageing, changes to exposure to the risk factor in the population, and changes in the amount of burden for diseases linked to each risk factor. These 4 factors and the method used to estimate the contribution of each to changes in attributable burden, are explained further in the box below.

Key results from these analyses for the 5 selected risk factors can be found in the data visualisations below and in the ABDS 2018 Drivers of change in risk factor attributable burden data table.

What factors contribute to changes over time?

Four factors contributing to changes in attributable burden over time were included in these analyses:

- population growth—in Australia population size is increasing over time
- population ageing—in Australia the age structure of the population is changing, with the proportion of older people increasing over time
- risk factor exposure—changes in the prevalence of the risk factor in Australia
- changes in linked disease burden— changes in the overall burden for those diseases or injuries that are linked to the selected risk factor. These may be influenced by changes in diagnosis, treatment or health intervention (resulting in changes in disease prevalence or severity), as well as changes in other risk factors. For example, increases in overweight and obesity may have some impact on coronary heart disease burden, which is also linked to tobacco use. See Table S1 in the ABDS 2018 Drivers of change in risk factor attributable burden data table for a list of all linked diseases for the 5 risk factors included in this analysis.

These factors were selected as they are the main drivers of trends in attributable burden examined in global burden of disease studies and are measurable with available data. In this analysis, the contribution of each of the 4 factors to the change in fatal, non-fatal and total attributable burden between 2003 and 2018 were estimated using methods developed by Das Gupta (Das Gupta 1993). This method considers the size of each factor and the interactions between them.

Each factor may cause burden to rise (indicated by a positive factor of change) or fall (a negative factor of change) over time. The sum of the effect of all factors represents the overall change in burden between 2003 and 2018. This is expressed as the amount of change (DALY) or as a percentage of the change due to the factor. Although 2011 data are also available, 2003 and 2018 were chosen as the comparison time points to enable the longest possible time series.

How to interpret the drivers of change over time analyses and charts

The figure below is provided to help readers interpret the analyses and charts presented in this web release. Each factor included in the drivers of change over time analyses (population growth, population ageing, risk exposure and linked disease burden) may cause the attributable burden from a risk factor to rise (indicated by a positive percent change) or fall (a negative percentage change) over time. The sum of the effect of all factors represents the overall change in attributable burden between 2003 and 2018.
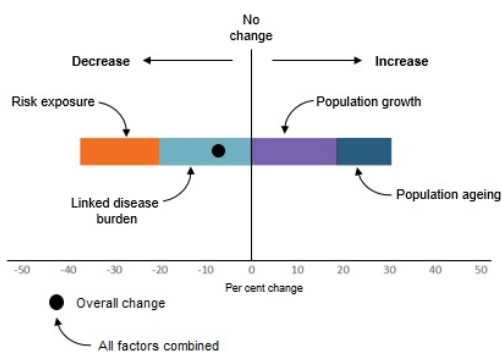
Put simply, these analyses show that if the overall attributable burden due to a risk factor is increasing (i.e. getting worse), we can see which factors are most responsible for this increase and target policy and program responses accordingly. Secondly, it also gives us additional information on those risk factors for which burden is decreasing (i.e. getting better) and whether there are still factors (e.g. increasing exposure or linked disease burden) which could be targeted and result in further improvements in the attributable burden for that risk factor.

Tobacco use

The total burden attributable to tobacco use was similar between 2018 and 2003 (0.3% decrease). This is calculated from the change in the attributable burden (DALY) between 2003 (432,142 DALY, representing 10.4% of total burden) and 2018 (430,903 DALY, representing 8.6% of total DALY).

The change in tobacco use burden between 2003 and 2018 varied greatly by sex, with a 10% decrease in males and 17% increase in females. The main drivers of this change were increases in population and ageing, and decreases in linked disease burden and exposure to tobacco use.

To further understand the changes over time in burden attributed to tobacco use, changes due to the different types of exposures were broken down. The burden due to tobacco use was estimated from exposure to current tobacco use, past smoking and second-hand smoke.

These exposures are linked to different diseases because of differences in the time from exposure to developing the linked disease. For example, current tobacco use exposure is estimated from prevalence of current tobacco use (5-year lagged smoking rates) and is linked to diseases including coronary heart disease, type 2 diabetes, asthma and respiratory infections. Past smoking exposure is estimated from lung cancer mortality rates (using the smoking impact ratio) and is linked to cancers such as lung and bowel cancers as well as to chronic respiratory conditions, including COPD. For a full list of linked diseases by tobacco exposure type see Table S1 in the ABDS 2018 Drivers of change in risk factor attributable burden data table.

The change in burden over time shows a very different pattern between current and past tobacco use. For example, changes in exposure to current tobacco use decreased attributable burden in both males and females, while changes in exposure to past tobacco use contributed to a large rise in attributable burden in females but not males.

Use the interactive text and graph below to explore the different drivers of change in burden attributable to tobacco use in Australia between 2003 and 2018. Estimates are displayed by sex, type of burden (DALY, YLD or YLL) and type of exposure to tobacco. For more interactive data on the burden due to this risk factor and changes in the age-standardised rates of attributable burden over time, see Tobacco use.

This interactive data visualisation describes drivers of change in tobacco use attributable burden between 2003 and 2018 due to population growth, population ageing, linked disease burden and risk factor exposure. There are 3 sections which can be customised to report data according to type of burden, sex and type of tobacco use. The first section is a text box which reports the percentage and amount of change in attributable burden due to each driver of change for the selected tobacco use type, sex and type of burden. The second section is a stacked horizontal bar chart which reports the percentage change in attributable burden by sex and driver of change for the selected tobacco use type and type of burden. Markers are superimposed on the bar chart to show the overall percentage change. The third section is a stacked horizontal bar chart which reports the percentage change in attributable burden for all types of tobacco use by disease group and driver of change for the selected sex and type of burden. Markers are superimposed on the bar chart to show overall percentage changes.

Drivers of change in tobacco use attributable burden

There was a **0% ▼ (-1,239 DALY)** in **total burden** attributable to **all types of tobacco use** in **persons** between 2003 and 2018, which was driven by a:

20% ▲ (86,469 DALY) due to population growth
12% ▲ (51,482 DALY) due to population ageing
-12% ▼ (-51,402 DALY) due to changes in exposure to tobacco use
-20% ▼ (-85,310 DALY) due to changes in linked disease burden

Per cent change by sex

Type of exposure: All

Legend: ■ Population growth ■ Population ageing ■ Linked disease burden ■ Risk factor exposure ● Overall change
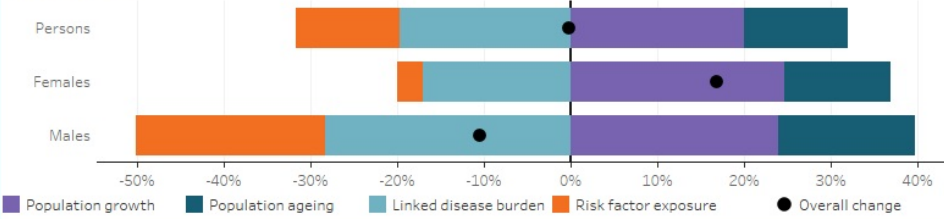
Per cent by disease group (all tobacco use)

Persons - total burden - DALY
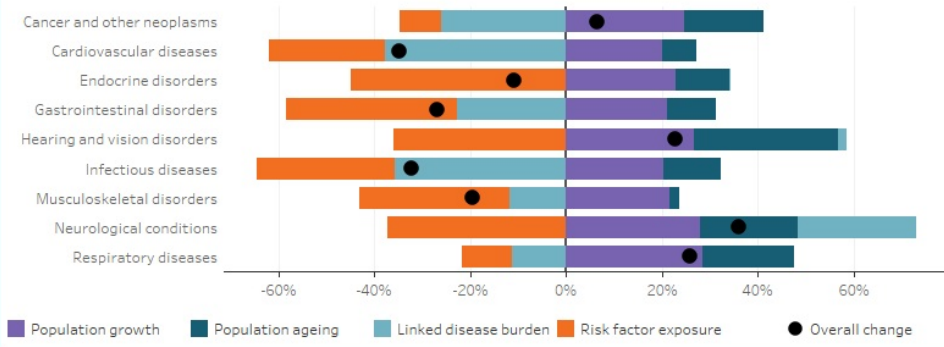
Legend: ■ Population growth ■ Population ageing ■ Linked disease burden ■ Risk factor exposure ● Overall change

Note: Overall change is equal to the sum of the effects of all factors (population growth, population ageing, changes in the amount of disease/injury and risk factor exposure).
Source: AIHW Australian Burden of Disease Database (http://www.aihw.gov.au).

Alcohol use

The overall burden attributable to alcohol use increased 18% between 2003 and 2018. This increase is calculated from the change in the attributable burden (DALY) between 2003 (188,151 DALY, representing 4.5% of total burden) and 2018 (222,108 DALY, representing 4.5% of total DALY). The main drivers of this change were increases in population and risk factor exposure.

To further understand the changes over time in burden attributed to alcohol use, the changes due to different types of exposures were broken down. The burden due to alcohol use was estimated from exposure to current alcohol use, former alcohol use and alcohol dependence. These exposures are linked to some different diseases because of differences in the time from exposure to developing the linked disease and the severity of the exposure. For example, a number of injuries are linked to current drinking but not former drinking, and alcohol use disorders, chronic liver disease and suicide are linked to alcohol dependence but not to current or former drinking. For a full list of linked diseases by type of alcohol exposure see Table S1 in the ABDS 2018 Drivers of change in risk factor attributable burden data table. . Use the interactive text and graph below to explore the different drivers of change in burden attributable to alcohol use in Australia between 2003 and 2018. Estimates are displayed by sex, burden type (DALY, YLD or YLL) and type of exposure to alcohol.

For more interactive data on the burden due to this risk factor and changes in the age-standardised rates of attributable burden over time, see Alcohol use.

This interactive data visualisation describes drivers of change in alcohol use attributable burden between 2003 and 2018 due to population growth, population ageing, linked disease burden and risk factor exposure. There are 3 sections which can be customised to report data according to type of burden, sex and type of alcohol use. The first section is a text box which reports the percentage and amount of change in attributable burden due to each driver of change for the selected alcohol use type, sex and type of burden. The second section is a stacked horizontal bar chart which reports the percentage change in attributable burden by sex and driver of change for the selected alcohol use type and type of burden. Markers are superimposed on the bar chart to show the overall percentage change. The third section is a stacked horizontal bar chart which reports the percentage change in attributable burden for all types of alcohol use by disease group and driver of change for the selected sex and type of burden. Markers are superimposed on the bar chart to show overall percentage changes.

Drivers of change in alcohol use attributable burden

Select from the following:

Sex: Persons

Type of burden: DALY
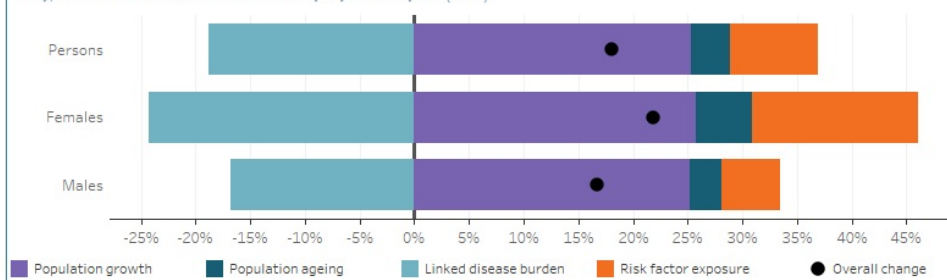
Type of exposure: All types of alcohol use

circ

There was a **18% ▲ (33,957 DALY)** in **total burden** attributable to **all types of alcohol use** in **persons** between 2003 and 2018, which was driven by a:

25% ▲ (47,605 DALY) due to population growth
4% ▲ (6,684 DALY) due to population ageing
8% ▲ (15,134 DALY) due to changes in exposure to alcohol use
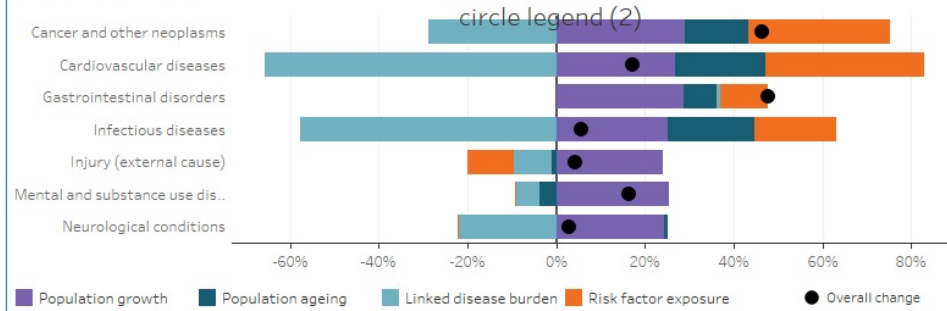**-19% ▼ (-35,467 DALY)** due to changes in linked disease burden

Per cent change by sex

All types of alcohol use - total burden - Disability-adjusted life years (DALY)

Legend: Population growth, Population ageing, Linked disease burden, Risk factor exposure, ● Overall change

Per cent change by disease group (all types of alcohol use)

Persons - total burden - DALY

circle legend (2)

Disease groups: Cancer and other neoplasms, Cardiovascular diseases, Gastrointestinal disorders, Infectious diseases, Injury (external cause), Mental and substance use dis.., Neurological conditions

Legend: Population growth, Population ageing, Linked disease burden, Risk factor exposure, ● Overall change

Note: Overall change is equal to the sum of the effects of all factors (population growth, population ageing, changes in the amount of disease/injury and risk factor exposure).
Source: AIHW Australian Burden of Disease Database (http://www.aihw.gov.au).

Overweight (including obesity)

The overall burden attributable to overweight (including obesity) rose 38% between 2003 and 2018. This increase is calculated from the change in the attributable burden (DALY) between 2003 (304,696 DALY, representing 7.3% of total burden) and 2018 (419,855 DALY, representing 8.4% of total DALY). The main drivers of this change were increases in population, ageing and prevalence of overweight (including obesity).

To further understand the changes over time in burden attributed to overweight (including obesity), the changes were broken down for the main linked disease groups. There was an increase in burden attributable to overweight (including obesity) for all linked disease groups with the exception of cardiovascular diseases, for which there was no change. For a list of all specific diseases linked to overweight (including obesity) see Table S1 in the ABDS 2018 Drivers of change in risk factor attributable burden data table.

Use the interactive text and graphs to explore the different drivers of change in burden attributable to overweight (including obesity) in Australia between 2003 and 2018. Estimates are displayed by sex, burden type (DALY, YLD or YLL) and linked disease group.

For more interactive data on the burden due to this risk factor and changes in the age-standardised rates of attributable burden over time, see Overweight (including obesity).

This interactive data visualisation describes drivers of change in overweight (including obesity) attributable burden between 2003 and 2018 due to population growth, population ageing, linked disease burden and risk factor exposure. There are 3 sections which can be customised to report data according to type of burden and sex. The first section is a text box which reports the percentage and amount of change in attributable burden due to each driver of change for the selected sex and type of burden. The second section is a stacked horizontal bar chart which reports the percentage change in attributable burden by sex and driver of change for the selected type of burden. Markers are superimposed on the bar chart to show the overall percentage change. The third section is a stacked horizontal bar chart which reports the percentage change in attributable burden by disease group and driver of change for the selected sex and type of burden. Markers are superimposed on the bar chart to show overall percentage changes.

Drivers of change in overweight (including obesity) attributable burden

**Select from the following:**

Sex:	Type of burden:	
Persons	DALY	circle lege

There was a **38% ▲ (115,159 DALY)** in **total burden** attributable to **overweight (including obesity)** in **persons** between 2003 and 2018, which was driven by a:

28% ▲ (86,292 DALY) due to population growth
15% ▲ (44,846 DALY) due to population ageing
20% ▲ (60,717 DALY) due to changes in exposure to overweight (including obesity)
**-25% ▼ (-76,697 DALY)** due to changes in linked disease burden

Per cent change by sex

All disease groups - total burden - Disability-adjusted life years (DALY)
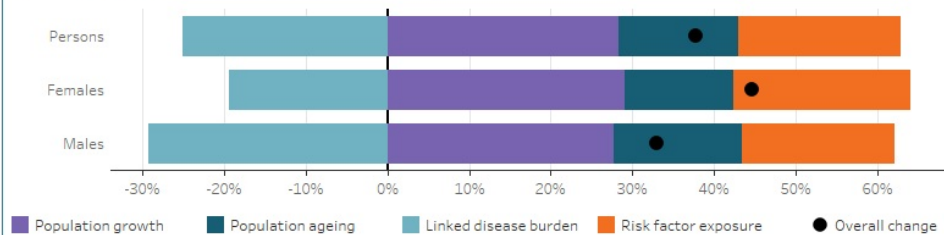
■ Population growth ■ Population ageing ■ Linked disease burden ■ Risk factor exposure ● Overall change

Per cent change by disease group

Persons - total burden - Disability-adjusted life years (DALY)

■ Population growth ■ Population ageing ■ Linked disease burden ■ Risk factor exposure ● Overall change
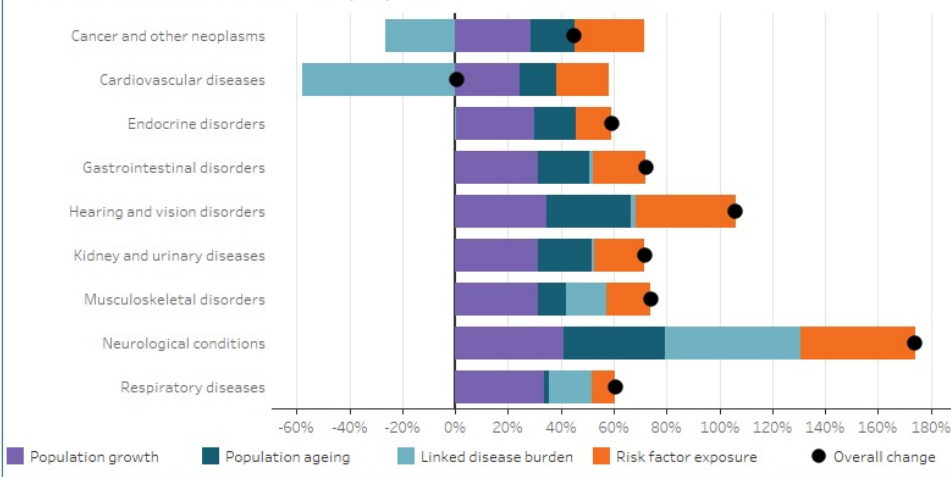
Note: Overall change is equal to the sum of the effects of all factors (population growth, population ageing, changes in the amount of disease/injury and risk factor exposure).
Source: AIHW Australian Burden of Disease Database (http://www.aihw.gov.au).

High blood pressure

The overall burden attributable to high blood pressure fell 24% between 2003 and 2018. This decrease is calculated from the change in the attributable burden (DALY) between 2003 (330,813 DALY, representing 7.9% of total burden) and 2018 (252,813 DALY, representing 5.1% of total DALY). The main drivers of this change were decreases in linked disease burden and prevalence of high blood pressure.

To further understand the changes over time in burden attributed to high blood pressure, the changes were broken down for the main linked disease groups which showed different patterns. There was an increase in burden attributed to high blood pressure for neurological conditions and kidney and urinary diseases, and a decrease for cardiovascular diseases. For a list of all specific diseases linked to high blood pressure see Table S1 in the ABDS 2018 Drivers of change in risk factor attributable burden data table.

Use the interactive text and graphs to explore the different drivers of change in burden attributable to high blood pressure in Australia between 2003 and 2018. Estimates are displayed by sex and burden type (DALY, YLD or YLL).

For more interactive data on the burden due to this risk factor and changes in the age-standardised rates of attributable burden over time, see High blood pressure.

This interactive data visualisation describes drivers of change in dietary risk attributable burden between 2003 and 2018 due to population growth, population ageing, linked disease burden and risk factor exposure. There are 3 sections which can be customised to report data according to type of burden, sex and type of dietary risk. The first section is a text box which reports the percentage and amount of change in attributable burden due to each driver of change for the selected dietary risk type, sex and type of burden. The second section is a stacked horizontal bar chart which reports the percentage change in attributable burden by dietary risk and driver of change for the selected sex and type of burden. Markers are superimposed on the bar chart to show overall percentage changes.

Drivers of change in high blood pressure attributable burden

Select from the following:

Sex:	Type of burden:	circle legend
Persons	DALY	

There was a **-24% ▼** (**-78,001 DALY**) in **total burden** attributable to **high blood pressure** in **persons** between 2003 and 2018, which was driven by a:

23% ▲ (75,513 DALY) due to population growth
16% ▲ (53,605 DALY) due to population ageing
-16% ▼ (-52,212 DALY) due to changes in exposure to high blood pressure
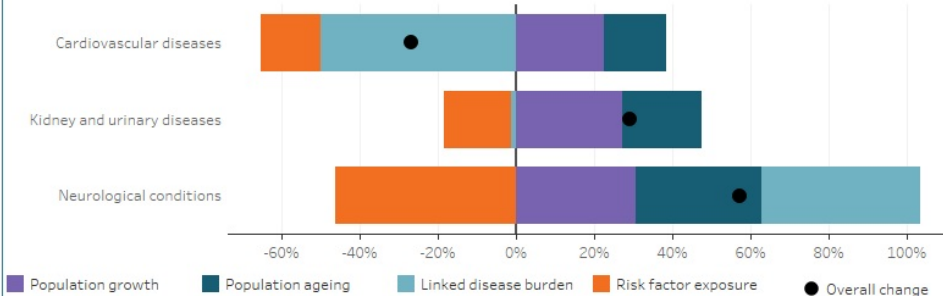**-47% ▼** (-154,907 DALY) due to changes in linked disease burden

Per cent change by sex

All disease groups - total burden - DALY - All disease groups
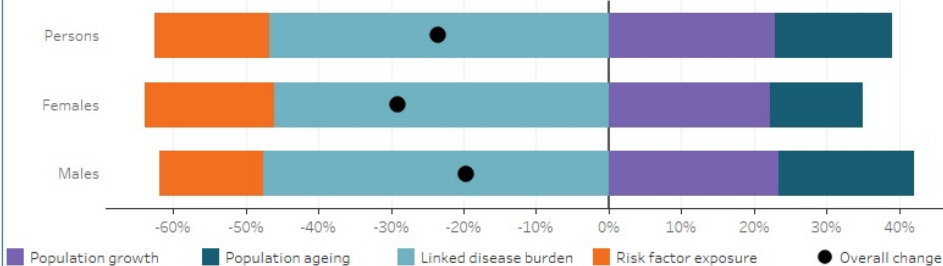
Legend: Population growth | Population ageing | Linked disease burden | Risk factor exposure | ● Overall change

Per cent change by disease group

Persons - total burden - DALY

Legend: Population growth | Population ageing | Linked disease burden | Risk factor exposure | ● Overall change

Note: Overall change is equal to the sum of the effects of all factors (population growth, population ageing, changes in the amount of disease/injury and risk factor exposure).
Source: AIHW Australian Burden of Disease Database (http://www.aihw.gov.au).

Dietary risk factors

The overall burden attributable to all dietary risks fell 15% between 2003 and 2018. This decrease is calculated from the change in the attributable burden (DALY) between 2003 (320,103 DALY, representing 7.7% of total burden) and 2018 (270,777 DALY, representing 5.4% of total DALY). This change was largely driven by a reduction in the amount of burden due to diseases linked to the dietary risk factors.

To better understand the changes over time in burden attributed to dietary risk factors, the changes were broken down for each individual dietary risk factor which each have their own linked diseases (some of which overlap and some are different). For example, diet high in sugar-sweetened beverages has 2 linked diseases (type 2 diabetes and coronary heart disease), which differ to the 3 linked diseases for diet low in vegetables (oesophageal cancer, coronary heart disease and stroke). Coronary heart disease is linked to all dietary risk factors except for diet low in milk. For a full list of linked diseases by dietary risk see Table S1 in the ABDS 2018 Drivers of change in risk factor attributable burden data table.

The change in attributable burden over time varied by individual dietary risk factor. For example, burden attributed to a diet low in nuts and seeds fell 40% and diet high in processed meat rose 6%. For diet low in nuts and seeds, this was largely driven by a decrease in linked disease burden and risk factor exposure. For diet high in processed meat, this was due to an increase in population, ageing and risk factor exposure.

Use the interactive text and graph below to explore the different drivers of change in burden attributable to dietary risk factors in Australia between 2003 and 2018. Estimates are displayed by sex, burden type (DALY, YLD or YLL) and individual dietary risk factor.

Diet high in sodium is not presented here as there is insufficient data available for the analysis required to inform trends in exposure to this risk factor.

For more interactive data on the burden due to this risk factor and changes in the age-standardised rates of attributable burden over time, see Dietary risk factors.

This interactive data visualisation describes drivers of change in dietary risk attributable burden between 2003 and 2018 due to population growth, population ageing, linked disease burden and risk factor exposure. There are 3 sections which can be customised to report data according to type of burden, sex and type of dietary risk. The first section is a text box which reports the percentage and amount of change in attributable burden due to each driver of change for the selected dietary risk type, sex and type of burden. The second section is a stacked horizontal bar chart which reports the percentage change in attributable burden by dietary risk and driver of change for the selected sex and type of burden. Markers are superimposed on the bar chart to show overall percentage changes.

Drivers of change in dietary risk attributable burden

Select from the following:

| Sex:	Type of burden:	Dietary risk factor:	circle
Persons	DALY	Diet high in processed meat	

There was a **6% ▲ (843 DALY)** in **total burden** attributable to **Diet high in processed meat** in **persons** between 2003 and 2018, which was driven by a:

25% ▲ (3,752 DALY) due to population growth
14% ▲ (2,119 DALY) due to population ageing
9% ▲ (1,378 DALY) due to changes in exposure to the dietary risk factor
-42% ▼ (-6,406 DALY) due to changes in linked disease burden

Per cent change by risk factor

Persons - total burden - Disability-adjusted life years (DALY)
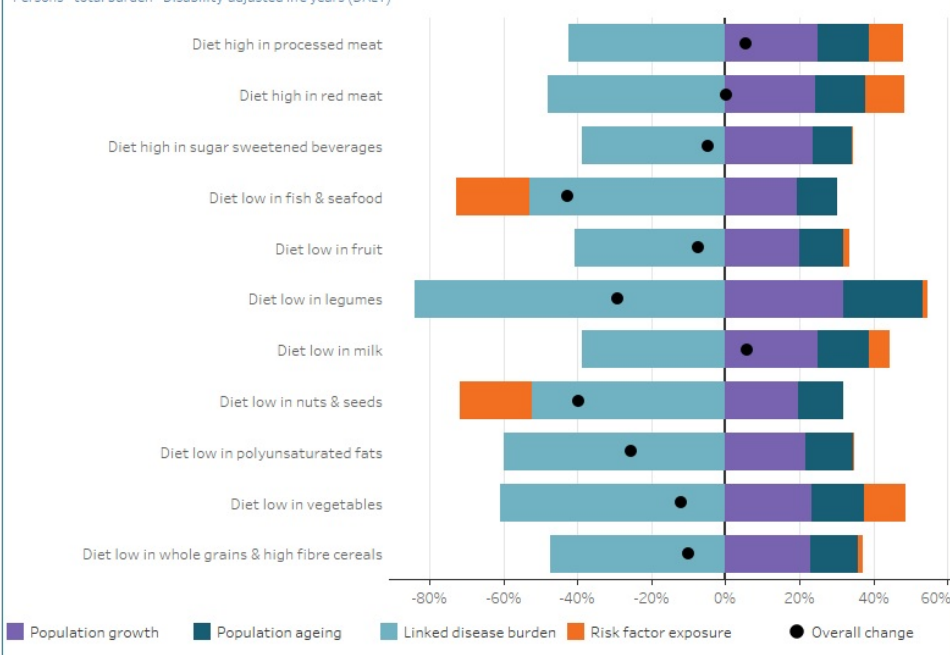
Population growth ■ Population ageing ■ Linked disease burden ■ Risk factor exposure ■ Overall change ●

Note: Overall change is equal to the sum of the effects of all factors (population growth, population ageing, changes in the amount of disease/injury and risk factor exposure).
Source: AIHW Australian Burden of Disease Database (http://www.aihw.gov.au).

Frequently asked questions

How are the estimates of drivers of change over time calculated?

The Das Gupta method was used to decompose the changes in burden attributable to each risk factor into 4 additive components (Das Gupta 1993). Using a series of scenarios this method calculates the effect of each factor on the changes over time by assuming that all other factors, except the factor under consideration, remain the same at both time points.

The change in overall attributable burden is decomposed into changes due to:

- population growth—in Australia population size is increasing over time
- population ageing—in Australia the proportion of older people is increasing over time
- risk factor exposure—changes in the prevalence of exposure to the risk factor in Australia.
- Changes in linked disease burden— changes in the overall burden for those diseases or injuries that are linked to the selected risk factor. This may be influenced by changes in diagnosis, treatment or health intervention (resulting in changes in disease prevalence or severity), as well as changes in other risk factors. For example, increases in overweight and obesity may have some impact on coronary heart disease burden which is also linked to tobacco use.

Attributable burden is estimated as the product of these 4 factors using the formula when examining burden by **type of exposure** to the risk factor:

$$B_t = \sum_{i=1}^{n} \sum_{j=1}^{m} P_t \times S_{jt} \times R_{ijt} \times F_{ijt}$$

where

B_t is the amount of burden (DALY, YLL or YLD) attributable to a particular risk factor at time point t.

i is a type of exposure to the risk factor such as current tobacco use

n is all types of exposure included in the estimate for the risk factor

j is an age and sex group

m is all age and sex groups included (males and females aged 0 to 100+)

t is a time point

P_t is the total population size at time t

S_{ijt} is the share of the population in age and sex group i at the time t

R_{ijt} is the rate burden of diseases linked to exposure i in the age and sex group j at the time t.

F_{ijt} is the population attributable fraction of diseases linked to exposure i in age and sex group j at the time t.

Σ is the sum of all of the types of exposures i and all of the age and sex groups j

Attributable burden is estimated as the product of these 4 factors using the formula when examining burden by **linked disease group**:

$$B_t = \sum_{k=1}^{o} \sum_{j=1}^{m} P_t \times S_{jt} \times R_{kjt} \times F_{kjt}$$

where

B_t is the amount of burden (DALY, YLL or YLD) attributable to a particular risk factor at time point t.

k is a disease group of the burden linked to the risk factor

o is all disease groups of diseases linked to the risk factor

j is an age and sex group

m is a age and sex groups included (males and females aged 0 to 100+)

t is a time point

P_t is the total population size at time t

S_{ijt} is the share of the population in age and sex group i at the time t

R_{ijt} is the rate burden of disease group k linked to the risk factor in the age and sex group j at the time t.

F_{ijt} is the population attributable fraction for disease group k in age and sex group j at the time t.

Σ is the sum of all of the disease groups k and all of the age and sex groups j

The effect of each of the 4 factors—population size, population ageing, linked disease burden and risk factor exposure—using this method on the change in attributable burden between 2003 and 2018 is calculated as:

$$E_A = (B_{03} - B_{18})(\frac{P_{03}S_{03}R_{03}F_{03} + P_{18}S_{18}R_{18}F_{18}}{5}$$

$$+ \frac{\begin{array}{c} P_{03}S_{03}R_{03}F_{18} + P_{03}S_{03}R_{18}F_{03} + P_{03}S_{18}R_{03}F_{03} + P_{18}S_{03}R_{03}F_{03} + \\ P_{18}S_{18}R_{18}F_{03} + P_{18}S_{18}R_{03}F_{18} + P_{18}S_{03}R_{18}F_{18} + P_{03}S_{18}R_{18}F_{18} \end{array}}{20}$$

$$+ \frac{\begin{array}{c} P_{03}S_{03}R_{18}F_{18} + P_{03}S_{18}R_{03}F_{18} + P_{03}S_{18}R_{18}F_{03} + P_{18}S_{18}R_{03}F_{03} + \\ P_{18}S_{03}R_{18}F_{03} + P_{18}S_{03}R_{03}F_{18} \end{array}}{30})$$

where

E_A is the effect of factor A (population size, population ageing, linked disease burden and risk factor exposure)

B is the amount of burden (DALY) attributable to the risk factor in 2003 (B_{03}) in 2018 (B_{18})

P is the population size in 2003 (P03) or in 2018 (P_{18})

S is the population age structure in 2003 (S_{03}) or in 2018 (S_{18})

R is the rate burden of diseases linked to risk factor in 2003 (R_{03}) or in 2018 (R_{18})

F is the population attributable fraction of diseases linked to exposure in 2003 (F_{03}) or in 2018 (F_{18})

The estimates were calculated using a statistical program developed by Dr Jinjing Li from the University of Canberra (Li 2017).

What are the limitations of the methods used in this analysis?

Only factors that could be easily measured (population ageing, population growth, changes in disease/injury and changes in risk factor exposure) were included in these analyses. However, these are considered to be among the most important drivers of change in attributable burden over time. It is not possible to include other factors in the analyses such as socioeconomic status that may also have an impact on changes in attributable burden over time as they are not able to be quantified.

How do these estimates of drivers of change compare to age-standardised rates?

Both age-standardised rates (which use a 'standard' population to produce rates that can be compared independent of the age structure of the study population(s)) and the drivers of change estimates presented here are methods used to compare rates over time, while taking into account the differing age structures (population ageing) of the population over time.

The percent change in age-standardised rates of attributable burden over time is somewhat comparable to the measure of percent change due to the amount of linked disease burden in the drivers of change estimates. However, the advantage of the drivers of change estimates is that they provide an indication of the proportionate impact of each of the specified factors, not just the change in age standardised population rates. A disadvantage of age-standardised rates is that they are only useful for the purposes of comparison with other standardised rates which have used the same reference population. Once standardised, the rates no longer reflect the actual rate observed in the population.

References

Das Gupta P 1993. Standardization and decomposition of rates: a user's manual. U.S. Bureau of the Census, Current Population Reports, Series P23-186. Washington, DC: U.S. Government Printing Office.

Li J 2017. Rate decomposition for aggregate data using Das Gupta's method. The Stata Journal 17(2): 490–502.

Zhai T, Goss J, Li J 2017. Main drivers of health expenditure growth in China: a decomposition analysis. BMC Health Services Research 17(1): 185.

Acknowledgments

Quality information

Estimates of disease burden due to selected risk factors in the Australian Burden of Disease Study 2018 were produced using the best possible data available in the scope and time frame of the study.

To provide information on the quality of estimates, a quality index was developed to rate estimates based on the relevance and quality of source data, and methods used to transform data into a form required for this analysis. In general, the higher the rating, the more relevant and accurate the estimate.

For each risk factor, it was only possible to rate the quality of the data used to estimate the direct population attributable fraction (PAF) or the exposure data used to calculate the PAF. Other inputs (such as relative risks) were included in these calculations, however it was not feasible in the scope of this project to determine the quality of these inputs. For more information on the inputs used to estimate risk factors refer to the Australian Burden of Disease Study 2018: methods and supplementary material.

Use the interactive tool to explore the quality information for risk factor exposure estimates for each risk factor for the year 2018 at the national level.

This interactive data visualisation reports on the quality information regarding the attributable burden estimates for each risk factor, which can be selected by the user. For each risk factor, there are two scores – one for data and one for methods. Each score is a whole number out of 5. There is a description of the data and methods used to obtain the attributable burden estimate. There is also a table describing the criteria used for all risk factors to assign data and method scores.

Quality information for exposure estimates

Select the risk factor to see the quality scoring & information:

Risk factor: Overweight (including obesity)

Overweight (including obesity)

Data score: ★★★★★   Method score: ★★★★★

Description of data and methods used:

National exposure estimates were obtained from the National Health Survey 2017–18.

Quality scoring guide

Data score	5 stars	Recent, relevant, fully enumerated data of high quality with either diagnostically confirmed exposure; or established high correlation between self-report and clinical diagnosis of exposure specific to the Australian population.
	4 stars	Relevant, high quality data however data is either not fully enumerated, not diagnostically confirmed, is non-specific to the population, has high variability, is not derived from the reference year. This may also be a combination of a 5 and 3 star rating.
	3 stars	Relevant, high quality data however for the exposure required it has either medium specificity to exposure, derived from a single smaller-scale Australian study or is from a generalisable review or meta-analyses. This may also be a combination of a 4 and 2 star rating.
	2 stars	A small good-quality Australian/ International study/ Review or meta-analyses generalisable to the Australian population that may not be recent or has low specificity for that exposure. This may also be a combination of a 3 and 1 star rating.
	1 star	A small Australian study more than 5 years old from the reference year with questionable applicability/ an international study with questionable generalisability to the Australian population or is indirect and from a secondary data source.
Method score	5 stars	Minimal or no extra modelling; estimate was derived directly from source data
	4 stars	Modelling such as disaggregating broad age groups into finer age groupings or to project estimates to the reference year, however the modelling is minimal and primarily specific to the population exposure-specific and is evidence based. This may also be a combination of a 5 and 3 star rating.
	3 stars	Assumptions to be made as there is no information to model trends, or modelling was required using methods which were not specific to the population. This may also be a combination of a 4 and 2 star rating.
	2 stars	Indirect modelling methods based on evidence which was; less than 5 years from the reference year, non-specific to the exposure or population or inferences were made from related data with medium specificity. This may also be a combination of a 3 and 1 star rating.
	1 star	Indirect modelling methods based on evidence which was either; more than 5 years old to the reference year, non-specific to the exposure or population or inferences were made from slightly related data.

Using and understanding the data - FAQs

Using and understanding the data - frequently asked questions

How were risk factors selected in Australian Burden of Disease Study 2018?

Risk factors were included in the Australian Burden of Disease Study 2018 if burden attributable to the risk factor was estimated in global burden of disease studies or previous Australian studies, or is of substantial national health policy interest.

To be included, the risk factor had to be modifiable, meaning that it could be prevented or modified through intervention and have sufficient evidence of a causal association between risk factor exposure and disease.

Estimates of risk factor exposure data needed to be available at the Australian population level or which could be applied to the Australian population. The diseases linked to the risk factor needed to occur in Australia and estimates of the additional risk of developing or dying from the disease for each risk factor was also required.

As a result, the Australian Burden of Disease Study 2018 identified 40 risk factor components or exposures (such as cannabis and cocaine use) that combine into 20 individual risk factors (such as illicit drug use).

What is a 'linked disease' and how were these selected?

A 'linked disease' is a condition in the Australian Burden of Disease Study 2018 disease list with a known risk factor. In other words, the disease or injury is 'linked' to the risk factor. For example, tobacco use is a risk factor for the linked disease lung cancer.

Linked diseases were included if the link was biologically plausible and if there was currently sufficient evidence of a causal link. The linked diseases were spread across 15 disease groups. Some risk factors had only a single linked disease, while others had association with multiple diseases across disease groups.

Further information on the methods used to select linked disease is in the Australian Burden of Disease Study 2018: methods and supplementary material report.

What is attributable burden and how is it calculated?

Attributable burden is the disease burden ascribed to a particular risk factor. It is the reduction in burden that would have occurred if exposure to the risk factor had been avoided or had been reduced to its lowest level. It is estimated by applying a population attributable fraction to the estimated disease burden for that linked disease.

The population attributable fractions (PAF) is the proportion of a particular disease that could have been avoided if the population had never been exposed to a risk factor. The calculation of PAFs requires as inputs the relative risk (the increased risk of developing or dying from the disease if exposed to the risk factor) and the prevalence of exposure to the risk factor in the population. PAFs can also be calculated directly from comprehensive data sources such as registries.

Further information on estimating PAFs and the data and methods used in the Australian Burden of Disease Study 2018 can be found in the Australian Burden of Disease Study 2018: methods and supplementary material report.

What does the 'percent of linked' burden (DALY/YLD/YLL) mean?

The 'percent of linked' burden refers to the proportion of disease burden in the disease linked to the risk factor which could have been avoided if there was no exposure, or minimal exposure to the risk factor. For example, 81% of the lung cancer burden was attributable to tobacco use; that is, this amount of lung cancer burden could have been avoided in Australia if there was no exposure to tobacco.

When can risk factor estimates be added together?

Risk factors in the Australian Burden of Disease Study 2018 were analysed independently. As such, it is not possible to add or combine the separate estimates for different risk factors without further analysis, due to complex pathways and interactions between them. For example, if the diabetes burden attributable to a diet high in sugar-sweetened beverages and to overweight (including obesity) were added together, the result would be greater than the total burden of type 2 diabetes in Australia. This is because these risk factors are found along the same causal pathway—high intake of sugar-sweetened beverages increases the risk of overweight (including obesity), which in turn increases the risk of type 2 diabetes.

However, additional analyses were undertaken for all risk factors combined, and all dietary risks in the Australian Burden of Disease Study 2018. The Diseases and associated risk factors visualisation shows the relative contribution of each risk factor accounting for the joint effect and mediation between individual risk factors. This visualisation therefore shows the relative impact of each risk factor where the sum of individual risk factor contributions to disease burden can be summed to equal the attributable burden for specific disease causes.

Further information on the methods used to estimate the burden attributable to a combination of risk factors is found in the Australian Burden of Disease Study 2018: methods and supplementary material report.

Why did the attributable burden due the risk factor change over time?

Changes over time may be due to changes in exposure to the risk factor or change in the burden from linked diseases. Changes in burden from linked diseases may be influenced by other risk factors and changes to treatment or health intervention. The other inputs used to calculate the burden attributable to this risk factor (such as relative risk or the size of the association between the risk factor and the linked disease) were the same in each year.

Why were current guidelines for risk factors not used to determine the exposure not associated with increased risk?

The level of exposure to risk factors that was not associated with increased risk of disease (also known as the theoretical minimum risk exposure distribution, or TMRED) are different to the guidelines because they are for different purposes.

Guidelines reflect the levels of risk that are acceptable by weighing up the risks and benefits associated with exposure to a risk factor and the distribution of exposure to the risk factor in the population.

TMRED reflect the level of exposure where there is absolutely no risk of disease. The risk factor is limited in definition to high or low exposure only and is specific for the outcomes listed in the study.

Can Australia aim to prevent all attributable burden?

In this study current exposure is compared against a theoretical minimum risk exposure distribution (TMRED).

The TMRED is defined for each risk factor as the theoretical minimum exposure for which there is no increased risk of the linked disease. The estimates reflect how much burden can be prevented if exposure in the population was at the theoretical minimum. This amount of exposure to the risk factor may not be achievable, feasible or economically viable; for example, no overweight (including obesity) in the Australian population.

Why is attributable burden higher for some risk factors than others?

The attributable burden is a combination of:

- exposure to the risk factor in the population
- the size of the association between the risk factor and the linked disease
- the number of linked diseases and
- the amount of burden caused from each linked disease.

Why is the risk factor list and the linked diseases different to the Australian Burden of Disease Study 2015?

The lists of risk factors and linked diseases changes between successive burden of disease studies as more research evidence becomes available. This study used the most recently available evidence at the time of analysis and was largely based on the methods used in the GBD 2019 and AIHW review of the literature.

Why do some risk factors include past or life time exposure?

For some risk factors (alcohol, tobacco, illicit drug use, unsafe sex and cancer due to occupational exposure) past exposure is modelled from current exposure to take into account the effect of past exposure on current burden, that is, the lag between exposure and long term outcomes. The methods used for these estimates have been developed internationally.

Some risk factors have impacts that occur over the life course as exposure is linked to long term outcomes.

Where to get more information on data and methods used in ABDS 2018?

More information on the Australian Burden of Disease 2018 study can be found in the following reports:

- Australian Burden of Disease Study 2018 – Key findings
- Australian Burden of Disease Study: impact and causes of illness and death in Australia 2018 —Summary
- Australian Burden of Disease Study: impact and causes of illness and death in Australia 2018
- Australian Burden of Disease Study: methods and supplementary material 2018
- Australian Burden of Disease Study 2018: Interactive data on disease burden

For further information or for customised data requests please contact the AIHW Burden of Disease team: burdenofdisease@aihw.gov.au

Technical notes

Abbreviations

ABDS	Australian Burden of Disease Study
COPD	Chronic obstructive pulmonary disease
DALY	Disability-adjusted life years
PAF	Population attributable fraction
TMRED	Theoretical minimum risk exposure distribution
YLD	Years lived with disability
YLL	Years of life lost

Glossary

attributable burden: The disease burden attributed to a particular risk factor. It is the reduction in fatal and non-fatal burden that would have occurred if exposure to the risk factor had been avoided (or more precisely had been at its theoretical minimum).

burden of disease (and injury): The quantified impact of a disease or injury on a population, using the disability-adjusted life year (DALY) measure. Referred to as the 'burden' of the disease or injury in this report.

condition (health condition): A broad term that can be applied to any health problem, including symptoms, diseases and certain risk factors, such as high blood cholesterol and obesity. Often used synonymously with disorder or problem.

DALY (disability-adjusted life years): Measure (in years) of healthy life lost, either through premature death defined as dying before the expected life span at the age of death (YLL) or, equivalently, through living with ill health due to illness or injury (YLD).

disability: In burden of disease analysis, any departure from an ideal health state.

disease: A broad term that can be applied to any health problem, including symptoms, diseases, injuries and certain risk factors, such as high blood cholesterol and obesity. Often used synonymously with condition, disorder or problem.

external cause: The environmental event, circumstance or condition as the cause of injury, poisoning and other adverse effect. METeOR identifier: 514295.

fatal burden: The burden from dying 'prematurely' as measured by years of life lost. Often used synonymously with YLL, and also referred to as 'life lost'.

linked disease: A disease or condition on the causal pathway of the risk factor, which is therefore more likely to develop if exposed to the risk.

non-fatal burden: The burden from living with ill health as measured by years lived with disability. Often used synonymously with YLD.

population attributable fraction (PAF): The proportion (fraction) of a disease, illness, disability or death in a population that can be attributed to a particular risk factor or combination of risk factors.

rate: A rate is one number (the numerator) divided by another number (the denominator). The numerator is commonly the number of events in a specified time. The denominator is the population 'at risk' of the event. Rates (crude, age-specific and age-standardised) are generally multiplied by a number such as 1,000 to create whole numbers.

risk factor: Any factor that represents a greater risk of a health condition or health event. For example, smoking, alcohol use, high body mass.

YLD (years lived with disability): A measure of the years of what could have been a healthy life but were instead spent in states of less than full health. YLD represent non-fatal burden.

YLL (years of life lost): Years of life lost due to premature death, defined as dying before the global ideal life span at the age of death. YLL represent fatal burden.

Data

Notes

Amendments

24 Jan 2023: Reported incorrect figure of 36% for the proportion of homicide & violence attributable to the risk factor of intimate partner violence. This has been corrected to 46%.

Report editions

This release

Australian Burden of Disease Study 2018: Interactive data on risk factor burden | 24 Nov 2021

Previous releases

- Australian Burden of Disease Study 2015: Interactive data on risk factor burden |
  Web report | 06 Aug 2020

Related material

Resources

Latest related reports

- Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018 |
  Publication | 10 Mar 2022
- Australian Burden of Disease Study 2018: Interactive data on risk factor burden among Aboriginal and Torres Strait Islander people |
  Web report | 10 Mar 2022
- Australian Burden of Disease Study 2018: Interactive data on disease burden among Aboriginal and Torres Strait Islander people |
  Web report | 10 Mar 2022
- Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018 |
  Publication | 24 Nov 2021
- Australian Burden of Disease Study 2018: Interactive data on disease burden |
  Web report | 24 Nov 2021
- Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018 - Summary report |
  Publication | 24 Nov 2021
- Australian Burden of Disease Study: Methods and supplementary material 2018 |
  Web report | 24 Nov 2021
- Australian Burden of Disease Study 2018: key findings for Aboriginal and Torres Strait Islander people |
  Web report | 07 Oct 2021
- Australian Burden of Disease Study 2018 – Key findings |
  Web report | 18 Aug 2021

Australia's health snapshot

Snapshots are brief summaries that present easily digestible, interactive information on health and welfare topics.

Snapshot: Burden of disease

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