

Death and dying



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- In 2016, there were 29,690 deaths in Queensland and 90% occurred in people aged 50 years or older.
- Cancer and cardiovascular disease were the leading broad causes of death, accounting for 6 in 10 deaths.
- All-cause death rates are decreasing. The decrease is widespread but more pronounced in remote and very remote areas.
- Lower death rates are leading to longer lives. In 2016, the average age of death for Queensland males was 77 years and for females 84 years.
- Declining death rates for lifestyle-related conditions accounted for 90% of the decrease in all-cause deaths, demonstrating the benefits of investment in healthy lifestyles, earlier diagnosis, more effective treatments and screening.
- The risk of a Queenslanders dying prematurely of a lifestyle-related condition has reduced by about one-third over the past decade.
- Lifestyle-related inequalities are emerging, particularly affecting socioeconomically disadvantaged populations and Indigenous Queenslanders. More effort is needed in promoting and adopting healthy lifestyles among these populations, particularly addressing higher rates of smoking.
- While there is much variability in death burden and rate change among the HHSs, mostly the outcomes are relatively good or showing improvement. For example, among the HHSs, the northern and western HHSs have had very strong declines in all-cause death rates, premature death rates and deaths for lifestyle-related conditions (although coming off a high base). All-cause death rate decline was evident in every HHS as was the decrease in lifestyle related conditions.
- The suicide rate increased statewide by 20% over a decade. There was no increase in the Indigenous Queenslanders suicide rate. The Queensland rate was 19% higher than the national rate and 22% higher for childhood suicides.
- The Indigenous Queenslanders death rate was 49% higher than the non-Indigenous rate. For diabetes, it was 4.8 times higher and for smoking related conditions (COPD and lung cancer) it was about double. These are critical areas for prevention.
- Queensland death rates were mostly higher than national rates and for melanoma and prostate cancer they were highest of the jurisdictions.

Causes of death

In 2016, there were 29,690 deaths of Queenslanders, 53% were males (15,855) (Table 9).

Cancer (malignant and benign neoplasms—98% were malignant cancers) was the leading broad cause of death, accounting for 31% or 9227 deaths, followed by cardiovascular disease (28% or 8310 deaths), together accounting for 6 in 10 deaths in 2016.⁶⁸

The five leading specific causes of death were coronary heart disease, stroke, lung cancer, dementia and COPD (Table 9). There was a little variation by sex with prostate cancer the fifth largest cause for males, and breast cancer for females.

Leading causes of death vary substantially over the age range, as does the number of deaths (Table 10).⁶⁸ Infant deaths were largely related to complications of pregnancy, congenital malformations and the impact of prematurity and poor growth. Of the relatively few deaths in children, about one-tenth was due to unknown or ill-defined causes. Among young people, intentional self-harm (suicide) and injuries were the dominant causes. In the middle to older years, cancers become more prominent and in older age groups, cardiovascular disease and cancer are leading causes closely followed by COPD and dementia.

Age at death

Almost all deaths occur in older people, and more than 90% were for those aged 50 years or older (Figure 3). In 2016⁶⁸:

- 0.8% occurred in the first year of life (248 deaths).
- 2.6% occurred in children and young people aged 1–34 years (779 deaths).
- 4.6% occurred in 35–49 year olds (1353 deaths).
- 29% occurred in 50–74 year olds (8746 deaths).
- 25% occurred in 75–84 year olds (7500 deaths).
- 37% occurred in people aged 85 years and older (11,064 deaths).

A death before the age of 75 is defined as premature. In 2016, about one-third of all deaths occurred in people aged 0–74 years (11,126 deaths).⁶⁸ Males were more likely to die prematurely than females (44% compared with 30%). The leading causes of premature death were cancer (about 40% of premature deaths), cardiovascular disease (17%) and injuries (13%).

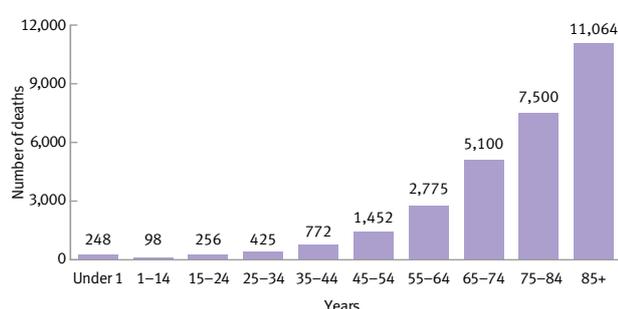
The median age of death for all Queenslanders was 80 years in 2015, older for females (84 years) than males (77 years).³ The age of death varied substantially by cause—from a median of 53 years for injury, to 85 years or older for cardiovascular disease, musculoskeletal and genitourinary conditions and dementia. For malignant cancers, the median age of death was 74 years.

Table 9: Leading causes of death, by sex, Queensland, 2016⁶⁸

Rank	Persons		Males		Females	
	Cause	Deaths	Cause	Deaths	Cause	Deaths
1	Coronary heart disease	3,809	Coronary heart disease	2,154	Coronary heart disease	1,655
2	Stroke	2,066	Lung cancer	1,100	Stroke	1,205
3	Lung cancer	1,741	Stroke	861	Dementia	914
4	Dementia	1,417	COPD	812	Lung cancer	641
5	COPD	1,372	Prostate cancer	687	Breast cancer	560
6	Colorectal cancer	882	Suicide	525	COPD	560
7	Diabetes	842	Dementia	503	Alzheimer disease	391
8	Prostate cancer	687	Colorectal cancer	495	Colorectal cancer	387
9	Suicide	673	Diabetes	474	Diabetes	368
10	Alzheimer disease	602	Pancreatic cancer	285	Influenza and pneumonia	284
11	Breast cancer	566	Influenza and pneumonia	213	Pancreatic cancer	256
12	Pancreatic cancer	541	Alzheimer disease	211	Suicide	148
13	Influenza and pneumonia	497				
	All causes	29,690	All causes	15,855	All causes	13,835

Table 10: Leading causes of death, by age, Queensland, 2016⁶⁸

Under 1 year (total)	248	1–14 years (total)	98
Complications of pregnancy and delivery	66	Ill-defined and unknown causes	11
Prematurity and poor growth	33	Leukemia and similar cancers	9
Ill-defined and unknown causes	23	Cerebral palsy and other syndromes	8
Congenital malformations – circulatory	21	Accidental drowning	8
Congenital malformations – musculoskeletal	13	Brain and similar cancers	6
15–34 years (total)	681	35–64 years (total)	4,999
Intentional self-harm	232	Digestive cancers	638
Car occupant in transport accident	60	Coronary heart disease	496
Accidental poisoning	57	Respiratory cancers	419
Ill-defined and unknown causes	25	Intentional self-harm	339
Accidental drowning and submersion	17	Breast cancer	233
65–84 years (total)	12,600	85+ years (total)	11,064
Digestive cancers	1,401	Coronary heart disease	1,893
Respiratory cancers	1,098	Dementia	1,167
Coronary heart disease	1,407	Stroke	1,116
COPD	841	Other forms of heart disease	806
Stroke	777	COPD	549

Figure 3: Number of deaths, by age, Queensland, 2016⁶⁸Table 11: Leading causes of death, Indigenous Queenslanders, 2016⁶⁸

Cause	no.	%
All causes	884	100
Coronary heart disease	124	14.0
Diabetes	74	8.4
Lung cancer	67	7.6
COPD	56	6.3
Suicide	52	5.9

Deaths of Indigenous Queenslanders

There were 884 deaths of Indigenous Queenslanders in 2016 (Table 11).⁶⁸ The death rate was 49% higher than the non-Indigenous rate after accounting for differences in age between the two populations.

The leading cause of Indigenous Queensland death in 2016 was coronary heart disease, followed by diabetes, lung cancer, COPD and suicide (Table 11).⁶⁸ Averaged over a three-year period (2013–2015), the Indigenous Queensland death rate for diabetes was 4.8 times the non-Indigenous rate, and for the two conditions most associated with smoking (lung cancer and COPD) it was almost double (90% higher) the non-Indigenous rate. The Indigenous Queensland suicide rate was about 60% higher than the non-Indigenous rate in 2015.³

Over the past decade (2005 to 2015) the all-cause death rate for Indigenous Queenslanders decreased by 11%, a smaller decrease than the non-Indigenous decline of 17%.³ The diabetes death rate decreased by 39% over 10 years, there being no change in the non-Indigenous

rate. The suicide rate did not change, where the non-Indigenous rate increased by 20%. For stroke, there was a 39% decline in the non-Indigenous rate with no change in the rate for Indigenous Queenslanders. For many other conditions, small numbers of deaths annually for Indigenous Queenslanders limited trend assessment. This included causes such as lung cancer, COPD, colorectal cancer, pneumonia and influenza, and road transport accidents. Furthermore, there was no change in the rate of early deaths (0–49 years) for Indigenous Queenslanders over the past decade where the non-Indigenous rate decreased by 16%.

Indigenous Queenslanders were more likely to die at a younger age.³ There was a 21-year difference in median age of death between Indigenous Queenslanders and non-Indigenous (59 years compared to 80 years in the three-year period 2013–2015) and this was similar for males and females (56 years and 77 years for males respectively, 62 years and 84 years for females).

Major trends

The death rate for all causes decreased by 15% over the decade up to 2015 (Figure 4, Table 12) with decline evident for males (17%) and females (13%).³

The **risk of dying prematurely** from a **lifestyle related chronic disease** has **decreased by**

29% over the past decade.

The greatest decrease in rates was for deaths from pneumonia and influenza, followed by coronary heart disease and stroke (Figure 4). Decline was evident for many major causes including lung cancer (males only), female breast cancer and colorectal cancer. There was no change in death rates for asthma, diabetes or melanoma.

The World Health Organization set a voluntary global target of a 25% relative reduction in risk of premature death from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases between 2010 and 2025.⁶⁹ Queensland is on track to achieve this target with a 29% reduction in risk of dying prematurely from a lifestyle related chronic disease over the decade up to 2015 (30% reduction for males, 27% for females) (Figure 4). This is evidence of the positive impact of reduced risk through healthier lifestyles (smoking reduction and improved physical activity), better monitoring and management of metabolic risk factors including blood pressure, screening, earlier diagnosis, and more effective treatments.

Over the past decade, there was a 20% increase in deaths due to suicide (36% increase for females, 17% increase for males) (Figure 4).

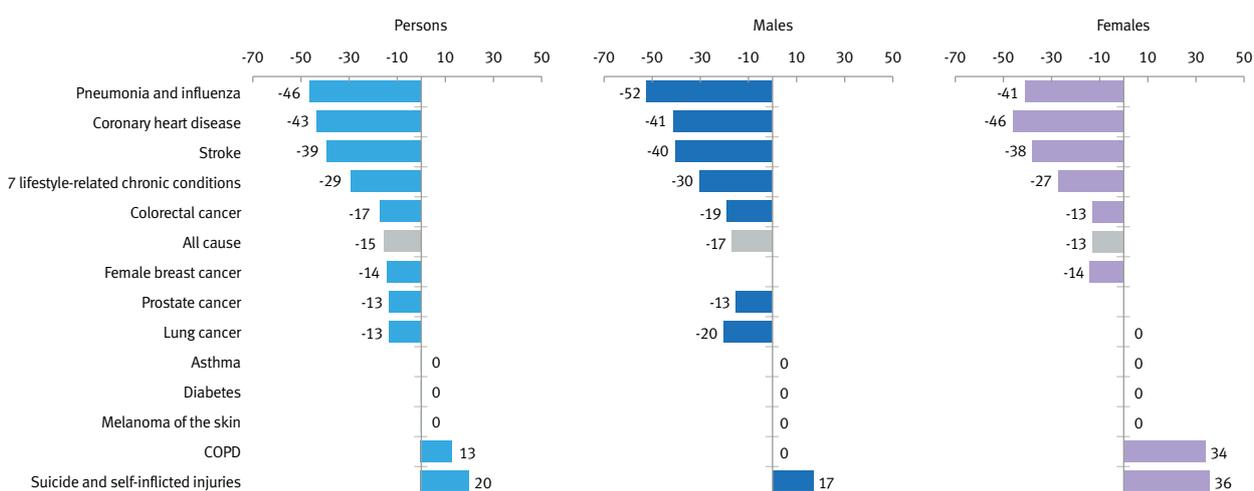
There was an increase in the death rate for COPD, but this was entirely due to female increase there being no change for males. It is likely the increase reflects the later uptake of smoking among women, and the subsequent lag in quitting.

Lifestyle related differences in death outcomes

The group of conditions most sensitive to lifestyle improvement are also some of the leading causes of death: coronary heart disease, stroke, lung cancer, COPD, breast cancer, colorectal cancer and diabetes. The death rate for these conditions has decreased as noted above, however, there is substantial variation across population groups³:

- **Socioeconomic:** Rates of death due to lifestyle related chronic conditions in disadvantaged areas were 50% higher than those in advantaged areas in 2015. Furthermore, the gap is widening because in disadvantaged areas there has been no change in death rates for these conditions whereas for advantaged areas there was a 20% drop between 2009 and 2015. Considering smoking related conditions specifically, decline was evident in death rates for lung cancer in all areas except the most disadvantaged. For COPD, the death rate increased by 39% over 10 years in the most disadvantaged areas, while there was no change in rates in all other areas.
- **Remoteness:** Rates of death due to lifestyle-related chronic conditions in remote and very remote areas were 33% higher than in major cities in 2015. Six years ago (in 2011) they were 80% higher. The narrowing of the gap is a result of rapid decline in death rates for these conditions in remote and very remote areas (halving between 2009 and 2015), whereas in major cities there was a modest decrease of 21%.
- **Indigenous Queenslanders:** Rates of death due to lifestyle related chronic conditions for Indigenous Queenslanders were about 70% higher than the non-Indigenous rates in 2015. Over the past decade there was a 31% decrease in non-Indigenous rates contrasting with a 22% decrease for Indigenous Queenslanders.

Figure 4: Death trends (total % change) for selected leading causes, by sex, Queensland, 2005–2015³



Overall, this data shows there is opportunity to improve health outcomes in socioeconomically disadvantaged areas and among Indigenous Queenslanders through a stronger focus on prevention. It is evident that substantial benefit has been generated from preventive action in remote and very remote areas probably largely associated with gains in Torres and Cape, North West and South West HHSs.

Selected highlights from the regions

The HHSs have differing death burden and trends and this section profiles HHSs based on leading causes and conditions (Table 12).³

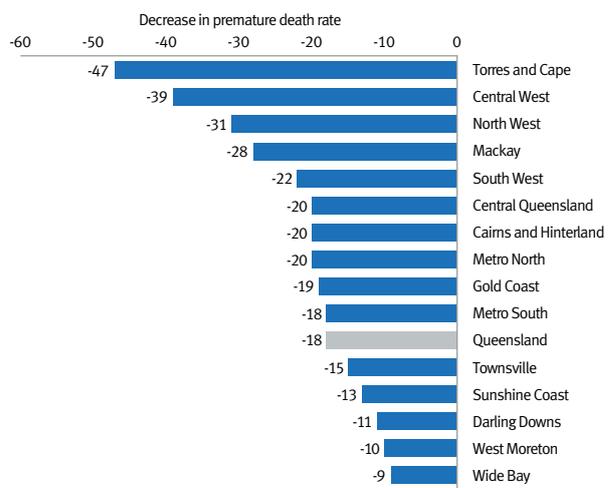
- The median age of death varied by 21 years between the HHSs (averaged over the three-year period 2013–2015 to minimise volatility in data). The youngest median age of death was in Torres and Cape (61 years) and the oldest in Metro North and Sunshine Coast (82 years).
- For Indigenous Queenslanders, there was a 15-year difference between highest and lowest age of death (highest was in Central West at 69 years and lowest in West Moreton and North West at 54 years).
- For non-Indigenous Queenslanders, there was also a 15-year difference between highest and lowest (highest was in Sunshine Coast and Metro North at 82 years and lowest in Torres and Cape at 67 years).
- The biggest difference within an HHS between non-Indigenous and Indigenous Queenslanders was the 23-year difference evident in West Moreton (77 years compared to 54 years), Metro North (82 years compared to 59 years) and Sunshine Coast (82 years compared to 59 years).

Death rates due to all causes were higher in eight HHSs and lower in two. Highest all-cause death rates (30–40% higher than the state average) were in two remote HHSs with high Indigenous Queensland populations (Torres and Cape and North West). The rates in Sunshine Coast and Gold Coast were 8% lower than the state average.

Over the past 10 years, all-cause death rates have decreased across all HHSs, with the greatest decrease in the northern and western HHSs of Central West, Torres and Cape, North West and South West (Table 12). The smallest gains were in Wide Bay and Darling Downs. There was also a widespread decrease in premature death rates (Figure 5).

Death rates for seven lifestyle related conditions varied. Rates were higher than the state average in North West, Townsville, Darling Downs, West Moreton, Wide Bay and Metro South, and lower in Sunshine Coast and Gold Coast (Table 12). Improvement in lifestyles will generate benefits across the state particularly in the six HHSs with higher rates. A downward trend in rates for these conditions across all HHSs demonstrates some improvements are being achieved but there remains substantial potential for preventive action to improve outcomes particularly in Wide Bay, Metro South and Darling Downs where rate decline was smaller.

Figure 5: 10-year trends in premature deaths, by HHS, Queensland, 2005–2015³



HHS	Relative to Queensland (2013–2015)*	10-year trends (2005–2015)
Cairns and Hinterland	7% higher for all causes 21% higher for Indigenous all causes** 35% higher for COPD 12% lower for CHD 22% higher for all injuries 31% higher for suicide	18% decrease for all causes 32% decrease for 7 lifestyle related conditions 50% decrease for CHD 40% decrease for stroke 44% decrease for colorectal cancer 29% decrease for pneumonia and influenza
Central Queensland	20% higher for COPD 30% higher for diabetes 67% higher for road traffic accidents	21% decrease for all causes 33% decrease for 7 lifestyle related conditions 53% decrease for CHD 38% decrease for stroke 43% decrease for breast cancer
Central West	65% higher for CHD 97% higher for all injuries	39% decrease for all causes 35% decrease for 7 lifestyle related conditions 35% decrease for CHD
Darling Downs	8% higher for all causes 10% higher for 7 lifestyle related conditions 15% higher for CHD 29% higher for diabetes 2.3 times higher for road transport accidents 19% higher for stroke	11% decrease for all causes 26% decrease for 7 lifestyle related conditions 42% decrease for CHD 30% decrease for stroke
Gold Coast	8% lower for all causes 42% lower for Indigenous all causes** 10% lower for 7 lifestyle related conditions 11% lower for CHD 17% lower for COPD 23% lower for diabetes 31% lower for road transport accidents 11% lower for stroke	15% decrease for all causes 31% decrease for 7 lifestyle related conditions 41% decrease for CHD 48% decrease for stroke 15% decrease for lung cancer
Mackay	86% higher for pneumonia and influenza	26% decrease for all causes 39% decrease for 7 lifestyle related conditions 53% decrease for CHD 34% decrease for stroke
Metro North	3% lower for all causes 5% lower for 7 lifestyle related conditions 14% lower for COPD 8% lower for CHD 45% lower for road transport accidents 15% lower for suicide 16% lower for all injuries	16% decrease for all causes 31% decrease for 7 lifestyle related conditions 45% decrease for CHD 41% decrease for stroke 17% decrease for lung cancer 35% decrease for melanoma 68% decrease for pneumonia and influenza 52% decrease for road transport accidents 33% increase for suicide
Metro South	6% higher for 7 lifestyle related conditions 13% higher for CHD 37% lower for road transport accidents 16% lower for suicide 14% lower for all injuries	10% decrease for all causes 24% decrease for 7 lifestyle related conditions 37% decrease for CHD 35% decrease for stroke 12% decrease for lung cancer 62% decrease for road transport accidents 20% increase for suicide

HHS	Relative to Queensland (2013–2015)*	10-year trends (2005–2015)
North West	41% higher for all causes 65% higher for Indigenous all causes** 43% higher for 7 lifestyle related conditions 54% higher for CHD 3.4 times higher for diabetes 63% higher for all injuries	30% decrease for all causes 44% decrease for 7 lifestyle related conditions
South West	2 times higher for COPD	27% decrease for all causes 42% decrease for 7 lifestyle related conditions
Sunshine Coast	8% lower for all causes 15% lower for 7 lifestyle related conditions 22% lower for CHD 37% lower for diabetes 38% lower for pneumonia and influenza	11% decrease for all causes 28% decrease for 7 lifestyle related conditions 41% decrease for CHD 44% decrease for stroke 28% decrease for diabetes 55% decrease for pneumonia and influenza
Torres and Cape	32% higher for all causes 41% higher for 7 lifestyle related conditions 5.8 times higher for diabetes	30% decrease for all causes 41% decrease for 7 lifestyle related conditions
Townsville	30% higher for Indigenous all causes** 6% higher for 7 lifestyle related conditions 19% higher for all injuries	19% decrease for all causes 32% decrease for 7 lifestyle related conditions 44% decrease for CHD 37% decrease for stroke 21% decrease for lung cancer 31% decrease for colorectal cancer 34% decrease for prostate cancer
West Moreton	7% higher for all causes 11% higher for 7 lifestyle related conditions 30% higher for COPD 12% higher for coronary heart disease	14% decrease for all causes 30% decrease for 7 lifestyle related conditions 48% decrease for CHD 40% decrease for stroke 19% decrease for lung cancer 34% increase for COPD 40% increase for suicide
Wide Bay	7% higher for all causes 39% lower for Indigenous all causes** 7% higher for 7 lifestyle related conditions 10% higher for all malignant cancers 25% higher for COPD 68% higher for road transport accidents 18% higher for all injuries	11% decrease for all causes 23% decrease for 7 lifestyle related conditions 42% decrease for CHD 26% decrease for colorectal cancer 52% decrease for pneumonia and influenza 39% increase for COPD
Queensland		15% decrease for all causes 29% decrease for 7 lifestyle related conditions 43% decrease for CHD 39% decrease for stroke 13% decrease for lung cancer 14% decrease for female breast cancer 17% decrease for colorectal cancer 13% decrease for prostate cancer 46% decrease for pneumonia and influenza 48% decrease for road transport accidents 20% increase for suicide 13% increase for COPD

* Based on age standardised rates averaged over three years (2013–2015) ** Compared to Indigenous state rate
CHD Coronary heart disease
COPD Chronic Obstructive Pulmonary Disease

National and international comparisons

Queensland is a middle-ranking state among the Australian jurisdictions for death outcomes, and rates are mostly higher than national (Table 13)^{68,70}:

- The infant mortality rate in Queensland was 29% higher than the national rate in 2016, and over the previous decade 26% higher on average.
- Cardiovascular disease death rates are higher than national and among the highest of the jurisdictions.
- The all-cancer death rate in Queensland was similar to national although for melanoma and prostate cancer, Queensland was higher than national and highest of the jurisdictions.
- For falls, the Queensland death rate was 27% lower than national, and second lowest among the jurisdictions.

Australia generally performs well internationally for death outcomes (Table 13). For example, in 2012, among 35 OECD countries, Australia was⁷¹:

- in the top 10 for all-cause deaths, cervical cancer, lung cancer, breast cancer and stroke
- middle ranking for coronary heart disease, prostate cancer, diabetes, suicide, transport injury, COPD and falls
- in the bottom 10 countries for melanoma.

There are limitations in international comparisons that have been described elsewhere⁷², although among OECD countries these limitations rarely prevent comparability.

Death indicator (rate*)	Queensland compared to national (2016)	Ranking (1=best)	
		Queensland compared to other jurisdictions 2016	Australia compared to OECD 2012
Median age of death	1.4 years earlier	7 of 8	
Infant mortality	29% higher	6 of 8	14 of 35
Indigenous infant mortality	2% higher	3 of 5	
All causes (standardised)	Similar	4 of 8	2 of 35
Cardiovascular disease	3% higher	6 of 8	
– Coronary heart disease	8% higher	7 of 8	17 of 35
– Stroke	8% higher	7 of 8	8 of 35
All cancers	4% higher	7 of 8	10 of 35
– Lung cancer	6% higher	7 of 8	9 of 35
– Melanoma	29% higher	7 of 7	34 of 35
– Breast cancer	4% lower	3 of 7	8 of 35
– Prostate cancer	13% higher	7 of 7	19 of 35
– Colorectal cancer	8% higher	6 of 7	8 of 35
– Cervical cancer	10% higher	4 of 5	5 of 35
Diabetes	6% lower	3 of 8	18 of 35
COPD	Similar	5 of 8	21 of 35
Transport injury	5% higher	4 of 7	21 of 35
Falls	27% lower	2 of 7	22 of 35
Suicide	19% higher	5 of 8	17 of 35
Childhood suicide (5–17 years)	22% higher	5 of 8	

*Age standardised rates were used for comparison where available

Data sources and methods: deaths

In this chapter, deaths were reported from two sources:

- ABS Cause of death file: based on year of registration.⁶⁸ 2016 deaths are subject to revision.
- Queensland Register of Births, Deaths and Marriages (data obtained by Queensland Health) for reporting up to 2015 and based on year of death.³

For standardised rates, the reference population was Australia 2001.

Deaths of Queensland residents in Queensland or interstate were included, but not deaths that occurred overseas. All death data is reported according to the underlying cause.

Lifestyle related chronic conditions included: coronary heart disease, stroke, diabetes, COPD, breast cancer, lung cancer and colorectal cancer. ICD codes for these conditions are defined.¹

Trend analysis was undertaken using Poisson regression methods.¹

The most recent complete set of death data for OECD reporting was 2012.⁷¹

For further information:

- *The health of Queenslanders, 2016*⁷³ (and earlier reports in the series)
- *Methods for reporting population health status 2018*¹
- ABS publications: *Cause of death*⁶⁸, *Deaths*⁷⁰
- Statistical tables online (page vii)