



# Burden of disease by age group in Western Australia, 2011

## Introduction and overview

This fact sheet forms part of a series which expands upon Western Australia (WA) findings presented in the report entitled *Impact and causes of illness and deaths in Australia 2011*.<sup>1</sup> It should be read in conjunction with the *Overview of the burden of disease in Western Australia 2011*<sup>2</sup> and *Specific disease burden in Western Australia, 2011*<sup>3</sup>.

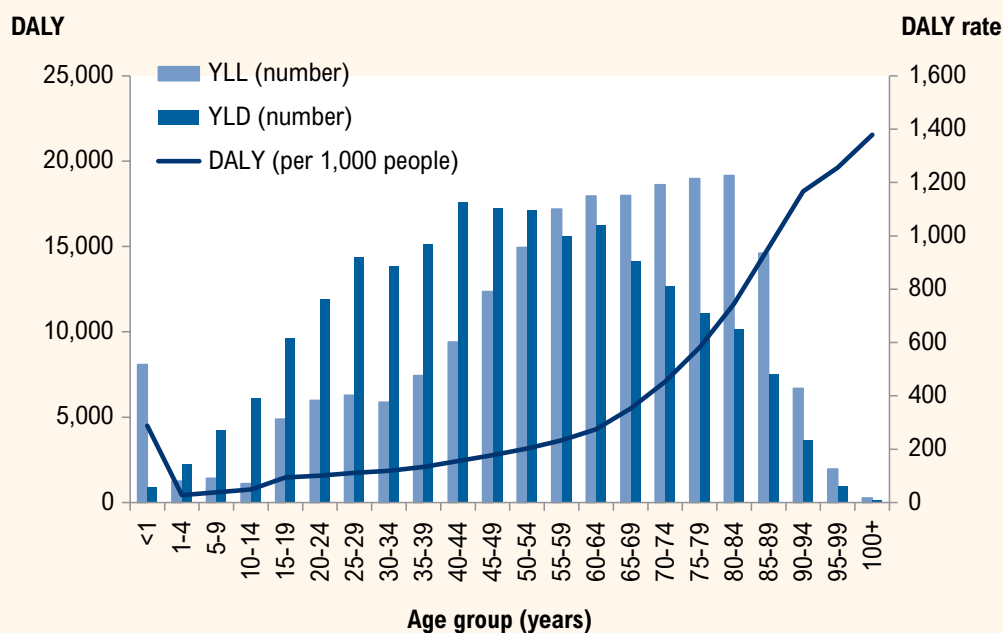
This fact sheet presents the leading specific causes of the burden of disease for WA in 2011 by age group (life stages) – infants and children 0-14 years, young people aged 15-24 years, adults aged 25-44 years and 45-64 years and older people aged 65 years and over. It explores each age group separately, detailing specific diseases in terms of fatal (YLL) and non-fatal (YLD) burden of disease, by gender.

In 2011, Western Australians lost 435,154 Disability Adjusted Life Years (DALY), which equates to around 183.3 DALY per 1,000 people. The DALY rate increased with age, with the exception of infants (age <1 year).

Overall, the proportion of non-fatal burden (51%) was slightly more than fatal burden. The proportion varied across age groups. Younger age groups up to age 50-54 years had a higher proportion of non-fatal than fatal burden, except for infants where fatal was much higher than non-fatal burden.

The proportion of total disease burden was higher for males than females across all age groups.

**Figure 1. Fatal (YLL), non-fatal (YLD) and total burden of disease by 5-year age group, WA, 2011**



In 2011, in WA, there was an increasing trend in fatal disease burden with age, from the 1-4 years to the 80-84 years age group. The fatal burden then decreased dramatically with age in adults 85 years and over. This would be expected as the population declines in older adults<sup>4</sup>. Infants (age <1 year) had a high fatal burden compared to other young age groups aged less than 40 years.

In 2011, in WA, there was an increasing trend in non-fatal disease burden with age, peaking at an earlier age group, at 40-44 years of age and a steadily decreasing trend for the 45-49 years and over age groups.

### DALY rates are DALYs per 1,000 people

#### Suggested citation

Epidemiology Branch, Public Health Division, Western Australia Department of Health 2017. Leading causes of disease burden by age and gender in Western Australia, 2011. Perth: Department of Health.

#### Download fact sheets

WA Burden of Disease 2011 Fact Sheets are available to download from [ww2.health.wa.gov.au/Articles/N\\_R/Population-health-statistics](http://ww2.health.wa.gov.au/Articles/N_R/Population-health-statistics)

## Infants and children aged 0–14 years

Around 5.8% of the total disease burden in WA in 2011 occurred among infants and children aged 0-14 years (25,421 DALY), of which 54% was attributed to males.

Just over half of disease burden was non-fatal for both males and females (YLD M 54%, YLD F 52%).

Infant/congenital conditions and mental disorders dominated the leading causes except for asthma, with pre-term birth/low birth weight (LBW) complications and anxiety disorders being in the top three causes of disease burden for both males and females. Asthma was the second leading cause for both males and females.

The percentage of total DALYs for pre-term birth/LBW complications was higher among females (M 7.4%, F 8.4%) and for asthma was higher among males (M 7.1%, F 6.0%).

For anxiety disorders, the proportion of total burden was similar for males and females (M 5.2%, F 5.3%).

**Table 1. Top 10 specific causes of total burden (DALY) among children, 0–14 years by gender, WA, 2011**

Rank	Male	% total Male DALYs	Female	% total Female DALYs
1	Pre-term birth and LBW complications	7.4	Pre-term birth and LBW complications	8.4
2	Asthma	7.1	Asthma	6.0
3	Anxiety disorders	5.2	Anxiety disorders	5.3
4	Other disorders of infancy	4.7	Depressive disorders	4.9
5	Autism spectrum disorders	4.2	Birth trauma and asphyxia	4.6
6	Upper respiratory conditions	3.8	Cardiovascular defects	4.0
7	Conduct disorder	3.7	Other mental and substance use disorders	3.5
8	Depressive disorders	3.6	Other disorders of infancy	3.4
9	Sudden infant death syndrome	3.1	Upper respiratory conditions	3.0
10	Other congenital conditions	2.7	Other neurological conditions	3.0

The majority of burden for pre-term birth/LBW complications was attributable to fatal burden and for anxiety disorders, to non-fatal burden. For asthma, the burden was mainly attributable to non-fatal burden for males and wholly attributable to non-fatal burden for females.

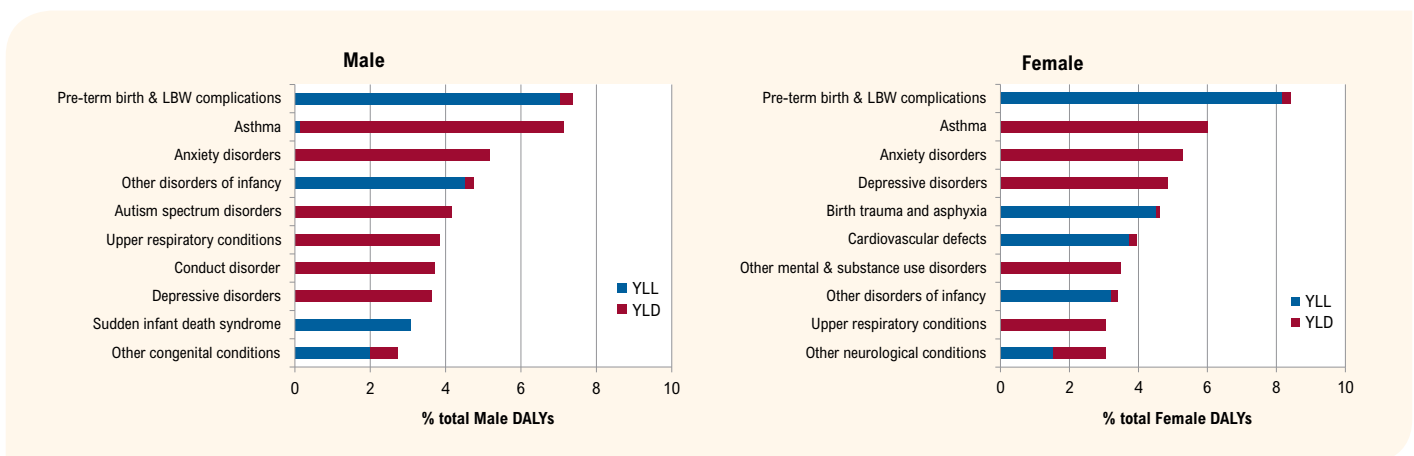
For males and females, the other common leading causes of burden of disease were other disorders of infancy, upper respiratory conditions and depressive disorders, with other disorders of infancy contributing mainly to fatal burden while the other two conditions contributed to non-fatal burden.

For males only, autism spectrum disorders and conduct disorder were in the top 10 causes of total burden and non-fatal burden accounted for all DALYs. Sudden infant death syndrome (SIDS) and other congenital conditions were leading causes, with the whole burden due to fatal burden for SIDS and the majority due to fatal burden for congenital conditions.

For females only, birth trauma and asphyxia and cardiovascular defects were in the top 10 causes and the proportion of burden was mostly fatal burden. 'Other mental and substance use disorders' was a leading cause and the proportion of burden was all from non-fatal burden. 'Other neurological conditions' was a leading cause and non-fatal and fatal burden contributed equally.

Some of the leading conditions had crude rates that were much higher for males than females. For this age group, the autism rate was five times higher (M 2.5 per 1,000 people; F 0.5 per 1,000) and the sudden infant death syndrome rate was just over double (M 1.8; F 0.8).

**Figure 2. Top 10 specific causes of burden of disease among children, 0-14 years by gender, WA, 2011**



## Young people aged 15–24 years

Around 7.5% of the total disease burden in WA in 2011 was experienced by young people aged 15–24 years (32,459 DALY) and 55% of this burden occurred in males.

Years lost to non-fatal burden accounted for 66% of the total disease burden (YLD M 60%, YLD F 74%).

Leading causes of burden of disease were dominated by mental disorders and injury conditions. Although the leading causes were similar for males and females, the conditions were ordered differently.

While 'suicide and self-inflicted injuries' was the leading cause of burden for males, it was the third leading cause for females (M 12.8%; F 8.8%).

'Anxiety disorders' was the leading cause for females and sixth for males (M 3.8%; F 9.5%).

**Table 2. Top 10 specific causes of total burden (DALY) among young people, 15-24 years by gender, WA, 2011**

Rank	Male	% total Male DALYs	Female	% total Female DALYs
1	Suicide and self-inflicted injuries	12.8	Anxiety disorders	9.5
2	Road traffic injuries – motor vehicle occupants	8.9	Depressive disorders	9.2
3	Alcohol use disorders	7.6	Suicide and self-inflicted injuries	8.8
4	Depressive disorders	5.5	Asthma	5.6
5	Asthma	3.9	Alcohol use disorders	4.2
6	Anxiety disorders	3.8	Road traffic injuries – motor vehicle occupants	4.2
7	Upper respiratory conditions	3.7	Upper respiratory conditions	4.1
8	Drug use disorders (excluding alcohol)	3.1	Polycystic ovarian syndrome	4.0
9	Back pain and problems	3.1	Back pain and problems	3.8
10	Road traffic injuries – motorcyclists	3.0	Other musculoskeletal	3.1

The proportion of burden was mainly attributable to fatal burden for suicide and self-inflicted injuries and non-fatal burden for anxiety disorders.

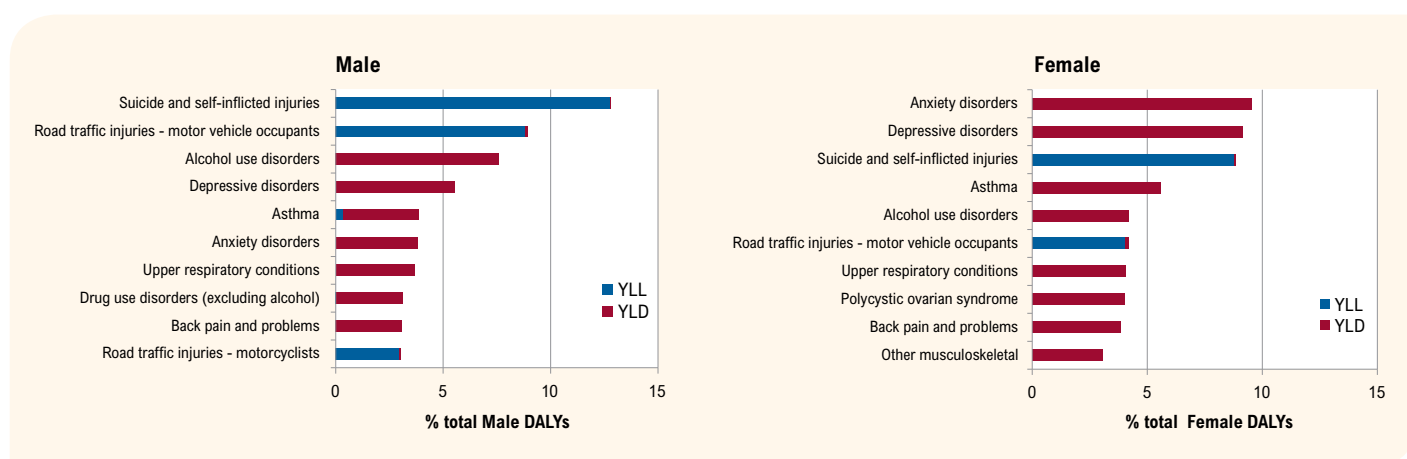
For males and females, the other common leading causes of burden of disease were road traffic injuries (motor vehicle occupants), alcohol use disorders, depressive disorders, asthma, upper respiratory conditions and back pain and problems, with road traffic injuries (motor vehicle occupants) contributing mostly to fatal burden while the other conditions contributed mostly to non-fatal burden.

For males only, drug use disorders (excluding alcohol) and road traffic injuries (motorcyclists) were in the top 10 causes of total burden. The majority of burden was attributable to fatal burden for road traffic injuries (motorcyclists) and non-fatal burden for drug use disorders (excluding alcohol).

For females only, polycystic ovarian syndrome and ‘other musculoskeletal conditions’ were in the top 10 causes of total burden for females. All the burden of disease was attributable to non-fatal burden.

Some of the leading conditions had crude rates that were much higher for males than females. For suicide and self-inflicted injuries, the first leading cause for males, the crude rate for this age group was just over one and a half times higher (M 13.4 per 1,000 people; F 8.0 per 1,000).

**Figure 3. Top 10 specific causes of burden of disease among young people, 15-24 years by gender, WA, 2011**



## Adults aged 25–44 years

In 2011, WA adults aged 25–44 years accounted for 21% of the total disease burden (90,006 DALY), of which 57% occurred in males.

Years lost to non-fatal burden accounted for 68% of the total disease burden (YLD M 61%, YLD F 77%).

While injury and poisoning conditions and mental disorders dominated the leading causes of burden in males, the leading causes were more varied across disease categories in females.

'Suicide and self-inflicted injuries' was the leading cause of burden of disease for males and was seventh for females (M 10.2%; F 3.8%).

'Depressive disorders' was the leading cause of burden of disease for females and was fourth for males (M 5.9%; F 8.7%).

**Table 3. Top 10 specific causes of total burden (DALY) among adults, 25-44 years by gender, WA, 2011**

Rank	Male	% total Male DALYs	Female	% total Female DALYs
1	Suicide and self-inflicted injuries	10.2	Depressive disorders	8.7
2	Alcohol use disorders	6.4	Anxiety disorders	8.6
3	Poisoning	6.0	Back pain and problems	6.6
4	Depressive disorders	5.9	Other musculoskeletal	6.3
5	Back pain and problems	5.3	Asthma	4.7
6	Other musculoskeletal	4.4	Upper respiratory conditions	4.2
7	Anxiety disorders	4.2	Suicide and self-inflicted injuries	3.8
8	Road traffic injuries – motor vehicle occupants	3.8	Polycystic ovarian syndrome	2.6
9	Drug use disorders (excluding alcohol)	3.7	Migraine	2.4
10	Coronary heart disease	3.3	Eating disorders	2.3

The proportion of burden was mainly attributable to fatal burden for suicide and self-inflicted injuries and non-fatal burden for depressive disorders.

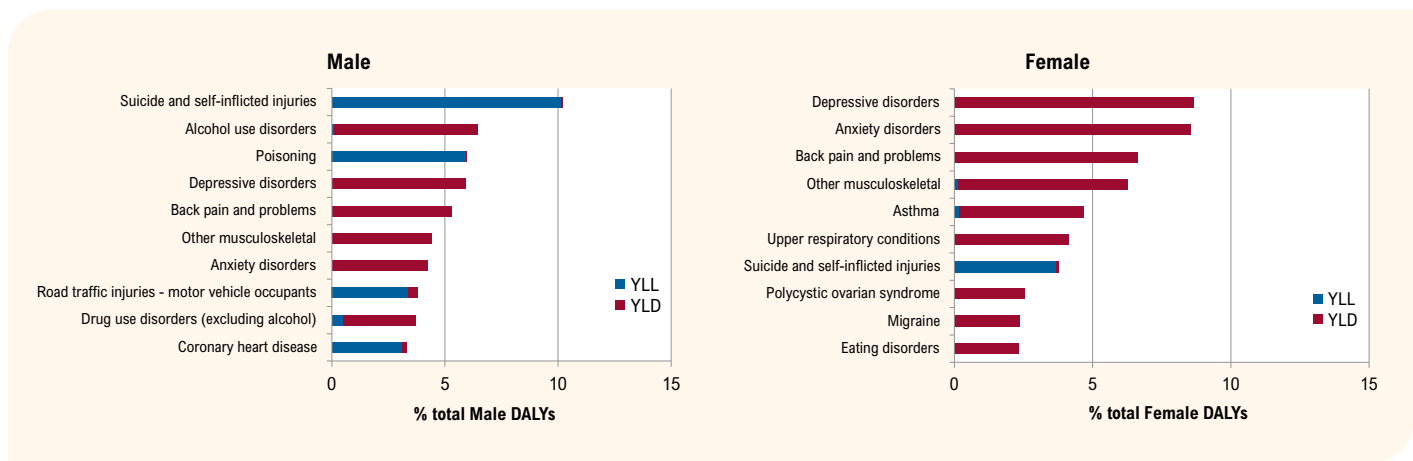
For males and females, the other common leading causes of burden of disease were back pain and problems, other musculoskeletal conditions and anxiety disorders, with majority of the burden due to non-fatal burden.

For males only, alcohol use disorders, poisoning, road traffic injuries (motor vehicle occupants), drug use disorders (excluding alcohol) and coronary heart disease were in the top 10 causes of total burden. The majority of burden was attributable to fatal burden for poisoning, road traffic injuries (motor vehicle occupants) and coronary heart disease and non-fatal burden for the other conditions.

For females only, asthma, upper respiratory conditions, polycystic ovarian syndrome, migraine and eating disorders were in the top 10 causes of total burden. Most of the burden of disease was due to non-fatal burden.

Some of the leading conditions had crude rates that were much higher for males than females. For suicide and self-inflicted injuries, the first leading cause for males, the crude rate for this age group was more than three times higher (M 14.7 per 1,000 people; F 4.3 per 1,000).

**Figure 4. Top 10 specific causes of burden of disease among adults, 25-44 years by gender, WA, 2011**



## Adults aged 45–64 years

In 2011, WA adults aged 45–64 years accounted for 30% of the total disease burden (128,648 DALY), of which males were accountable for 57%.

Overall, the proportion of fatal and non-fatal disease burden was fairly equal (YLL 49%, YLD 51%) however, for males, the non-fatal proportion was less than half (YLL 54%, YLD 46%) and for females was more than half (YLL 41%, YLD 59%).

Chronic diseases dominated the leading causes for both males and females. Coronary heart disease was the leading cause of burden of disease for males and was tenth for females (M 11.5%; F 3.1%) while 'other musculoskeletal conditions' was the leading cause of burden of disease for females and was second for males (M 5.6%; F 6.5%).

**Table 4. Top 10 specific causes of total burden (DALY) among adults, 45-64 years by gender, WA, 2011**

Rank	Male	% total Male DALYs	Female	% total Female DALYs
1	Coronary heart disease	11.5	Other musculoskeletal	6.5
2	Other musculoskeletal	5.6	Breast cancer	6.1
3	Lung cancer	4.8	Back pain and problems	6.1
4	Back pain and problems	4.7	Depressive disorders	4.7
5	Suicide and self-inflicted injuries	3.7	Anxiety disorders	4.5
6	Diabetes	2.8	Osteoarthritis	4.4
7	Rheumatoid arthritis	2.8	Lung cancer	4.1
8	Bowel cancer	2.7	COPD	3.8
9	Chronic liver disease	2.5	Rheumatoid arthritis	3.3
10	Depressive disorders	2.4	Coronary heart disease	3.1

The proportion of burden for coronary heart disease in males was mainly attributable to fatal burden and for other musculoskeletal burden of disease was attributable to non-fatal burden for both males and females.

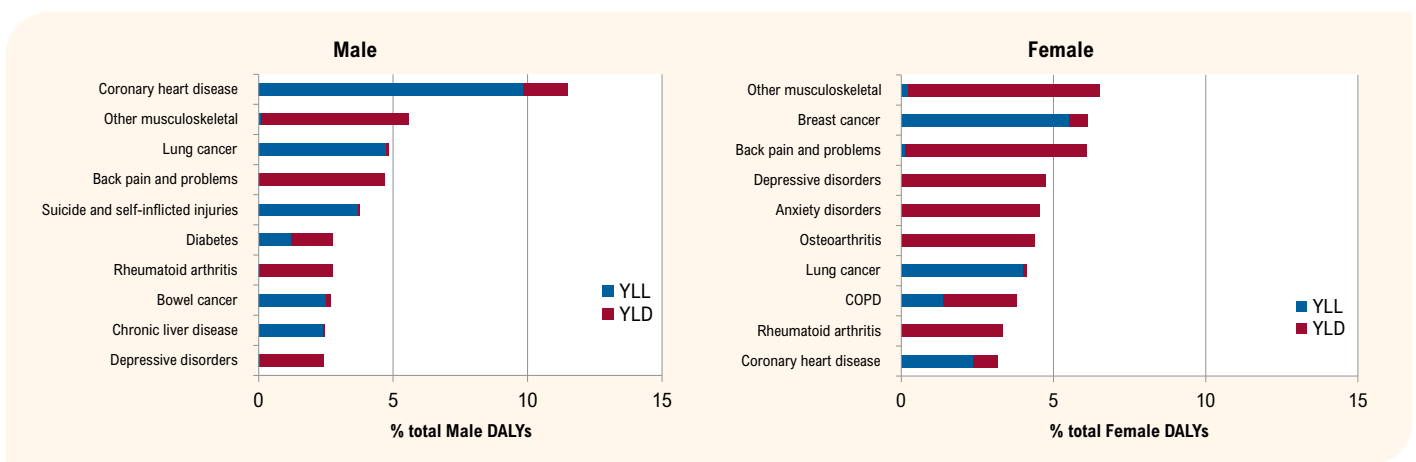
For males and females, the other common leading causes of burden of disease were lung cancer, back pain and problems, rheumatoid arthritis and depressive disorders. For lung cancer, most of the burden was attributable to fatal burden and for back pain/problems, rheumatoid arthritis and depressive disorders most of the burden was attributable to non-fatal burden for both males and females.

For males only, suicide and self-inflicted injuries, diabetes, bowel cancer and chronic liver disease were in the top 10 causes of total burden. The majority of burden was attributable to fatal burden for these conditions except diabetes which contributed mostly to non-fatal burden.

For females only, breast cancer, anxiety disorders, osteoarthritis and Chronic Obstructive Pulmonary Disease (COPD) were in the top 10 causes of total burden. Most of the burden of disease was due to non-fatal burden for these conditions except for breast cancer which contributed mostly to fatal burden.

Some of the leading conditions had crude rates that were much higher for males than females. For coronary heart disease, the first leading cause in males, the crude rate for this age group was almost five times higher (M 28.4 per 1,000 people; F 6.0 per 1,000).

**Figure 5. Top 10 specific causes of burden of disease among adults, 45-64 years by gender, WA, 2011**



## Older people aged 65 years and over

In 2011, WA older people aged 65 and over contributed 36% to the total disease burden (158,620 DALY). The burden was slightly higher for males (52%) than females (48%).

In contrast to the other age groups, this age group had a higher proportion of fatal burden (62%) compared to non-fatal burden of disease. For males the fatal portion was two-thirds (YLL 66%, YLD 34%) and for females, just over half (YLL 57%, YLD 43%).

The leading causes of burden of disease were mainly chronic diseases. The leading causes were similar for males and females, but ordered differently.

While coronary heart disease was the leading cause of burden for males, it was the second leading cause for females (M 13.3%; F 10.4%).

Dementia was the leading cause for females and fourth for males (M 5.6%; F 10.5%).



**Table 5. Top 10 specific causes of total burden (DALYs) among older people, 65 years and over by gender, WA, 2011**

Rank	Male	% total Male DALYs	Female	% total Female DALYs
1	Coronary heart disease	13.3	Dementia	10.5
2	Lung cancer	6.0	Coronary heart disease	10.4
3	COPD	5.9	Stroke	5.6
4	Dementia	5.6	COPD	5.3
5	Stroke	4.3	Other musculoskeletal	4.1
6	Prostate cancer	3.8	Lung cancer	3.8
7	Diabetes	3.8	Diabetes	3.2
8	Bowel cancer	2.9	Osteoarthritis	3.1
9	Hearing loss	2.8	Breast cancer	2.7
10	Other musculoskeletal	2.4	Hearing loss	2.7

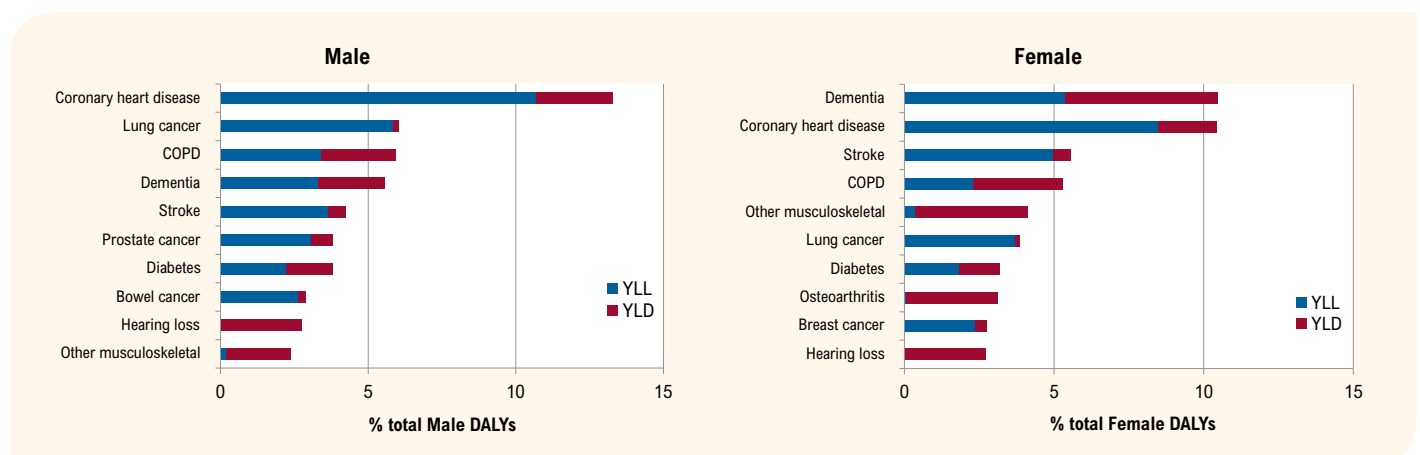
For coronary heart disease, the proportion of burden was mainly attributable to fatal burden for both males and females. For dementia, the proportion of fatal to non-fatal burden for females was similar but for males, the proportion was slightly higher for fatal than non-fatal burden.

For males and females, the other common leading causes of burden of disease were lung cancer, COPD, stroke, other musculoskeletal, diabetes and hearing loss. Lung cancer and stroke contributed mostly to fatal burden of disease while hearing loss and other musculoskeletal contributed mostly to non-fatal burden. For diabetes, the proportion was slightly higher for fatal than non-fatal burden. For COPD, for males, the proportion was also slightly higher for fatal than non-fatal burden but for females, the proportion was slightly lower for fatal than non-fatal burden.

For males only, prostate cancer and bowel cancer were in the top 10 causes of total burden. The majority of burden was attributable to fatal burden for these conditions.

For females only, osteoarthritis and breast cancer were in the top 10 causes of total burden. The majority of burden was attributable to non-fatal burden for osteoarthritis and fatal for breast cancer.

**Figure 6. Top 10 specific causes of burden of disease among older people, 65 years and over by gender, WA, 2011**





There were differences in crude rates for some of the leading conditions between genders. For coronary heart disease, the first leading cause for males, the crude rate for this age group was over one and a half times higher for males (M 82.7 per 1,000 people; F 51.7). For lung cancer the rate was twice as high for males (M 37.6; F 19.1).

The dementia rate, the first leading cause for females, was one and half times higher for females (M 34.6; F 52.0), most likely due to the older age structure of the female population<sup>5</sup>.

### Data source

Australian Institute of Health and Welfare 2016. Australian Burden of Disease Study: impact and causes of illness and death in Australia 2011. Canberra: Australian Institute of Health and Welfare.

[www.aihw.gov.au/publication-detail/?id=60129555173](http://www.aihw.gov.au/publication-detail/?id=60129555173)

### Definition of 'other' conditions:

**Other disorders of infancy** include feeding problems of newborn, cardiovascular disorders originating in the perinatal period, fetal blood loss, umbilical haemorrhage, neonatal jaundice due to other excessive haemolysis, transitory endocrine and metabolic disorders specific to newborn.

**Other congenital conditions** include congenital malformations of eye, ear, face and neck, congenital malformations of the respiratory system, congenital malformations of the musculoskeletal system, other congenital malformations.

Mental and substance use disorders encompasses a broad range of conditions including bipolar affective disorder, anxiety, substance use, behavioural and developmental disorders, schizophrenia and intellectual disability. **Other mental and substance use disorders** includes delirium, personality disorders, and any remaining child disorders such as specific learning disorders, developmental disorders and sleep disorders.

Neurological conditions are conditions of the central and peripheral nervous system including epilepsy, dementia, Parkinson disease, multiple sclerosis, motor neurone disease (which includes amyotrophic lateral sclerosis), migraine and Guillain-Barre syndrome. **Other neurological conditions** include hereditary ataxia, Parkinsonism in diseases not classified elsewhere, other degenerative diseases of basal ganglia, dystonia, other headache syndromes, sleep disorders, disorders of the trigeminal nerve, facial nerve, and other cranial nerves, mononeuropathies, diseases of the myoneural junction and muscles, hydrocephalus, other disorders of the nervous system.

Musculoskeletal conditions are defined as osteoarthritis, rheumatoid arthritis, gout, back pain/problems and other musculoskeletal – **Other musculoskeletal** includes other and ill-defined arthritis; chronic pain in joints, muscles and other soft tissue; and systemic lupus erythematosus.

### References

1. Australian Institute of Health and Welfare 2016. Australian Burden of Disease Study: impact and causes of illness and death in Australia 2011. Canberra: Australian Institute of Health and Welfare.
2. Epidemiology Branch, Public Health Division, Western Australia Department of Health 2016. Overview of the burden of disease in WA, 2011. Perth: Department of Health.
3. Epidemiology Branch, Public Health Division, Western Australia Department of Health 2017. Specific disease burden in Western Australia, 2011. Perth: Department of Health.
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### Contact us

At [epi@health.wa.gov.au](mailto:epi@health.wa.gov.au) for any enquiries or similar information on other disease.

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