

section five

# Our lifestyle

*Risk and protective factors*



# Our lifestyle

## Risk and protective factors

- Smoking
- Weight
- Diet
- High blood pressure, glucose and cholesterol
- Alcohol consumption
- Illicit drug use
- Physical activity
- Sun safety
- Domestic violence and child abuse
- Immunisation
- Cancer screening
- Rest and sleep
- Road safety
- Oral health risks
- Environmental factors

Exposure to behavioural and environmental risk factors can cause or contribute to disease development, can slow recovery or increase the health impacts in early stages of disease, or worsen long term chronic conditions. Prevention efforts are targeted to each phase of this continuum. For example, in Queensland, restricting retail display, prohibiting smoking in indoor and outdoor public spaces and smoking cessation efforts have de-normalised tobacco use and significantly reduced smoking. Population-based cancer screening programs reduce the morbidity and mortality associated with breast, bowel and cervical cancers through early detection. Queenslanders on the orthopaedic surgery wait list with lifestyle-related risk factors can elect to participate in the “*Way to Wellness*” program delivered by trained telephone counsellors.

Engaging in unhealthy behaviours reduces health-related quality of life. For example, in 2020, adult daily smokers averaged 12.1 unhealthy days and 4.5 days with limited usual activities in the past 30 days compared to 7.3 unhealthy days and 2.5 days with limited activities for non-smokers and non-daily smokers.<sup>94</sup> Obese Queenslanders experienced 6.1 physically unhealthy days, 6.5 mentally unhealthy days, and 3.9 days with limited activities in the past 30 days compared to 3.1, 4.5 and 2.1 days, respectively, for healthy weight adults. Similar relationships were found for physical inactivity and risky levels of alcohol consumption.

Improving modifiable risk factors, especially before disease occurs, not only benefits the health and wellbeing of Queenslanders, it also plays a role in controlling health care costs. This is the economic rationale behind investing in prevention. Australia carries a relatively large disability burden compared to other high-income countries. Nationally, 38% of the health burden was attributable to modifiable risk factors in 2015.<sup>82</sup> Of the total national health expenditure in 2013–14,<sup>275</sup> only 1.3% was spent on prevention.



Budd photography

A recent review showed that while substantial healthcare costs were associated with modifiable risk factors (ranging from AUD \$0.4 to \$13.7 billion per year for individual risk factors in 2016–17), the largest cost components were due to productivity loss.<sup>276</sup> These cost estimates vary considerably based on included diseases, risk factors and cost components, and other methodological differences. Prevention efforts that support healthy lifestyles are important to help Australians lead healthy and productive lives longer as they age. This cannot be achieved with improvements in treatment alone.

There is growing evidence that public health interventions are cost-effective with up to 75% of UK public health interventions from 2005 to 2018 meeting this criterion.<sup>101</sup> It was estimated that a \$1 investment in public health generated \$14 in return,<sup>277</sup> in addition to the return of the original investment, back to the wider health and social economy.

Data in this section are from several primary sources. National surveys include the NHS,<sup>125</sup> National Aboriginal and Torres Strait Islander Health Survey (NATSIHS),<sup>71</sup> the National Drug Strategy Household Survey (NDSHS),<sup>278</sup> the Australian Secondary School Alcohol and Drug (ASSAD) surveys<sup>279,280</sup> and the 2015 ABDS.<sup>82,90</sup> For most of the national surveys, data are collected every three years.

Queensland conducts an annual adult and child preventive health telephone survey which provides regional results for HSSs and LGAs. Results of the surveys are available [online from QSAS](#).<sup>233,281</sup> Because the Queensland survey is collected more often and includes more participants, it is used for trends and for reporting by most sociodemographic characteristics.

The National Health and Medical Research Council (NHMRC)<sup>282</sup> helps achieve the best health outcomes for Australians by commissioning and disseminating evidence-based health guidelines. The percentage of people adhering to these guidelines is used as key health measures throughout this section.

In this section additional tables are provided in the Appendix, indicated by an 'A' preceding the table number.

## Smoking

Smoking remains the leading preventable cause of death and disease despite a significant reduction in smoking rates over recent decades. The disease burden remains high because of the considerable lag period between smoking and illness. Nationally, from 1960 to 2020, smoking is estimated to have caused the death of 1.28 million Australians.<sup>283</sup>

The health impacts of smoking include lung cancer and 18 other cancers and neoplasms, cardiovascular diseases such as coronary heart disease, type 2 diabetes, gastrointestinal disorders, hearing and vision disorders, infectious diseases, musculoskeletal conditions, neurological conditions, and respiratory diseases such as COPD.<sup>82</sup> Compared to adults who had never smoked, Australian current smokers die on average 10 years earlier and develop age-related diseases 10 years earlier.<sup>284,285</sup>

Nationally, smoking accounted for 9.3% of the total health burden (DALY) in 2015.<sup>82</sup> This includes 14% of early deaths (YLL, an estimated 4000 deaths in Queensland) and 5.0% of the disability burden (YLD).

### At a glance

#### *Smoking*

##### *In Queensland:*

410,000 (10%) adults smoked daily in 2020—of these, 230,000 (12%) were male and 180,000 (8.9%) were female

56,000 (42%) Aboriginal and Torres Strait Islander adults smoked daily in 2018–19

23,000 (6.9%) school children aged 12–17 years smoked at least one cigarette in the past seven days in 2017

Smoking is a leading contributor to health inequities based on socioeconomic status, geographical location and Aboriginal and Torres Strait Islander status

In 2018–19, 490,000 (13%) Queensland adults had ever tried e-cigarettes



Queensland Health Asset Library

In 2015–16, the total cost of smoking in Australia was estimated at \$137 billion which translates to \$27.4 billion based on Queensland's share of the Australian population.<sup>286</sup> Nationally, tangible costs of \$19.2 billion include premature death, hospitalisations, other medical and social care costs, workplace absenteeism and tobacco spending. Intangible costs of \$118 billion include the value of life lost, pain and suffering.

## Population characteristics

In 2020, of adult Queenslanders<sup>233</sup>:

- 10% smoked daily (Figure 5.1, Table A1)
- 5.5% were current (not daily) smokers
- 27% were ex-smokers
- 57% never smoked
- 22% of households with children had a current smoker living in the home.

Among Queensland secondary school students aged 12–17 years in 2017<sup>279</sup>:

- 77% had never smoked a cigarette (lower than the 82% nationally)
- 10% had just had a few puffs
- 6.9% had smoked in the previous week (higher than the 5.0% nationally).

**Sex:** In 2020, the prevalence of adult daily smoking was 32% higher for males than females (12% compared with 8.9%).<sup>233</sup>

**Age:** A higher percentage of young adults had never smoked—67% of 18–29 year-olds compared to 52% of those aged 45 years and older.<sup>233</sup>

**Area socioeconomic status:** There is a socioeconomic gap in daily smoking in Queensland. In 2020, daily smoking prevalence in the most disadvantaged areas was more than double (2.3 times) that in advantaged areas (16% compared with

7.0%).<sup>233</sup> Never smoking was associated with socioeconomic status—adults in the most advantaged areas were 33% more likely than those in the most disadvantaged areas to have never smoked (65% compared with 49%).

**Remoteness:** Daily smoking prevalence was higher outside major cities—ranging from 36% higher in inner regional areas to 94% higher in remote/very remote areas in 2020.<sup>233</sup>

**HHS differences:** In 2019–20, daily smoking was higher than the state average in five HHSs—ranging from 2.5 times higher in Torres and Cape to 33% higher in Wide Bay.<sup>233</sup>

**Aboriginal and Torres Strait Islanders:** In 2018–19, the daily smoking population prevalence for adult Aboriginal and Torres Strait Island people living in Queensland was 42% while 31% had never smoked.<sup>71</sup> The adult age-adjusted daily smoking prevalence was similar to Aboriginal and Torres Strait Islander people living nationally (41% compared with 40%). Among other Queenslanders, the daily smoking prevalence was 15%.<sup>28</sup>

**National comparisons:** In 2017–18, the Queensland age-adjusted adult daily smoking prevalence was similar to the national average (15% compared to 14%) and Queensland ranked third highest of the jurisdictions.<sup>125</sup>

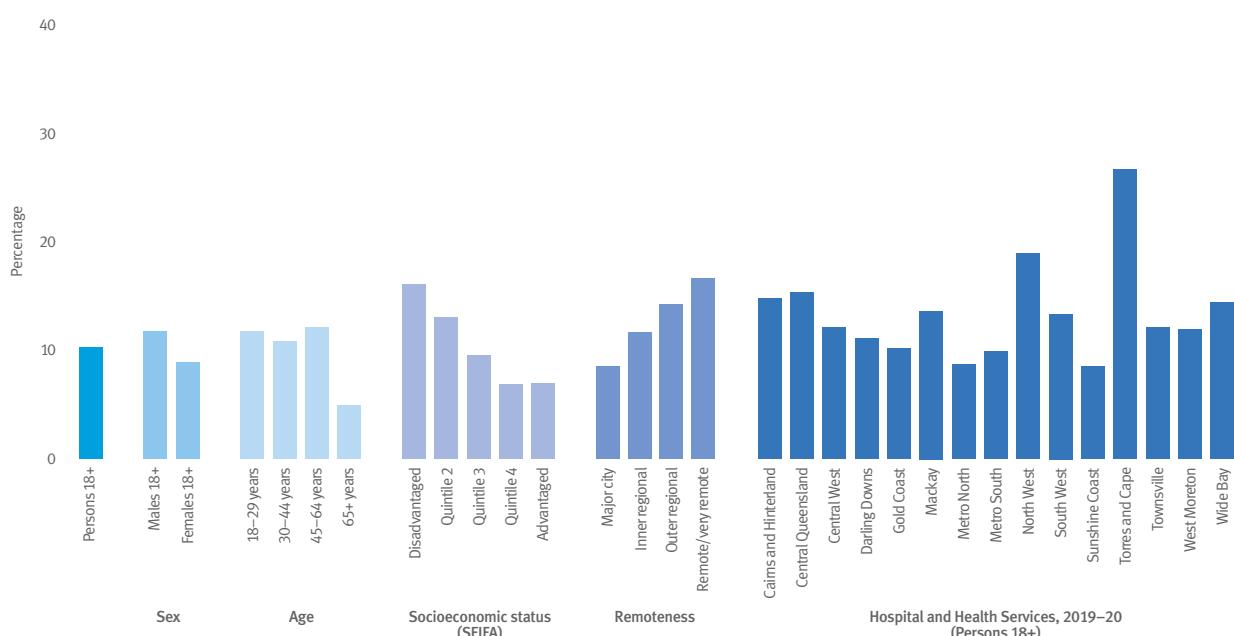
**Smoking cessation:** In 2020, 63% of adults who had ever been smokers had quit.<sup>233</sup> Smoking cessation increased with age ranging from 25% among 18–29 year-olds to 87% among those aged 65 years and older. There were no differences in the proportion of smokers who had quit by sex, remoteness or socioeconomic status in most areas.

## Trends

The prevalence of daily smoking in Queensland continues to fall and as of 2020 had declined by 47% since 2002.<sup>281</sup>

Larger declines in daily smoking were seen in younger age groups and in the most advantaged areas. From 2002 to 2020,

Figure 5.1 Adult daily smoking, Queensland, 2020<sup>233</sup>



See [QSAS](#) for more information

prevalence of daily smoking declined, on average, by 55% for 18–29 year-olds compared to 29% for those aged 65 years and older.<sup>281</sup> Among those in the most advantaged areas, daily smoking declined by 55% on average compared to 30% in the most disadvantaged areas.

Trends in adult smoking cessation show an increase of 8.7% in quit rates from 2009 to 2020 (Table 5.1). There was no evidence that increases in cessation rates varied by sociodemographic characteristics.

### The proportion of adults smoking daily has halved since 2002, to 10% in 2020.

Most HHSs followed a similar pattern with significant reductions in daily smoking and smaller increases in tobacco cessation (Table 5.1).<sup>281</sup> Importantly, cessation increased by similar amounts in all HHSs, however, was significant for West Moreton HHS. HHS trends should be interpreted with caution because detecting regional change is more difficult, especially in areas with small population size.

These findings suggest that declines in smoking are driven by reduced uptake, particularly among younger Queenslanders or those from more advantaged areas. Relative to the success in reducing uptake, increasing cessation has proven more challenging. While it is encouraging that cessation rates are similar for all population groups, populations with historically higher smoking prevalence will take longer to fully realise the benefits of increasing smoking cessation trends.

**Table 5.1 Adult smoking trends, Queensland, 2009–2020<sup>281</sup>**

HHS	Average percentage change			
	Daily smoking		Smoking cessation	
	Per year	Total (2009–2020)	Per year	Total (2009–2020)
Cairns and Hinterland	<b>-2.8</b>	<b>-27</b>	0.8	8.7
Central Queensland	<b>-2.1</b>	<b>-21</b>	0.7	7.9
Central West	<b>-2.9</b>	<b>-28</b>	0.6	7.1
Darling Downs	<b>-4.7</b>	<b>-41</b>	1.3	15.7
Gold Coast	<b>-5.2</b>	<b>-45</b>	0.4	5.0
Mackay	<b>-2.9</b>	<b>-28</b>	1.1	12.5
Metro North	<b>-4.1</b>	<b>-37</b>	0.7	8.0
Metro South	<b>-3.9</b>	<b>-36</b>	0.6	6.6
North West	-2.1	-20	0.8	9.2
South West	-2.3	-23	0.7	8.2
Sunshine Coast	<b>-5.6</b>	<b>-47</b>	1.1	12.3
Torres and Cape	-3.6	-33	0.0	0.4
Townsville	<b>-3.5</b>	<b>-33</b>	0.9	10.4
West Moreton	<b>-5.0</b>	<b>-43</b>	<b>1.9</b>	<b>23.4</b>
Wide Bay	-2.0	-20	0.3	3.4
<b>Queensland<sup>1</sup></b>	<b>-3.9</b>	<b>-36</b>	<b>0.8</b>	<b>8.7</b>

*Bold font indicates significant change over time*

*Positive numbers indicate increasing trends and declining trends are negative numbers*

*1 State level trends from 2002 to 2020 showed a 47% decline*

 See [QSAS trends](#) for more information

### Electronic cigarette use

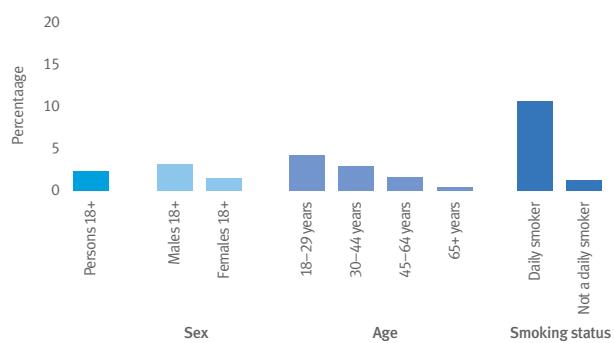
Electronic cigarettes (e-cigarettes) heat liquid, which usually contains nicotine, into a fine vapour to inhale into the lungs. Australian governments have taken an evidence-based and precautionary approach to e-cigarettes based on the risks they pose to tobacco control and population health in terms of smoking initiation, cessation, youth uptake, and dual use with conventional tobacco products.<sup>287</sup>

In 2018–19, 13% of Queensland adults had ever tried an e-cigarette. Of all Queensland adults (Figure 5.2 and Table A2)<sup>233</sup>:

- 2.3% currently used e-cigarettes, including daily use (Figure 5.2)
- 0.7% used them daily
- 11% were daily smokers compared to 1.2% of those who were not, including those who had ever smoked.<sup>233</sup>

**Sex:** Males were more likely to have ever tried e-cigarettes than females (15% compared to 11%) and to be using them currently (3.2% compared to 1.4%).

**Figure 5.2 Adult current e-cigarette use, Queensland, 2018–19<sup>233</sup>**



In 2017, 16% of Queensland secondary school students aged 12–17 years had ever used e-cigarettes (compared to 14% nationally), and of those about one-third had done so in the previous month.<sup>279</sup> Males students aged 12–17 years were twice as likely as female students to have ever used e-cigarettes (20% compared to 11% in 2017).

Nationally, of school students who had never smoked a tobacco cigarette before their first e-cigarette, 1 in 4 (25%) later tried tobacco cigarettes.<sup>280</sup> Australian female students were more likely than male students to have smoked before trying e-cigarettes (59% compared to 47%).

With a strong regulatory approach to e-cigarettes and tobacco more broadly in Queensland and nationally, Australia has not experienced rapid increases in youth e-cigarette use.<sup>289</sup> International evidence is mixed with countries such as the UK and New Zealand reporting little increase in youth e-cigarette use.<sup>288,289</sup> Other countries, however, have seen large increases, for example, past 30-day e-cigarette use was: 28% for US Grade 9 to 12 students in 2019<sup>290</sup> and 29% for Canadian Grade 10 to 12 students in 2018–19.<sup>291</sup>

**National comparisons:** In 2019, all jurisdictions were similar to the national prevalence for current and past use of e-cigarettes among persons aged 14 years and older.<sup>278</sup> Of the jurisdictions, Queensland ranked second highest for current use (2.9% compared to 2.5% nationally) and fourth highest for past use (2.1% compared to 2.0% nationally). An additional 7.2% of Queenslanders had tried e-cigarettes once or twice.

### More adults had never used tobacco and the proportion of smokers who have quit continues to increase.

## Burden of disease

For conventional tobacco smoking, the five conditions with the highest percentage of total burden (DALY) nationally in 2015 were<sup>82</sup>:

- 78% of lung cancer
- 75% of laryngeal cancer
- 72% of COPD
- 53% of lip and oral cavity cancer
- 52% of oesophageal cancer.

Table A3 includes the per cent of total burden attributable to tobacco use for all conditions as well as early death (YLL) and disability (YLD) burdens.<sup>82,106</sup>

**Hospital burden:** Tobacco use accounted for the equivalent of 66,400 episodes of care and 226,700 patient days in Queensland in 2015–16.

Of Queensland hospitalisations associated with tobacco use, the five leading conditions were COPD, lung cancer, coronary heart disease, lower respiratory infections, and other cardiovascular diseases.

**Trends in burden:** Nationally from 2003 to 2015, the total burden attributable to tobacco use increased by 2%.<sup>90</sup> This net increase was driven by increases associated with population growth and population aging and decreases in linked disease burden and exposure to tobacco use.

When adjusted by age, burden due to conditions linked with tobacco use decreased by 24% from 2003 to 2015<sup>90</sup> (from 21.6 DALYs to 16.4 DALYs per 1000). For males the DALY rate decreased by 31% and for females by 11%.

Burden attributable to tobacco use is a combination of three different types of tobacco use (current tobacco use, past tobacco use and second-hand smoke). Different tobacco use types are linked to different diseases because the time from exposure to developing the linked disease varies. Nationally, the total attributable burden from 2003 to 2015<sup>90</sup>:

- decreased by 20% (28,000 DALYs) for current tobacco use
- increased by 15% (41,600 DALYs) for past tobacco use
- decreased by 57% (4900 DALYs) for second-hand smoke, largely driven by decreases in exposure to tobacco use.

## Looking forward

Australia's commitment to tobacco control has withstood numerous challenges by the tobacco industry—most recently in June 2020 with plain packaging laws being upheld by the World Trade Organization Appellate Body.<sup>292</sup> Research evidence demonstrates that tobacco control policies reduce smoking-related illness and contribute to declining smoking rates.<sup>293</sup> Among the jurisdictions, Queensland has remained a leader in tobacco control policies for smoke-free places and the regulation of e-cigarettes.

A risk of e-cigarettes is that nicotine use and potentially smoking becomes more socially acceptable. Since 2015, Queensland tobacco legislation has defined e-cigarettes as smoking products. Therefore, they are subject to the same restrictions as tobacco products and cannot be sold to persons under 18, advertised and displayed in shops or used in smoke-free public places.

In Queensland, dynamic simulation modelling showed that the greatest future reduction in smoking would be achieved by a combination of increased smoking cessation campaigns and further restrictions to tobacco sales.<sup>294</sup> Importantly, disinvestment in existing strategies was shown to lead to increased smoking.

# Weight

Overweight and obesity is a significant public health challenge given the complexity of their causal pathways and the subsequent difficulties in implementing population-based interventions. They are the result of multiple interactions involving genes, social determinants of health, our social and physical environments, diet, physical activity and other diseases, disorders and disabilities. Obesity is an endocrine disorder caused by factors underlying excess body-fat accumulation, the biological defence of excess fat mass, and challenges in weight loss maintenance.<sup>295</sup> Effective obesity prevention and treatment involves understanding and addressing the molecular, genetic, epigenetic, developmental, neurobiological, behavioural, and environmental factors that influence energy balance.

The health impacts of overweight and obesity include 17 cancers and other neoplasms, cardiovascular diseases such as stroke and hypertension, musculoskeletal conditions, type 2 diabetes, chronic kidney disease, dementia, asthma, gallbladder and bile duct disease, and cataracts.<sup>82</sup>

Nationally, overweight and obesity accounted for 8.4% of the total health burden (DALY) in 2015.<sup>82</sup> This includes 9.1% of early deaths (YLL, an estimated 2700 deaths in Queensland) and 7.7% of the disability burden (YLD). In Australia, the estimated healthcare costs attributable to obesity ranged from \$1.5 billion to \$4.6 billion per year (in 2016–17 dollars).<sup>276</sup> The corresponding annual costs from productivity loss due to obesity ranged from \$0.84 billion to \$14.9 billion.

## Population characteristics

In Queensland by measurement in 2017–18<sup>125,296</sup>:

- 32% of adults and 66% of children were healthy weight (Table A4)
- 34% of adults and 16% of children were overweight
- 32% of adults and 8.3% of children were obese
- 66% of adults and 25% of children were overweight or obese
- 1.8% of adults and 9.9% of children were underweight.

In Queensland by proxy or self-report in 2020<sup>233</sup>:

- 37% of adults were healthy weight and 73% of children were healthy weight/underweight (Table A5)
- 35% of adults and 18% of children were overweight
- 25% of adults (Figure 5.3) and 8.6% of children were obese
- 60% of adults and 27% of children were overweight or obese
- 2.7% of adults were underweight.

**Sex:** A waist circumference of 94cm or more for adult males or 80cm or more for adult females indicates an increased risk of developing chronic disease. In 2017–18 by waist measurement, 60% of Queensland adult males and 65% of adult females were at an increased risk of chronic disease which was similar to national results.<sup>125</sup>

By measurement in 2017–18, for Queensland adults<sup>296</sup>:

- fewer males were healthy weight than females (25% for males compared to 39% for females)
- more males were overweight than females (39% for males compared to 28% for females)
- more males were overweight or obese than females (73% for males compared to 59% for females).

By measurement in 2017–18 for children, there was no difference between males and females for any weight category.<sup>296</sup> Self-reported overweight for adult males was higher than females (42% compared with 29%) while obesity was similar (Figure 2.3).<sup>233</sup> By proxy-report for children, there was no difference between males and females for any weight category (Table A5).

## At a glance

### Weight

*Based on measured body mass index in 2017–18, for Queensland in 2020:*

571,000 (66%) children and 1.28 million (32%) adults were healthy weight

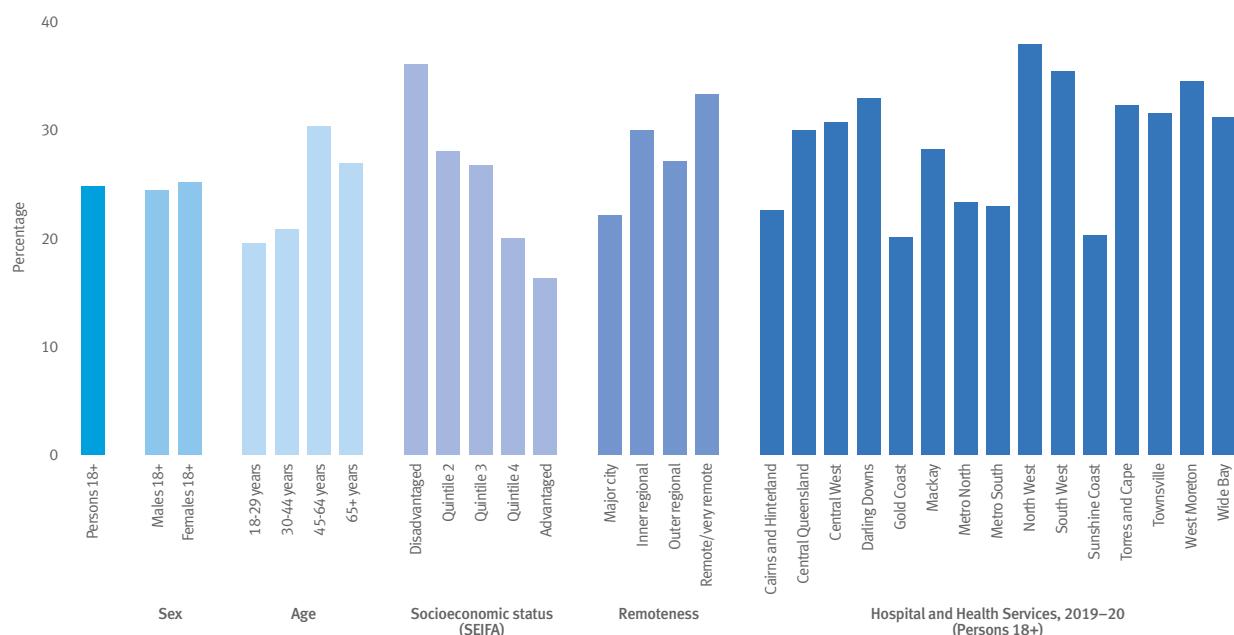
140,000 (16%) children and 1.33 million (34%) adults were overweight

70,000 (8.3%) children and 1.29 million (32%) adults were obese

210,000 (25%) children and 2.62 million (66%) adults were overweight or obese

The combined prevalence of overweight and obesity in Queensland adults and children was similar to the national prevalence in 2017–18



**Figure 5.3 Adult self-reported obesity, Queensland, 2020<sup>233</sup>**

 See [QSAS](#) for more information

**Age:** By measurement in 2017–18, for Queensland adults<sup>296</sup>:

- more younger adults were a healthy weight than older adults (50% for 18–24 year-olds compared to 24% for those aged 55–64 years)
- underweight was highest in younger adults (6.7% for 18–24 year-olds compared to 0.6% for those aged 35–44 years)
- fewer younger adults were overweight—25% for 18–24 year-olds compared to 37% for those aged 35–44 years
- fewer younger adults were obese—17% for 18–24 year-olds compared to 43% for those aged 55–64 years
- fewer younger adults were overweight and obese—41% for 18–24 year-olds compared to 76% for those aged 55–64 years.

**Area socioeconomic status:** By measurement in 2017–18,<sup>296</sup> the proportion of Queensland adults who were obese increased with relative disadvantage—38% of those living in the most disadvantaged areas were obese compared to 28% in the least disadvantaged areas. Queensland adults who were overweight and obese or overweight only did not differ by areas of disadvantage.

Based on self/proxy report in 2020<sup>233</sup>:

- adults in the most disadvantaged areas were 2.2 times more likely to be obese than those in the most advantaged areas (36% compared to 16%)
- children living in the most disadvantaged areas were 2.1 times more likely to be obese than children in more advantaged areas (14% compared to 6.5% in quintile 4)
- overweight prevalence did not differ for adults or children.

**Remoteness:** Based on measurement in 2017–18,<sup>296</sup> the prevalence of overweight or obesity for Queensland adults in major cities did not differ from those living in regional or remote areas.

Based on self-report in 2020,<sup>233</sup> the prevalence of adult obesity outside major cities varied from 22% in outer regional areas to 50% higher in remote areas. Overweight prevalence did not differ, while the combined category of overweight and obesity was about 12% higher outside major cities.

Based on proxy-report in 2020,<sup>233</sup> there was no difference in the prevalence of childhood overweight or obesity between major cities and regional and remote areas, however, combined overweight and obesity was 49% higher in remote areas than major cities (38% compared to 25%).

The proportion of adults that were obese, based on measurement, remained the same from 2011–12 to 2017–18.

**HHS differences:** Compared to the state average in 2019–20 (by self-report)<sup>233</sup>:

- seven HSSs had a higher prevalence of adult obesity (ranging from 20% higher in Central Queensland to 51% higher in North West) and 2 HSSs had a lower prevalence of adult obesity (19% lower in Sunshine Coast and 20% lower in Gold Coast)
- seven HSSs had a higher prevalence of adult overweight and obesity, varying from 11% higher in Mackay to 22% higher in North West
- there were no differences across Queensland for adult overweight.

For proxy-reported child overweight and obesity in 2019–20,<sup>233</sup> the combined areas of North West/ Central West/South West HSSs and Darling Downs/West Moreton HSSs had higher prevalences than Queensland overall. This should be viewed cautiously, however, due to small population sizes.

**Aboriginal and Torres Strait Islanders:** In Queensland in 2018–19,<sup>28</sup> the age-adjusted measured prevalence of overweight and obesity among Aboriginal and Torres Strait Islander adults was 77%, similar to the national average (77%). Queensland ranked fifth highest of the jurisdictions. Sixty-six per cent of other Australians and 65% of other Queenslanders were overweight and obese.

For Queensland Aboriginal and Torres Strait Islander children aged 2–17 years, the population prevalence of overweight and obesity in 2018–19 was 38%, similar to the national average (36%).<sup>71</sup>

**National comparisons:** In 2017–18,<sup>28</sup> based on measurement and adjusted by age, Queensland adults were similar to Australia overall for all weight categories. When ranked from highest to lowest, Queensland was second for healthy weight (tied with two jurisdictions), eighth for overweight, second for obesity (tied with one jurisdiction), and seventh for overweight and obesity.

In 2017–18,<sup>28</sup> based on measurement and adjusted for age, Queensland children were similar to Australia overall for all weight categories. Of the jurisdictions ranked from highest to lowest, Queensland children ranked fifth for healthy weight, seventh for overweight, fourth for obesity (tied with one jurisdiction), and seventh for overweight and obesity.

## Trends

Based on measured weight and accounting for age, adult obesity prevalence in Queensland has not increased since 2011–12.<sup>296</sup> Nationally, adult obesity prevalence was 24% in 2007–08, 27% in 2011–12, 28% in 2014–15 and 31% in 2017–18.<sup>125</sup> Queensland was one of the three jurisdictions without an increase in overweight and obesity in 2017–18.

Adjusted for age, prevalence from 2007–08 to 2017–18 for Queensland adults<sup>296</sup>:

- measured obesity increased by 20% (25% compared with 30%) from 2007–08 to 2011–12, with no change to 2017–18
- there were no changes for other individual weight categories.

For Queensland children, the prevalence of any measured weight category did not change from 2007–08 to 2017–18.<sup>296</sup>

By self-report from 2004 to 2020 adult obesity increased by 32%, while overweight and obesity increased by 15%.<sup>281</sup>

Differences by sociodemographic characteristics were:

- by age—for 18–29 year-olds, obesity increased by 68% compared to 41% among those aged 65 years or older
- by socioeconomic status—obesity in the most disadvantaged areas increased by 59% while no increase was seen for the most advantaged areas.

By proxy report from 2011 to 2020,<sup>281</sup> there was no change in the prevalence of child overweight, obesity or overweight and obesity. There were differences in trends by socioeconomic status with obesity among children from the most disadvantaged areas increasing by 31% while there was no evidence of an increase for children in the most advantaged areas.

From 2009 to 2020,<sup>281</sup> four HHSs showed an increase in self-reported adult obesity (Table 5.2). Other HHSs showed increases of a similar magnitude but did not meet criteria for a significant

increase. HHS trends should be interpreted with caution because detecting regional change is more difficult, especially in areas with small population size.

**Table 5.2 Trends in self-reported obesity in adults, Queensland, 2009–2020<sup>281</sup>**

HHS	Average percentage change	
	Per year	Total (2009–2020)
Cairns and Hinterland	0.4	4
Central Queensland	1.1	12
Central West	1.5	18
Darling Downs	<b>3.0</b>	<b>39</b>
Gold Coast	1.3	15
Mackay	1.4	17
Metro North	<b>1.4</b>	<b>17</b>
Metro South	<b>1.3</b>	<b>15</b>
North West	2.1	25
South West	1.4	17
Sunshine Coast	1.3	15
Torres and Cape	2.9	37
Townsville	0.5	6
West Moreton	<b>3.5</b>	<b>46</b>
Wide Bay	0.9	10
<b>Queensland<sup>1</sup></b>	<b>1.5</b>	<b>17</b>

*Bold font indicates significant change over time*

*Positive numbers indicate increasing trends*

*1 State level trends from 2004 to 2020 showed an increase of 32%*

 See [QSAS trends](#) for more information

## Burden of overweight and obesity

Nationally, the five conditions with the highest percentage of total burden (DALY) attributed to overweight and obesity in 2015 were<sup>82</sup>:

- 54% of type 2 diabetes
- 45% of uterine cancer
- 45% of hypertensive heart disease
- 44% of osteoarthritis
- 40% of chronic kidney disease.

Table A6 includes the per cent of total burden attributable to overweight and obesity for all conditions as well as early death (YLL) and disability (YLD) burdens.

**Hospital burden:** Overweight and obesity accounted for the equivalent of 114,400 episodes of care and 305,000 patient days in Queensland in 2015–16.<sup>82,106</sup> Of Queensland hospitalisations associated with overweight and obesity, the five leading conditions were chronic kidney disease, osteoarthritis, coronary heart disease, type 2 diabetes, and gallbladder and bile duct disease.

**Trends in burden:** Nationally from 2003 to 2015,<sup>90</sup> the total burden attributable to overweight and obesity increased by 27%. This was driven by increases associated with population growth, population ageing and changes in prevalence of overweight and obesity, and a decrease in linked disease burden. When adjusted by age, burden due to conditions linked with overweight and obesity decreased by 4.6% from 2003 to 2015 (from 15.6 DALYs to 14.9 DALYs per 1000). For males the DALY rate decreased by 7.8% and for females by 1.0%.<sup>90</sup>

Cardiovascular disease burden attributable to overweight and obesity decreased by 8% from 2003 to 2015 largely driven by decreases in linked disease burden. Burden for all other disease groups increased by<sup>90</sup>:

- 26% for cancer and other neoplasms
- 44% for endocrine disorders
- 43% for gastrointestinal disorders
- 60% for hearing and vision disorders
- 88% for kidney and urinary diseases
- 68% for musculoskeletal conditions
- 163% for neurological conditions
- 36% for respiratory diseases.

Conditions contributing most to these increases were type 2 diabetes (44% increase), osteoarthritis (79% increase) and chronic kidney disease (88% increase).

## Looking forward

Gaining excess body weight is influenced by a complex interplay of what we eat, our physical activity, mental and emotional wellbeing, genetics, biology and environments. The design and structure of our environments, and the resources available to us, determine options for making healthier choices. Our environments are inclusive of social, cultural, physical, political and economic conditions.

Structural interventions to address the social and commercial determinants of overweight and obesity include, among others: housing and food security, support during the early years of life, community social participation, and improving built environments to enable physical activity.

The leadership and stewardship roles of government and the health sector are critical to addressing obesity and this should be driven by inclusive community collaboration. The establishment of HWQld and the recent public consultation process to inform the development of a national obesity strategy are examples of initiatives that aim to address weight issues in new ways.<sup>297</sup>

## Technical notes

Body mass index (BMI), calculated by dividing a person's weight in kilograms by their height in metres squared, is used to assign underweight, healthy weight, overweight or obese categories. For children, the calculation varies based on the child's age in months.

Measured weight and height are routinely collected in the NHS<sup>125</sup> and NATSIHS<sup>71</sup> surveys, most recently in 2017–18 and 2018–19, respectively. BMI based on measured height and weight is more accurate than self-reported height and weight, however, it is costly and therefore collected less frequently and a third of adults and almost half of children decline to be measured. Trends are based on self-reported weight status because it is collected more often and is therefore more useful to assess relative changes over time. Proxy-reported child weight status does not reliably distinguish between healthy weight and under-weight so combined categories are reported.

## Diet

The nutrients required to maintain the human body in good health are met by eating a wide variety of healthy foods.

Generally, poor health cannot be attributed to a single food or nutrient. Consuming foods that are high in nutrients and lower in energy (kilojoules) is recommended, as is daily consumption of foods from the five food groups (vegetables, fruit, grain, lean meat, dairy). This section reports primarily on fruit and vegetable consumption.

Diet-related health conditions are associated with environmental, behavioural, biological, societal and genetic factors. In an optimal diet, the supply of required energy and nutrients is adequate for tissue maintenance, repair and growth. Unfortunately, most Queenslanders do not eat an optimal diet.<sup>299</sup>

Combined dietary risks accounted for 7.3% of the total burden of disease (DALY in 2015).<sup>82</sup> This includes 11% of early death burden (YLL, an estimated 3800 deaths in Queensland) and 3.5% of disability burden (YLD) in Australia in 2015.

The combination of dietary risks were linked to 41 diseases including coronary heart disease, stroke, type 2 diabetes, bowel and lung cancer, and 21 other cancers and neoplasms.

In 2008, it was estimated that, nationally, inadequate fruit and vegetable consumption cost the health sector \$206 million, with another \$63 million in production losses.<sup>300</sup> This translates to a total of \$54 million in Queensland, of which \$41 million was costs to the health sector, based on Queensland's percentage of the population. An estimated \$595 million of federal government health expenditure and \$384 million of state and territory government health expenditure was attributed to the low consumption of vegetables in 2015–16.<sup>301</sup> This could be reduced by \$100 million in 2015–16 dollars with a 10% increase in average vegetable consumption. Comparable information for fruit is not available.

## Population characteristics

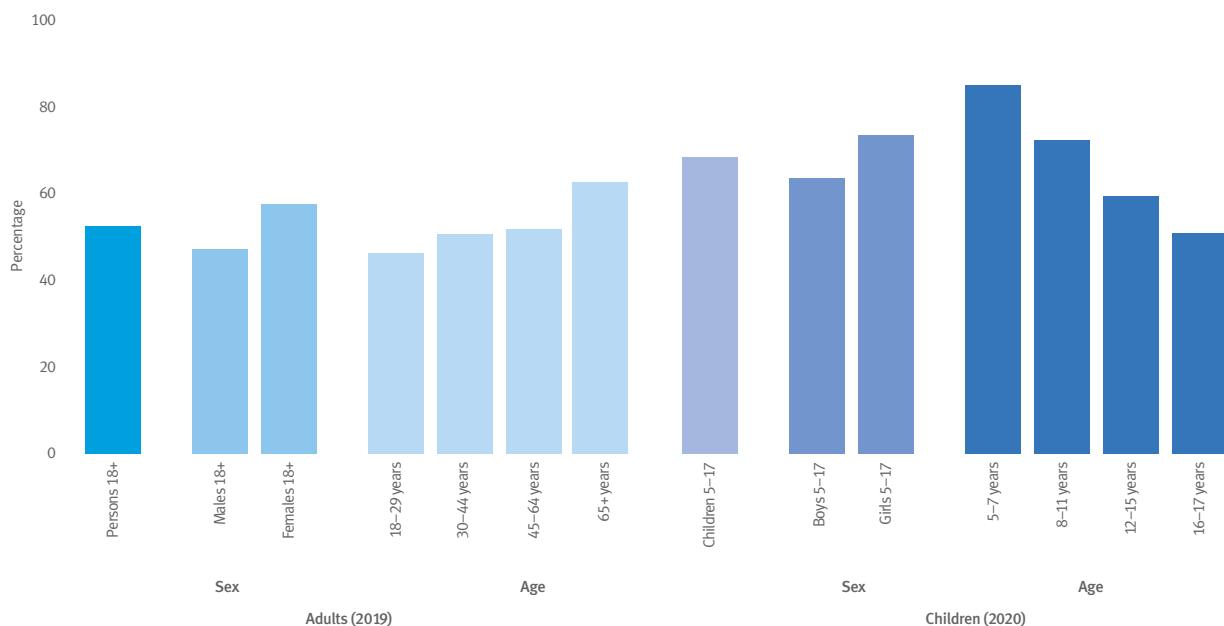
In Queensland<sup>233</sup>:

- 68% of children (2020) and 53% of adults (2019) met the recommendation for daily serves of fruit (Figure 5.4)
- 4.6% of children (2020) and 8.0% of adults (2019) met the recommendation for daily serves of vegetables (Table A7)
- 38% of adults (2019) consumed three or more serves of vegetables daily.

**Sex:** Compared to adult males in 2019, adult females were<sup>233</sup>:

- 22% more likely to consume the recommended daily serves of fruit (58% compared to 47%)
- more than twice as likely to consume the recommended daily serves of vegetables (11% compared to 4.7%)
- more likely to consume three or more serves of vegetables per day (46% compared with 31%).

Among children in 2020,<sup>233</sup> females were 15% more likely than males to consume the recommended daily amount of fruit (73% compared to 64%), with no difference in daily recommended vegetable intake.

**Figure 5.4 Adult (2019) and child (2020) recommended daily fruit intake, Queensland<sup>233</sup>**

*See QSAS for more information*

**Age:** Older adults (65 years and older) were 35% more likely to meet the recommended serves of fruit than those aged 18–29 years in 2019.<sup>233</sup>

Younger children (5–7 years) were 67% more likely to consume the recommended daily serves of fruit than older children 16–17 years in 2020.<sup>233</sup>

For children, there were no age differences in vegetable consumption in 2020. For adults, those aged 65 years or older were 68% more likely to consume the daily recommended serves of vegetables than those aged 18–29 years in 2019 (11% compared to 6.3%). There were no age differences for consumption of three or more vegetable serves daily.

**Area socioeconomic status:** For adults in 2019 and children in 2020, the recommended daily consumption of fruit or vegetables did not differ by socioeconomic status.<sup>233</sup>

**Remoteness:** The recommended daily consumption of fruit or vegetables did not differ by remoteness for children in 2020 or adults in 2019.<sup>233</sup>

**HHS differences:** For adults in 2018–19, the prevalence of recommended daily fruit consumption in North West HHS was lower than the state average whilst all other HHSs were similar. Compared to the state average, there were no HHS differences in recommended daily vegetables consumption. About one-third or more of adults consumed at least three serves of vegetables daily across the HHSs in 2018–19.<sup>233</sup>

For children in 2019–20, the prevalence of recommended daily fruit consumption in Central West HHS was lower than the state average. Compared to the state average, there were no HHS differences for recommended daily vegetable consumption.<sup>233</sup>

**Aboriginal and Torres Strait Islanders:** In Queensland in 2018–19,<sup>71</sup> 38% of Aboriginal and Torres Strait Islander adults consumed the recommended serves of fruit and 2.7% the recommended serves of vegetables, similar to Aboriginal and Torres Strait Islander people nationally (39% and 4.2% respectively).

## At a glance

### Diet

#### In Queensland in 2020:

2.1 million (53%) adults and 600,000 (68%) children were meeting recommendations for fruit consumption

320,000 (8.0%) adults and 40,000 (4.6%) children were meeting recommendations for vegetable consumption



Budd photography

respectively). Among the jurisdictions, Aboriginal and Torres Strait Islander adults in Queensland ranked fourth highest for recommended daily fruit consumption and fifth highest for daily vegetable consumption.

Nationally in 2018–19,<sup>71</sup> 65% of Aboriginal and Torres Strait Islander children aged 2–17 years consumed the recommended serves of fruit and 6.1% the recommended serves of vegetables. Results for Queensland were not available at the time of writing.

**National comparisons:** Based on population prevalence, Queensland adults were similar to Australia overall for recommended fruit or vegetable consumption in 2017–18.<sup>125</sup> Among the jurisdictions, Queensland ranked third highest for recommended daily fruit consumption and joint sixth highest for recommended vegetable consumption.

## Trends

Child fruit and vegetable trends can only be calculated from 2013 to 2020 due to changes in dietary guidelines. For adults, changes were more modest, and trends are reported from 2005 but are based on five serves of vegetables for all ages.

From 2005 to 2019,<sup>281</sup> there was no evidence of change in the prevalence of meeting recommended fruit consumption for adults aged 18 years and older. There were, however, differences by age group with consumption increasing in younger age groups (by 13% among 18–29 year-olds and 12% among 30–44 year-olds) but declining in older age groups (by 8.8% and 4.8% for 45–64 year-olds and those aged 65 and older respectively).

Adult prevalence of consuming five serves of vegetables daily declined by 16% from 2005 to 2019.<sup>281</sup> While it increased by 41% for 18–29 year-olds, it decreased by up to 35% for those aged 45 years and older. Consumption also declined by 38% for those in the most disadvantaged areas while there was no evidence of a decline for those in the most advantaged areas.

For children, there was no evidence of change in the prevalence of recommended fruit consumption from 2013 to 2020.<sup>281</sup> The percentage of children meeting recommended vegetable consumption, however, declined by 31% and the percentage consuming three or more serves of vegetables declined by 24%.

### The proportion of children meeting recommended vegetable consumption has declined by almost a third since 2013.

For adult fruit consumption, HHS trends were similar to Queensland overall.<sup>281</sup> Daily consumption of five serves of vegetables declined in Central Queensland HHS and Darling Downs HHS from 2009 to 2019. Other HHSs showed decreases of similar magnitudes but did not meet criteria for significant declines. HHS trends should be interpreted with caution because detecting regional change is more difficult, especially in areas with small population size.

## Burden of combined dietary risks

For all dietary risks combined, the five conditions with the highest percentage of total burden (DALY) nationally in 2015 were<sup>82</sup>:

- 62% of coronary heart disease
- 41% of type 2 diabetes
- 34% of stroke
- 22% of bowel cancer
- 9.6% of hypertensive heart disease.

Table A8 includes the per cent of total burden attributable to all dietary risks combined for all conditions as well as early death (YLL) and disability (YLD) burdens.

**Hospital burden:** The combined impact of dietary risks accounted for the equivalent of 60,600 hospitalisations and 197,600 patient days in Queensland in 2015–16.<sup>82,106</sup> Of the hospitalisations associated with dietary risks, the five leading conditions were coronary heart disease, type 2 diabetes, stroke, chronic kidney disease and bowel cancer.

**Trends in burden:** In Australia, the total burden attributable to all dietary risks decreased by 11% from 2003 to 2015.<sup>90</sup> When adjusted for age, the rate of total burden due to all dietary risks (from all linked diseases) decreased by 34% from 2003 to 2015 (from 19.2 DALYs to 12.8 DALYs per 1000). For males the DALY rate decreased by 34% and for females, 35%.

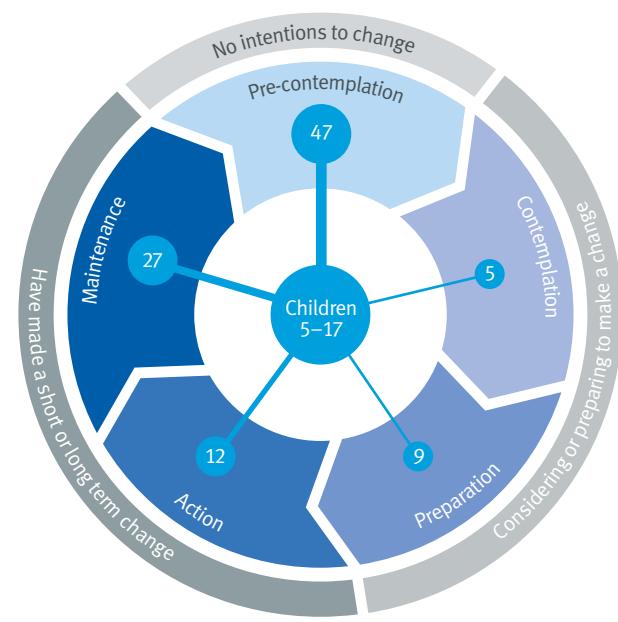
Nationally, from 2003 to 2015, burden attributable to all dietary risk decreased by 19% for cardiovascular disorders.<sup>90</sup> For all other associated disease groups, the burden increased by:

- 112% for neurological conditions
- 101% for kidney and urinary diseases
- 46% for respiratory diseases
- 41% for musculoskeletal conditions
- 38% for hearing and vision disorders
- 36% for endocrine disorders
- 36% for gastrointestinal disorders
- 9.4% for cancer and other neoplasms.

## Improving children's diets

A person's readiness to change is associated with successful behavioural change outcomes.<sup>302,303</sup> One way to measure readiness is to ask specific questions to categorise people based on whether they are considering or preparing to make a change, have made short- or longer-term change, or have no intentions to change for the foreseeable future. In 2019,<sup>304</sup> parents participating in the Queensland preventive health survey were asked these types of questions about intentions to make their child's diet healthier. Overall, 39% of parents were currently taking action to make their child's diet healthier with 12% having made a recent change while 27% had made changes six or more months earlier.<sup>304</sup> However, 61% of parents were not taking action with almost half (47%) not considering any action, 5% considering improvements and 9% preparing to make improvements (Figure 5.5).

**Figure 5.5 Parent readiness to make their child's diet healthier, Queensland, 2019<sup>304</sup>**



 See the [online visualisation](#) for more information

There were several factors that increased the likelihood that parents were planning or currently taking steps to make their child's diet healthier.<sup>304</sup> The odds of currently taking steps to improve their child's diet were higher for parents who:

- were concerned about their child's weight compared to those who were not concerned (2.6 times higher)
- lived in the most disadvantaged areas compared to those who lived in the most advantaged areas (62% higher).

The odds of planning to improve their child's diet in the next 12 months were higher for parents who:

- were concerned about their child's weight compared to those who were not concerned (2.8 times higher)
- had children with three or four dietary risk factors (defined as below recommended fruit or vegetable consumption, daily soft drink consumption and weekly fast food consumption) compared to children without these behaviours (2.7 and 2.4 times higher, respectively).

## Looking forward

The food system, economic considerations, cultural preferences, and individual-level factors all contribute to food choice and diet quality, and these factors are interconnected. Ready access to fad diets without scientific evidence of efficacy or effectiveness promoted by celebrity culture increases the complexity.

There are many opportunities for improving our diets through system reforms and greater access to healthier food and drinks at government and health facilities, workplaces and schools.

Addressing economic barriers and food security are particularly important, especially for those experiencing socioeconomic disadvantage or the challenges of remoteness and environmental extremes.

The “*A Better Choice*” program promotes and makes available healthier food and drink options in Queensland Health facilities and workplaces, while schools are supported by the “*Smart Choices*” strategy. State-wide campaigns and programs provide nutritional tips, recipes, gardening ideas and motivational strategies to improve food choices at home, including growing attention on Aboriginal and Torres Strait Islander knowledge and expertise with respect to the benefits of traditional foods and methods of food preparation.

## Technical notes

Collecting comprehensive nutrition information is challenging due to factors such as the ability to accurately recall the types of foods eaten even in the recent past, difficulty reporting portion sizes, the variety of ingredients in foods prepared both inside and outside the home, and differences in the formulations of industry-produced foods. Detailed food frequency questionnaires and food diaries are complex to complete and analyse and are typically used in designated nutritional studies. The Australian Health Survey 2011–12 was one such study and Queensland results have been provided previously.<sup>299</sup> This is also planned for the Intergenerational Health and Mental Health survey that will commence in 2021.<sup>305</sup> Studies of more general nutrition behaviours typically monitor a select group of food types. The Queensland preventive health survey focuses on overall fruit and vegetable consumption and is the primary source of information in this section. Prevalence data were based on adult self-report in 2019, and proxy report for children in 2020.

## Blood pressure, glucose and cholesterol

High blood pressure is a leading risk factor for total disease burden in people aged 65 years and older and is the leading individual risk for cardiovascular disease. Although population health gains have been achieved through monitoring blood pressure and cholesterol, there is opportunity for further improvement considering the high proportion of undiagnosed risk in many adults or insufficient treatment to fully reduce risk. Improved lifestyles have potential to minimise risk in many cases, either in combination with medications or alone. This may include reducing salt intake, increasing physical activity and maintaining a healthy weight.

High blood pressure, often referred to as hypertension, is prolonged elevation of the blood pressure. High blood cholesterol, also called dyslipidaemia, is measured by a blood test and can mean elevated levels of one or more blood factors. Thresholds can depend on age, ethnicity and existing conditions. High blood glucose, clinically referred to as hyperglycaemia, is measured using a blood or urine test.

High blood pressure, blood cholesterol and blood glucose levels are metabolic risk factors and are associated with the development of cardiovascular disease, diabetes and kidney diseases.

The health impacts of high blood pressure include 10 cardiovascular diseases such as coronary heart disease and stroke, chronic kidney disease and dementia.<sup>82</sup> High cholesterol is linked to coronary heart disease and stroke.<sup>82</sup> The health impacts of high blood plasma glucose include type 1 diabetes, type 2 diabetes and other diabetes, chronic kidney disease, cardiovascular diseases such as coronary heart disease, dementia, seven cancers and other neoplasms, and hearing and vision disorders such as glaucoma.<sup>82</sup>

Nationally, high blood pressure accounted for 5.8% of the total health burden (DALY) in 2015.<sup>82</sup> This includes 9.1% of early deaths (YLL), an estimated 3700 deaths in Queensland) and 2.4% of the disability burden (YLD). High cholesterol accounted for 3.0% of the total health burden (DALY) in 2015,<sup>82</sup> comprising 4.9% of early deaths (YLL), an estimated 1600 deaths in Queensland) and 1.1% of the disability burden (YLD). High blood plasma glucose accounted for 4.7% of the total health burden (% DALY) in 2015 which included 5.4% of early deaths (YLL), an estimated 1900 deaths in Queensland) and 4.0% of the disability burden (YLD).<sup>82</sup>

Nationally, the estimated economic burden attributable to high cholesterol was \$4.0 billion in 2017–18.<sup>306</sup>

### Population characteristics

In 2017–18,<sup>125</sup> blood pressure was collected by physical measurement. The prevalence of high cholesterol and high sugar levels in blood and urine was collected by self-reported clinical diagnosis of the condition.

After accounting for age, 21% of Queensland adults had high blood pressure in 2017–18.<sup>125</sup> This excludes those who were taking medication that effectively controlled the condition. The prevalence of high blood pressure in Queensland adults in 2017–18 was<sup>125</sup>:

- similar to the national age-adjusted prevalence (22%)
- ranked sixth highest compared to other jurisdictions.

In 2017–18,<sup>125</sup> about 5.4% of Queenslanders reported they had been told by a clinician they had high cholesterol and their condition was current and long-term. The prevalence of high cholesterol in Queenslanders in 2017–18 was<sup>125</sup>:

- similar for males and females
- increased with age
- similar to the national prevalence (6.1%)
- ranked sixth highest compared to other jurisdictions.

In 2017–18,<sup>125</sup> about 0.3% of Queenslanders reported they had been told by a clinician they had high sugar levels in their blood or urine. The prevalence of high sugar levels in Queenslanders in 2017–18 was:

- similar for males and females
- similar to the national prevalence (0.4%).

### Burden of disease

For high blood pressure, the five conditions with the highest percentage of total burden (DALY) nationally in 2015 were<sup>82</sup>:

- 65% of hypertensive heart disease
- 43% of coronary heart disease
- 41% of stroke
- 38% of chronic kidney disease
- 32% of atrial fibrillation and flutter.

Nationally, high blood plasma glucose accounted for 100% of the total burden (DALY) of all diabetes conditions and 60% of chronic kidney disease in 2015.<sup>82</sup> High cholesterol accounted for 37% of coronary heart disease burden and 15% of stroke burden in 2015.

Tables A9–A11 include the per cent of total burden attributable to high blood pressure, blood plasma glucose and high cholesterol for all linked conditions as well as early death (YLL) and disability (YLD) burdens.

**Hospital burden:** The combined impact of high blood pressure accounted for the equivalent of 70,800 hospitalisations and 208,900 patient days in Queensland in 2015–16. High blood plasma glucose accounted for 80,700 hospitalisations and 168,400 patient days, and high cholesterol accounted for 18,100 hospitalisations and 67,100 patient days over the same period.<sup>82,106</sup>

Of Queensland hospitalisations associated with high blood pressure, the five leading conditions were chronic kidney disease, coronary heart disease, other cardiovascular diseases, stroke, and atrial fibrillation and flutter. The top five leading conditions for hospitalisations associated with high blood plasma glucose were chronic kidney disease, type 2 diabetes, type 1 diabetes, coronary heart disease and bowel cancer and for high cholesterol were coronary heart disease and stroke.

**Trends in burden:** Nationally, from 2003 to 2015, the total burden attributable to high blood pressure decreased by 19%.<sup>90</sup> This net decrease was driven by decreases in linked disease burden and exposure to high blood pressure and increases in population growth and population ageing. When adjusted by age, burden due to conditions linked to high blood pressure decreased by 41% from 2003 to 2015 (from 16.7 DALYs to 9.8 DALYs per 1000 population). For males the DALY rate decreased by 41% and for females by 42%.<sup>90</sup>

Cardiovascular disease burden attributable to high blood pressure decreased by 23% from 2003 to 2015 largely driven by decreases in linked disease burden.<sup>90</sup> Burden for neurological conditions and kidney and urinary diseases increased (80% and 54% respectively).

Nationally, the total burden attributable to high blood plasma glucose decreased by 7.9% from 2011 to 2015.<sup>82</sup> When adjusted by age, burden due to conditions linked to high blood plasma glucose decreased by 2.4% from 2011 to 2015 (from 8.4 DALYs to 8.2 DALYs per 1000 population). For males the DALY rate decreased by 1.0% and for females by 5.1%.

Cardiovascular disease burden attributable to high blood plasma glucose decreased by 6.0% from 2011 to 2015.<sup>82</sup> Burden for all other disease groups increased:

- 37% for kidney and urinary diseases
- 36% for neurological conditions
- 23% for hearing and vision disorders
- 12% for cancer and other neoplasms
- 3.0% for endocrine disorders.

In Australia, the total burden attributable to high cholesterol decreased by 32% from 2003 to 2015.<sup>90</sup> When adjusted by age, burden due to conditions linked to high blood pressure decreased by 49% from 2003 to 2015 (from 10.3 DALYs to 5.2 DALYs per 1000 population).<sup>90</sup> For males the DALY rate decreased by 48% and for females by 54%. Nationally, from 2003 to 2015, the burden attributable to high cholesterol decreased by 32% for coronary heart disease and 33% for stroke.<sup>90</sup>

## Looking forward

As the data above show, substantial inroads are being made into reducing the burden of disease attributable to hypertension, high blood cholesterol and high blood glucose. Further reduction in the prevalence of these conditions will occur concurrently with population-based efforts to further reduce smoking, improve our diets, reduce overweight and obesity, increase physical activity and improve mental health, particularly stress. Intergenerational change is required given pre-conception and antenatal exposures that increase the risk of an individual developing these conditions from birth.

As genomics and precision medicine develops there will be new frontiers in screening, diagnosis and management which will contribute to reducing the downstream effects these conditions have on long-term health and the burden of disease.

## At a glance

### Blood pressure, glucose and cholesterol

*Based on 2017–18 data, in 2020 an estimated:*

870,000 (21%) Queensland adults had measured high blood pressure

280,000 (5.4%) Queenslanders of all ages had been told by a doctor they currently have high cholesterol

21,000 Queenslanders of all ages had been told they had high sugar levels in the blood or urine.



Budd photography

## Alcohol consumption

The health effects of alcohol consumption were recently reviewed, and revised Australian guidelines are under consultation.<sup>307</sup> This review found increased evidence of relationships between alcohol consumption and the risk of cancers including breast, liver, pancreatic, colorectal, oesophageal, mouth and throat cancer. Evidence of any protective effects of low levels of alcohol consumption weakened. Because the new guidelines had not been endorsed at the time of writing this report, all results use the 2009 guidelines.

The health impacts of alcohol use include alcohol use disorders, 12 types of injuries (predominantly, road traffic injuries and suicide and self-inflicted injuries), chronic liver disease, liver cancer and seven other cancers and neoplasms, coronary heart disease and six other health conditions.<sup>82</sup>

Nationally, alcohol use accounted for 4.5% of total burden (DALY) in 2015, including 5.6% of early death burden (YLL, an estimated 1200 deaths in Queensland) and 3.4% of the disability burden (YLD).<sup>82</sup>

In Australia, the estimated healthcare costs attributable to alcohol ranged from \$1.9 billion to \$2.6 billion per year (in 2016–17 dollars). The corresponding annual costs from productivity loss attributable to alcohol ranged from \$1.1 billion to \$6.8 billion.<sup>276</sup>

### Population characteristics

For adult Queenslanders in 2020<sup>233</sup>:

- 22% exceeded lifetime risky drinking guidelines (Figure 5.6)
- 31% exceeded single occasion risk drinking levels at least monthly (Table A12).

Among Queensland secondary school students aged 12–17 years in 2017<sup>279</sup>:

- 52% had consumed alcohol in the previous 12 months which was similar to national results (46%)
- 32% had done so in the previous four weeks.

In Australia in 2019, the average age of first serve of alcohol was 16 years and was similar for males and females.<sup>278</sup>

**Sex:** Adult males were three times more likely than females to drink at risky levels in 2020 with 34% drinking at lifetime risk levels compared to 11% for females. Comparable figures for single occasion risk were 43% compared to 19% (Table A12).<sup>233</sup>

Among secondary students in 2017, males and females were equally likely to have had an alcoholic drink in the previous 12 months.<sup>279</sup>

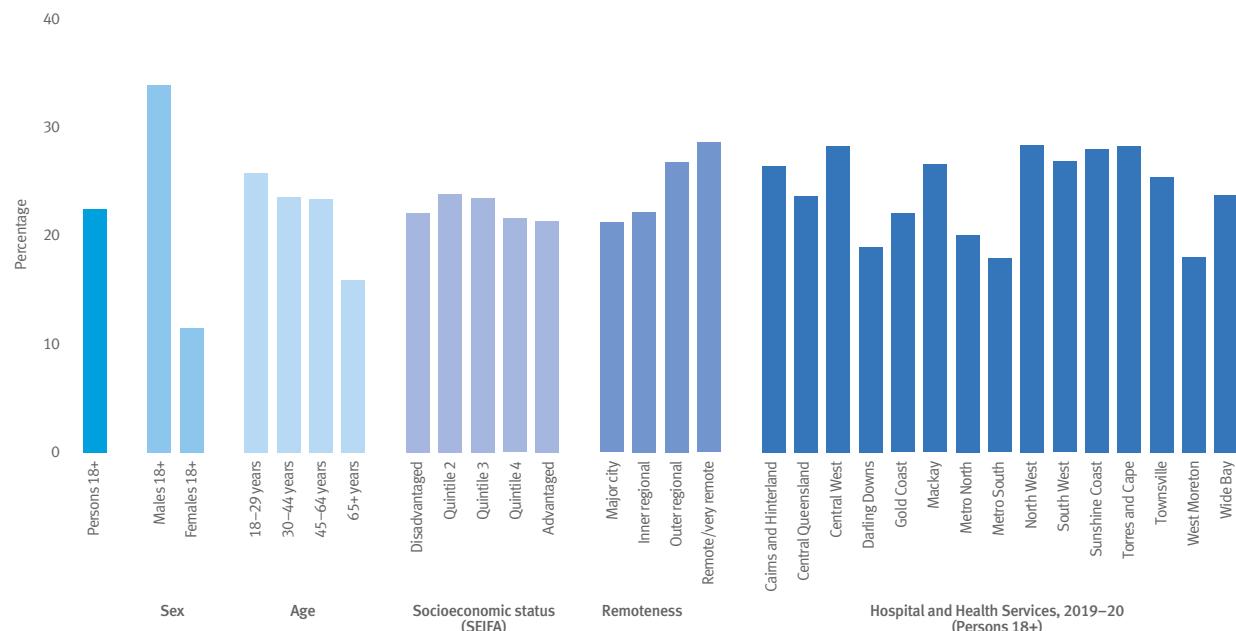
**Age:** For males in 2020, consumption patterns were similar across most ages with about a third of males aged less than 65 years exceeding lifetime risky alcohol drinking levels compared to about a quarter of males aged 65 or older.<sup>233</sup>

Females had a similar age pattern, but a smaller percentage exceeded the lifetime risky drinking guidelines (about 13% for women aged less than 65 years and 5.8% for women aged 65 years and older). When limited to younger adults aged 18–24 years, more than half of males (58%) and more than a third of females (38%) consumed alcohol at single occasion risky levels.<sup>233</sup>

Among secondary students in 2017,<sup>279</sup> older age was associated with a higher prevalence of alcohol consumption. The prevalence of having had an alcoholic drink in the previous 12 months increased from 30% among 12–13 year-olds to 55% among 14–15 year-olds and 78% among 16–17 year-olds.

**Area socioeconomic status:** There were no differences between areas of socioeconomic advantage and disadvantage for either adult lifetime or single occasion risky drinking in 2020.<sup>233</sup>

Figure 5.6 Adult lifetime risky alcohol consumption, Queensland, 2020<sup>233</sup>



See [QSAS](#) for more information, including alcohol prevalence updated to the 2020 NHMRC alcohol guidelines

**Remoteness:** In 2020, adults living in remote areas were 35% more likely to exceed the lifetime risk guidelines, and 36% more likely to exceed single occasion risk (at least monthly), than those in major cities.<sup>233</sup>

**HHS differences:** In 2019–20, the prevalence of lifetime risky alcohol consumption was higher than the state average in six HHSs (Cairns and Hinterland, Central West, Mackay, North West, South West and Sunshine Coast). It was lower in Metro South HHS.<sup>233</sup>

The prevalence of exceeding single occasion risky drinking levels at least monthly was higher than the state average in five HHSs (Central Queensland, Mackay, North West, South West and Torres and Cape) and lower in West Moreton HHS.

**Aboriginal and Torres Strait Islanders:** In Queensland, one in four (25%) adult Aboriginal and Torres Strait Islander people had not consumed alcohol in the past 12 months or had never consumed alcohol, similar to the national prevalence (26%) in 2018–19.<sup>71</sup>

In 2017–19,<sup>28</sup> age adjusted prevalence of lifetime risky drinking was similar between adult Aboriginal and Torres Strait Islander people living in Queensland (23%) and all Aboriginal and Torres Strait Islander people living nationally (20%).<sup>24</sup> There was no difference for Queensland in the prevalence of lifetime risky drinking between Aboriginal and Torres Strait Islander and other Queenslanders (17%).

**National comparisons:** In 2017–18, the age adjusted prevalence of lifetime risky drinking in Queensland (17%) was similar to the national average (16%) and Queensland was ranked third highest among the jurisdictions.<sup>28</sup>

In 2017–18, there were 191.2 million litres of pure alcohol available for consumption from alcoholic beverages in Australia—9.5 litres per person aged 15 years or older.<sup>308</sup> Of the total amount of pure alcohol available for consumption in 2017–18, beer contributed 39%, wine 39%, spirits and ready to drink beverages (RTDs) 20% and cider 2.5%.<sup>308</sup>

## Trends

From 2010 to 2020,<sup>281</sup> there was no evidence of change in the prevalence of consuming alcohol at either lifetime or single occasion risky levels for adults aged 18 years or older. There were, however, age and sex differences.

For lifetime risky drinking, prevalence declined by 23% from 2010 to 2020 for adults aged 18–29 while it increased by 35% over the period for those aged 65 years or older. Among all women, an increase of 14% occurred while there was no evidence of an increase among men.<sup>281</sup>

Fewer young Queensland adults are reporting lifetime risky drinking compared to 10 years ago.

The age pattern for single occasion risky drinking was similar to that of lifetime risky consumption. From 2010 to 2020, single occasion risky drinking among adults aged 18–29 years decreased by 12% while it increased by 33% for those aged 65 years and older.<sup>281</sup> For weekly single occasion drinking, larger declines (30%) across this period were observed for young adults (18–29 years) while similar increases (36%) were seen for those aged 65 years and older.<sup>281</sup>

From 2010 to 2020 by HHS, lifetime risky consumption prevalence increased in Sunshine Coast HHS while other HHSs were similar to the state average.<sup>281</sup> HHS trends should be interpreted with caution because detecting regional change is more difficult, especially in areas with small population size.

## Burden of alcohol use

The five conditions with the highest percentage of total burden (DALY) related to alcohol nationally were<sup>82</sup>:

- 40% of liver cancer
- 35% of other lip, oral cavity and pharynx cancers
- 34% of nasopharyngeal cancer
- 33% of lip and oral cavity cancer
- 28% of chronic liver disease.

## At a glance

### Alcohol consumption

#### In Queensland:

In 2020, 890,000 (22%) adults exceeded the 2009 guideline for lifetime risky drinking—660,000 (34%) were male and 230,000 (11%) were female

In 2020, 1.2 million (31%) adults exceeded the 2009 guideline for single occasion risky drinking at least monthly—830,000 (43%) were male and 380,000 (19%) were female

In 2017, 175,000 (52%) secondary students (aged 12–17 years) had consumed alcohol in the previous 12 months and 109,000 (32%) in the previous four weeks



Table A13 includes the per cent of total burden attributable to alcohol use for all conditions as well as early death (YLL) and disability (YLD) burdens.

**Hospital burden:** Alcohol use accounted for the equivalent of 45,000 hospitalisations and 146,200 patient days in Queensland in 2015–16.<sup>82,106</sup> Hospitalisation data does not fully reflect the impact of alcohol on the health system. Of hospitalisations associated with alcohol use, the five leading conditions were alcohol use disorders, falls, breast cancer, other unintentional injuries and road traffic injuries.

**Trend in burden:** Nationally from 2003 to 2015, the total burden attributable to alcohol use increased by 9%.<sup>90</sup> This net increase was driven by increases associated with population growth, population aging and exposure to alcohol use, and decrease in linked disease burden.<sup>90</sup> Accounting for age, the burden due to conditions linked with alcohol use decreased by 12% from 2003 to 2015 (from 9.9 DALY to 8.6 DALY per 1000 population). For males the DALY rate decreased by 13% and for females by 11%.<sup>90</sup>

Burden attributable to alcohol use is aggregated from three different types of exposure to alcohol (current alcohol use, former alcohol use and alcohol dependence).<sup>90</sup> Different alcohol exposure types are linked to different diseases due to differences in time from exposure to developing linked diseases, and exposure severity. Nationally, the total attributable burden from 2003 to 2015<sup>90</sup>:

- decreased by 7% (5500 DALYs) for current alcohol use exposure
- decreased by 2% (700 DALYs) for former alcohol use exposure
- increased by 26% (24,500 DALYs) for alcohol dependence exposure.

## Looking forward

In the 10 years since the Australian guidelines to reduce health risks from drinking alcohol were reviewed, evidence of the health risks and benefits of alcohol became clearer. Analysis by patterns of use, rather than total use, showed that the protective effects had been overestimated and that potential protective effects peaked at much lower doses than previously thought.<sup>309</sup> Evidence of the harms due to alcohol increased, for example, increased cancer risk occurred at much lower levels of consumption. Analysis also showed that women have higher morbidity and mortality due to alcohol than men at all levels of consumption. The introduction of new guidelines is an opportunity to consider and redevelop alcohol risk reduction strategies.

Queensland alcohol consumption trends continued to show declines for younger adults while consumption among older adults increased. This demonstrates the success of public health strategies targeting young people and suggests that older age groups may also benefit from targeted alcohol reduction measures.

Health labels on alcohol containers were recently made mandatory (having been voluntary since 2012) to help raise awareness at the point of purchase and consumption about the risks of consuming alcohol while pregnant.



## Technical notes

The 2009 alcohol consumption guidelines are based on a standard drink defined as containing 10g of alcohol. Consumption of more than two standard drinks daily (lifetime risky drinking) or more than four on any one occasion (single occasion risky drinking) are considered to increase the risks of harm from alcohol.

The NHMRC released new *Australian guidelines to reduce health risks from drinking alcohol* in December 2020 which can be found [here](#). Updated alcohol consumption information will be released in some report products including [QSAS](#), [QSAS trends](#), the HHS [profiles](#), and new [factsheets](#).

## Illicit drugs

In this section, illicit drug use is defined as the use of drugs prohibited by law (such as cannabis or cocaine) and/or the use of pharmaceuticals (such as prescription or over-the-counter medications) not in the way prescribed or intended. Results in this section are from the 2019 NDSHS<sup>278</sup> and the 2015 ABDS.<sup>82,90</sup>

Illicit drug use was linked to 13 health conditions including poisoning, drug use disorders, suicide and self-inflicted injuries, chronic liver disease and liver cancer. The linked conditions differed by the type of illicit drug.<sup>82</sup>

Nationally, illicit drug use accounted for 2.7% of total disease burden (DALY).<sup>82</sup> This included 3.7% of early death burden (YLL), an estimated 500 deaths in Queensland) and 1.7% of disability burden (YLD) in 2015. Of the individual drug use types, opioid use was the leading illicit drug use risk, contributing to 1.0% of the total burden in Australia in 2015. This was followed by amphetamine use (0.6%) and unsafe injecting practices (0.5%).

The total cost of illicit drug use to Queensland society in 2004–05 was \$1.64 billion (most recent data available) based on national costs applied to Queensland's population.<sup>310</sup> This includes \$1.4 billion in financial costs (\$0.04 billion for healthcare, \$0.4 billion on lost production and \$0.89 billion on crime and road transport injury) and intangible costs of \$0.26 billion (early deaths and wellbeing losses).<sup>310</sup>

### Population characteristics

In 2019, 43% of Australians aged 14 years and older reported illicit drug use in their lifetime.<sup>278</sup>

In 2019, in the previous 12 months for Queenslanders aged 14 years or older (Figure 5.7)<sup>278</sup>:

- 17% reported recent illicit drug use, similar to the national prevalence (16%)
- 13% used cannabis, which was the most frequently used illicit drug in Queensland, similar to the national prevalence (12%)
- 3.6% had used cocaine, 2.6% had used 3–4 methylenedioxymethamphetamine (MDMA), 1.3% had used hallucinogens and 1.2% had used methamphetamine or amphetamine, which were all similar to the national prevalence (4.2%, 3.0%, 1.6% and 1.3% respectively)
- 4.0% reported misuse of pharmaceuticals, similar to the national prevalence (4.2%)
- 2.7% reported misuse of analgesics and opioids, similar to the national prevalence (2.7%).

Of Australian secondary school students aged 12–17 years, 8% had used cannabis in the past month and 3% had used sedatives in the past week in 2017. Few students had ever used other illicit drugs.<sup>280</sup>

**About 1 in 6 Queenslanders aged 14 years and older reported illicit drug use in 2019.**

### Burden of illicit drug use

The top four conditions with the highest percentage of total burden associated were<sup>82</sup>:

- 75% of hepatitis C
- 45% of poisoning
- 37% of hepatitis B
- 24% of chronic liver disease.

Table A14 includes the per cent of total burden attributable to illicit drug use for all conditions as well as early death (YLL) and disability (YLD) burdens.

**Hospital burden:** Illicit drug use accounted for the equivalent of 11,200 hospitalisations and 48,700 patient days in Queensland in 2015–16.<sup>82,106</sup> Of the hospitalisations associated with illicit drug use, the top five leading conditions were drug use disorders (excluding alcohol), poisoning, chronic liver disease, suicide and self-inflicted injuries and schizophrenia.

**Trends in burden:** In Australia, the total burden attributable to illicit drug use increased by 43% from 2003 to 2015.<sup>82</sup>

When adjusted for age, the total burden due to illicit drug use in Australia (from all linked diseases) increased by 18% from 2003 to 2015 (from 4.6 DALYs to 5.4 DALYs per 1000). For males, the DALY rate increased by 15% and for females increased by 27%.<sup>90</sup>

### At a glance

#### Illicit drugs

*Based on 2019 data, it is estimated that in 2020:*

720,000 (17%) Queenslanders aged 14 years or older had used illicit drugs in the previous 12 months, and the majority (540,000) had used cannabis

170,000 (4.0%) Queenslanders aged 14 years or older used pharmaceuticals not as prescribed or intended in the previous 12 months



Bulld photography

Nationally, from 2003 to 2015,<sup>90</sup> the burden attributable to illicit drug use decreased by 71% for infectious diseases. For all other associated disease groups, the burden increased by:

- 235% for cancer and other neoplasms
- 79% for gastrointestinal diseases
- 49% for injuries
- 20% for mental and substance use disorders.

## Looking forward

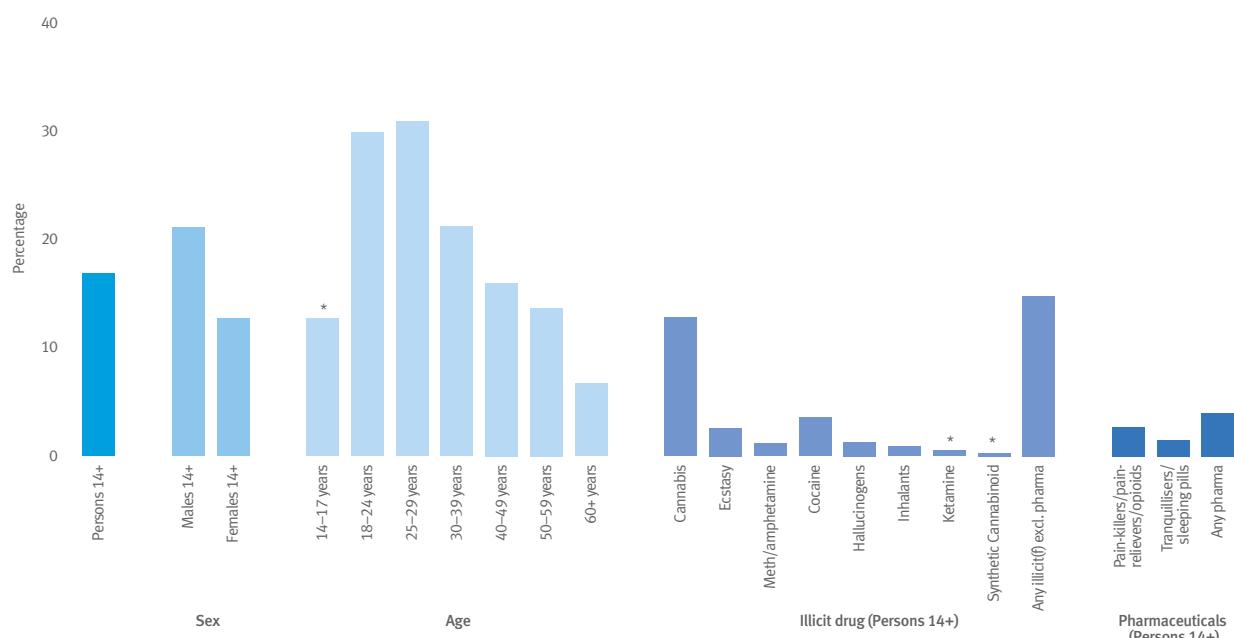
Along with alcohol and tobacco, addressing illicit drug use is challenging at all levels. Not only does it require a comprehensive understanding of the pathways to illicit drug use in diverse individuals, it also requires challenging social norms, peer pressures, the financial motivations of those who supply, coordinate and deal in the trade of illicit drugs and the political, legal, social and economic consequences of any actions taken.

The National Drug Strategy 2017–2019 addresses the three pillars of harm minimisation—reducing supply, demand and harm.<sup>311</sup> It is built on principles of partnership, coordination and collaboration, national direction and jurisdictional implementation and evidence-based responses.

The under-reporting of drug use, particularly among young people at dance parties and music festivals, is a concern and presents significant challenges to harm minimisation especially with polysubstance use and the availability of new psychoactive substances.<sup>312</sup>

The impacts of COVID-19 on illicit drug use from both a supply and demand perspective are as yet unknown. There are, as yet, no studies examining the impact of large-scale outbreaks of infectious disease upon drug markets nor studies of the impact on drug use in Australia and recent commentary suggests there may be both benefits and harms.<sup>313,314</sup>

**Figure 5.7 Recent illicit drug use, Queensland, 2019<sup>278</sup>**



\* Data have a high margin of error and should be interpreted with caution

# Physical activity

Physical activity encompasses both incidental and purposive bodily movement requiring energy. Regular physical activity has many benefits including preventing and treating chronic conditions such as heart disease, stroke, diabetes and breast and colon cancer. It also helps to prevent hypertension, overweight and obesity and can improve mental health, quality of life and wellbeing.<sup>315</sup> The health impacts of physical inactivity include coronary heart disease, dementia, type 2 diabetes, bowel cancer, stroke, breast cancer and uterine cancer.<sup>82</sup>

Nationally, physical inactivity accounts for 2.5% of the total health burden (DALY) in 2015.<sup>82</sup> This includes 3.6% of early deaths (YLL, an estimated 1300 deaths in Queensland) and 1.5% of the disability burden (YLD).<sup>82,90</sup>

In Australia, the estimated healthcare costs attributable to physical inactivity ranged from \$681 million to \$850 million per year in 2016–17 dollars. The corresponding annual costs from productivity loss due to physical inactivity ranged from \$0.18 billion to \$15.6 billion.<sup>276</sup>

## Population characteristics

In Queensland in 2020<sup>233</sup>:

- 59% of adults (aged 18–75 years) were sufficiently active in the previous week (Figure 5.8 and Table A15), defined as being active for the recommended minimum of 150 minutes of moderate intensity physical activity over at least five sessions in the previous week
- 46% of children achieved the recommended minimum of one hour every day
- 5.6% of children were not active on any day in the past week (Table A16).

Muscle strengthening activities are important for metabolic, cardiovascular and musculoskeletal health. In 2017–18, one in five (21%) Queensland adults had undertaken strength or toning activities on two or more days in the previous week, 4.2% had done so on one day and 75% had done none.<sup>125</sup>

**Sex:** In 2020, adult males were 11% more likely to be sufficiently active than females (62% compared to 56%).<sup>233</sup>

For children, boys were 19% more likely to be active daily than girls (50% compared to 42%).

**Age:** In 2020,<sup>233</sup> lower levels of physical activity primarily occurred among those 45 years and older. For example, those aged 65 years and older were 24% less likely to be sufficiently physical active than those aged 18–29 years (50% compared to 66%). Age patterns were similar for males and females.

For children, the prevalence of being active daily was highest for 5–7 year-olds (67%) and lowest for 16–17 year-olds (27%).

**Area socioeconomic status:** In 2020,<sup>233</sup> Queensland adults in the most advantaged areas were 31% more likely to be sufficiently active than those in the most disadvantaged areas (65% compared to 50%). Among children, there were no differences by area socioeconomic status.

**Remoteness:** Adults living in major cities were more likely to be sufficiently active in 2020.<sup>233</sup> Compared to inner regional areas, adults living in major cities were 17% more likely to meet physical activity guidelines (53% and 61%, respectively).

For children, this pattern reversed with those in remote areas 50% more likely to meet the recommendation than children in major cities (65% compared with 44% in 2020).

**HHS differences:** In 2019–20,<sup>233</sup> the prevalence of sufficient activity in adults was lower than the state average in three HHSs (Central Queensland, South West, Darling Downs) and higher in Gold Coast HHS and Sunshine Coast HHS.

In 2019–20, the prevalence of children being active every day was higher than the state average in South West HHS and Cairns and Hinterland HHS.

**Aboriginal and Torres Strait Islanders:** In 2018–19, sufficient physical activity prevalence was similar for adult Aboriginal and Torres Strait Islander people in Queensland (10%) and nationally (11%).<sup>71</sup> Queenslanders ranked fifth highest of the jurisdictions for meeting physical activity guidelines among Aboriginal and Torres Strait Islanders adults in 2018–19.

The percentage of adults who reported no physical activity in the past week was also similar for Queensland and Australian Aboriginal and Torres Strait Islander adults (23% compared to 22%) in 2018–19.<sup>71</sup>

## At a glance

### Physical activity

*In 2020:*

2.2 million (59%) Queensland adults were sufficiently active

420,000 (12%) Queensland adults were inactive

400,000 (46%) Queensland children were sufficiently active

48,000 (5.6%) Queensland children were inactive in the past week



Budd photography

**National comparisons:** In 2017–18, 59% of Queensland adults did 150 minutes or more of physical activity in the past week, which was similar to Australia overall (61%).<sup>125</sup> Queensland was the highest ranked jurisdiction for adult insufficient activity based on population prevalence. When strength and toning are included, 16% of adult Queenslanders met the guidelines for physical activity compared to 17% nationally.<sup>125</sup>

## Trends

From 2004 to 2012, the prevalence of sufficient physical activity in adults increased by 28% but has remained unchanged since 2013.<sup>281</sup> Among children, the prevalence of achieving an hour of physical activity daily increased by 12% from 2011 to 2020.

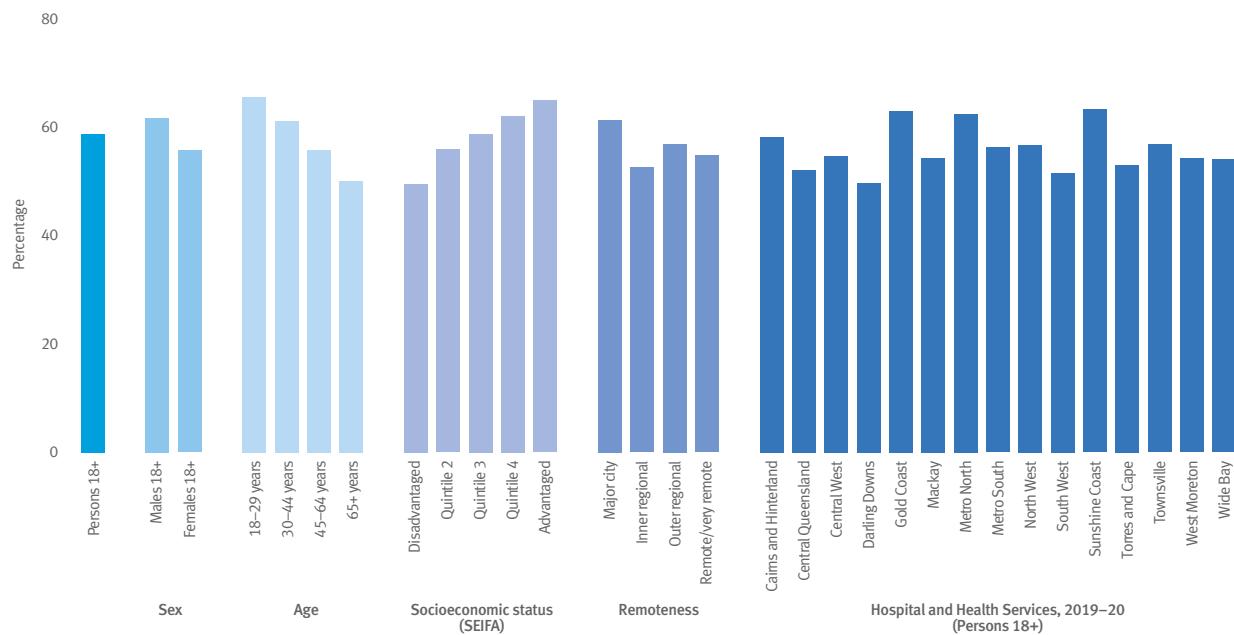
From 2009 to 2020, adult sufficient physical activity increased in Metro North HHS, Sunshine Coast HHS, and Townsville HHS.<sup>281</sup> Increases ranged from 10–20% across this period (Table 5.3).

Trends in sufficient physical activity may not identify gains in underlying components of physical activity. Understanding these components may help target actions to support inactive or insufficiently active adults transition to more active lifestyles.

Queensland analysis from 2004 to 2018 showed that, on average, weekly activity for adults increased by 147 minutes (total activity), 101 minutes (walking) and 34 minutes (vigorous activity) across this period.<sup>316</sup> Employed adults made the largest gains, those not in the workforce made smaller gains and unemployed adults experienced no change.

Evidence shows that physical activity health benefits accrue with small increases in activity and that the greatest benefits are for those moving from inactivity to any level of physical activity.<sup>317</sup> Importantly, these increases were due to both increases in doing any activity and increased average activity duration for those who were already active. In Queensland, the prevalence of inactive adults decreased on average by 4.2% per year from 2004 to 2018.<sup>316</sup>

**Figure 5.8 Adult sufficient physical activity, Queensland, 2020<sup>233</sup>**



See [QSAS](#) for more information

**Table 5.3 Trends in self-reported physical activity in adults, Queensland, 2009–2020<sup>281</sup>**

HHS	Average percentage change	
	Sufficient physical activity Per year	Total (2009–2020)
Cairns and Hinterland	1.1	12.2
Central Queensland	1.0	11.9
Central West	1.4	16.7
Darling Downs	0.0	-0.1
Gold Coast	0.9	10.6
Mackay	-0.1	-1.3
Metro North	<b>0.9</b>	<b>10.8</b>
Metro South	0.9	9.9
North West	0.8	9.4
South West	0.9	9.9
Sunshine Coast	<b>1.5</b>	<b>17.7</b>
Torres and Cape	1.0	11.7
Townsville	<b>1.8</b>	<b>21.7</b>
West Moreton	0.0	-0.4
Wide Bay	1.0	11.2
<b>Queensland<sup>1</sup></b>	<b>0.9</b>	<b>10.8</b>

*Bold font indicates significant change over time*

*Positive numbers indicate increasing trends and declining trends are negative numbers*

*1 State level trends from 2004 to 2012 showed an increase of 28.1%, but were unchanged since 2013*

See [QSAS](#) trends for more information

**The prevalence of inactive adults decreased by 4.2% per year from 2004 to 2018.**

Walking is the most common activity in Australia and plays an important role in increasing activity among inactive adults. Walking for transport was the only physical activity for 19% of Australians aged 65 years and older in 2014–15.<sup>318,319</sup>

## Burden of disease

For physical inactivity, the five conditions with the highest percentage of total burden (DALY) nationally in 2015 were<sup>82</sup>:

- 19% of type 2 diabetes
- 17% of bowel cancer
- 16% of uterine cancer
- 14% of dementia
- 12% of coronary heart disease.

Table A17 includes the per cent of total burden attributable to physical inactivity for all conditions as well as early death (YLD) and disability (YLD) burdens.<sup>82,90</sup>

**Hospital burden:** Physical inactivity accounted for the equivalent of 20,000 episodes of care and 68,900 patient days in Queensland in 2015–16.<sup>82,106</sup>

Of hospitalisation associated with physical inactivity, the five leading conditions were coronary heart disease, bowel cancer, type 2 diabetes, breast cancer and stroke.

**Trends in burden:** In Australia, the total burden attributable to physical inactivity increased by 5.1% from 2003 to 2015.<sup>90</sup>

When adjusted for age, burden due to conditions linked to physical inactivity decreased by 23% from 2003 to 2015 (from 5.7 DALYs to 4.4 DALYs per 1000). For males the DALY rate decreased by 26% and for females by 20%.<sup>90</sup>

Nationally, from 2003 to 2015, the burden attributable to physical inactivity decreased by 21% for cardiovascular diseases. For all other associated disease groups, the burden increased<sup>90</sup>:

- 130% for neurological conditions
- 35% for endocrine disorders
- 3.6% for cancer and other neoplasms.

## Looking forward

The extent and type of physical activity that is undertaken at an individual and population level is determined by a complex network of factors that requires multi-faceted, flexible, accessible, and sustainable approaches. Key challenges include the impacts of climate and environmental degradation that may impact willingness and ability to be active outdoors, and the short- and long-term impacts of COVID-19 on physical activity. National data suggested that during the period early April to early May 2020, roughly half of all Australians (54%) reported no change to their levels of participation in exercise or other physical activity, one in four (25%) increased their level of exercise or other physical activity, and one in five (20%) decreased their level of exercise or other physical activity.<sup>321</sup> Also, we need to enable physical activity in an ageing population where the benefits of physical activity to overall physical and mental health are substantial, and address increased sedentary working.

Queensland Sport and Recreation and HWQld are providing the partnerships, expertise, resources and momentum to improve physical activity across the state.<sup>319</sup> HWQld is implementing a range of initiatives in which equity, inclusiveness and evidence take centre stage. This approach accounts for our individual and environmental diversity that influences our ability and willingness to be more active. As indicated above, even small but incremental increases in physical activity can positively influence health and wellbeing. Providing the social and physical environments in which that can occur is an important step and requires community-wide engagement.



Budd photography

## Technical notes

This section includes multiple indicators including those based on the Australian Physical Activity and Sedentary Behaviour Guidelines for Adults (18–64 years).<sup>322</sup> Several sources of information are used with differences in how physical activity is collected and defined. In the NHS, sufficient activity is reported based on total minutes of activity while the Queensland preventive health survey uses both minutes (at least 150 minutes of moderate intensity physical activity weekly) and sessions (five or more weekly).

For children, more holistic 24-hour movement guidelines based on physical activity, low levels of sedentary behaviour and sufficient sleep were released in 2019.<sup>323,324</sup> Currently, there is no consensus on the best way to report against these guidelines in general health surveys, therefore, this section measures children's physical activity as achieving at least one hour of activity daily.

## Sun safety

Sun exposure is a risk factor for future skin cancer including melanoma, basal cell carcinoma (BCC) and squamous cell carcinoma (SCC). Non-melanoma skin cancer (NMSC) is the most commonly diagnosed cancer in Queensland.<sup>325</sup> The causes of skin cancer include exposure to ultraviolet (UV) radiation, genetic factors, and, for some specific types, an infectious disease component. Differences in UV exposure (chronic or intermittent) and age at which melanoma occurs influence disease development.

While high UV exposure at all ages is associated with increased skin cancer risk, childhood is a period of particular susceptibility to future UV-related carcinogenesis.<sup>326</sup> UV radiation doesn't just affect skin—risk of ocular diseases including cataract, eyelid malignancies, uveal melanoma, photokeratitis, droplet keratopathy and macular degeneration are also increased by UV exposure.<sup>327</sup>

Sunburn frequency, especially in childhood, increases melanoma risk.<sup>328-330</sup> As few as five episodes of sunburn per decade increases the risk of melanoma three-fold.<sup>328</sup> Blistering sunburns further increase melanoma risk.<sup>330</sup>

Nationally, high sun exposure accounted for 0.8% of the total health burden (DALY) in 2015. This includes 1.4% of early death burden (YLL, an estimated 400 deaths in Queensland) and 0.2% of the disability burden (YLD).<sup>82</sup>

Nationally, in 2015–16, NMSC accounted for 11.9% (\$1.0 billion) of the health expenditure for cancer and other neoplasms, the second largest percentage after the aggregate “other benign, in-situ and uncertain neoplasms”. Melanoma accounted for 1.9% (\$163 million) of the health expenditure for that disease group.<sup>255</sup>

## Population characteristics

In Queensland in 2020<sup>233</sup>:

- 49% of adults (Figure 5.9 and Table A18) and 45% of children (Table A19) were sunburnt in the previous 12 months
- 19% of children were burnt once in the previous 12 months, 14% were burnt twice and 11% of children were burnt three or more times
- of those that were sunburnt, 9.5% of adults and 9.6% of children had a blistering sunburn
- 32% of children had experienced five or more sunburns in their lifetime and 0.9% had five or more blistering sunburns
- adult males were 23% more likely to report being sunburn in the past 12 months than females while there was no difference between boys and girls
- young adults (18–29 year-olds) were at least four times more likely to report sunburn than older adults (65 years and older)
- older children aged 12–17 years were about 36% more likely to have been sunburnt in the past 12 months than 5–11 year-olds.

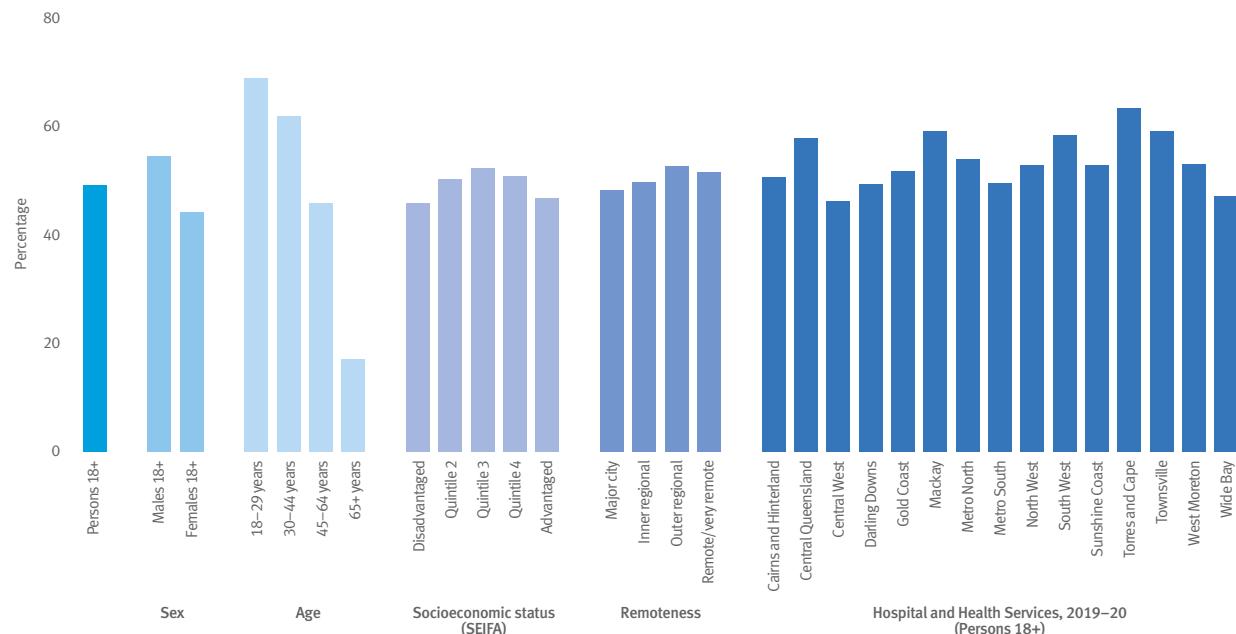
**HHS differences:** In 2019–20, the prevalence of adult sunburn was higher than the state average in four HHSs (Townsville, Mackay, South West, and Central Queensland), and was lower in Wide Bay HHS. In 2018–19, the prevalence of child sunburn was higher in South West HHS and lower in Metro South HHS and did not differ in other HHS regions compared to the state average.<sup>233</sup>

## Burden of high sun exposure

The total burden (DALY) due to high sun exposure was 90% of melanoma skin cancer burden and 70% of non-melanoma skin cancer burden in Australia in 2015.<sup>82,90</sup>

Table A20 includes the early death (% YLL) and disability (% YLD) burdens associated with high sun exposure for each condition.

Figure 5.9 Adult sunburn in the past 12 months, Queensland, 2020<sup>233</sup>



See [QSAS](#) for more information

**Hospital burden:** High sun exposure accounted for the equivalent of 24,900 hospitalisations and 36,900 patient days associated with non-melanoma skin cancer melanoma in Queensland in 2015–16.<sup>82,106</sup>

**Trends in burden:** In Australia, from 2003 to 2015, the total burden attributable to high sun exposure increased by 20%.<sup>90</sup> When adjusted for age, burden associated with conditions linked with high sun exposure decreased by 9.1% from 2003 to 2015 (from 1.5 DALYs to 1.4 DALYs per 1000 population).

## Sun safety

Due to high melanoma incidence, ongoing skin cancer awareness campaigns were started in the early 1980s. Today, they include mass media campaigns and working with schools, workplaces, local government, health professionals, parents and sports groups. These activities include Cancer Councils' SunSmart programmes, government campaigns, and sun-safe policies in a range of settings.<sup>331</sup> This investment has been successful in terms of increasing sun-safe behaviours, decreasing sunburn incidence, and stabilising or decreasing melanoma rates, particularly among younger Australians.<sup>332,333</sup>

Sun-safe behaviours include wearing a broad brimmed hat, clothing that protects against the sun (long sleeves or long pants), wrap-around sunglasses, seeking shade, and applying SPF30 or higher sunscreen.

### Adults

In 2020,<sup>233</sup> 20% of adults reported they used a broad brimmed hat, SPF30 or higher sunscreen and sun-safe clothing in summer most of the time. Females were 19% more likely to practice these three behaviours than males. Older adults (aged 65 years and older) were 43% more likely to practice these behaviours than younger adults (aged 18–29 years) and 45–64 year-olds were 84% more likely than younger adults.

Residents of regional and remote areas were more likely to practice sun protection behaviours.<sup>233</sup> Adults from outer regional and remote areas were 32% more likely to practice these behaviours than major city residents (24% compared to 18%), while inner regional residents were 26% more likely. There were no differences based on area socioeconomic status.

### Children

In 2020, the Queensland preventive health survey collected more detailed information about sunburn and sun-safe practices among children.<sup>304</sup> Findings are summarised below with more detailed interactive information available— see the [online visualisation](#) for more information.

In 2020,<sup>304</sup> 8.6% of children practiced none of the five sun-safe behaviours most or all of the time in summer. Older children aged 12–17 years were 3.4 times more likely than children aged 5–11 years to practice none of the behaviours (14% compared to 4.2%).

**Most children (91%) frequently practiced one or more of the recommended sun-safe behaviours in summer in 2020.**

The most commonly reported combination of summer sun protection behaviours was wearing sun-safe clothing, wearing a hat, seeking shade and applying sunscreen. Thirteen per cent of children practiced these four behaviours most or all the time in summer.

Of the five sun-safe behaviours, those that offered physical protection (wearing sun-safe hats and clothing and seeking shade) were most associated with reduced number of sunburns in the past year. After adjusting for other factors, children who frequently (all or most of the time) practiced these behaviours in summer experienced 53% fewer sunburns on average than children who did not frequently practice these three behaviours. Neither sunscreen use nor sunglasses were associated with number of sunburns.

Importantly, as the number of physical sun-safe behaviours increased, the number of sunburns decreased. Compared to children who used no physical sun barriers, the number of sunburns experienced was<sup>304</sup>:

- 31% lower for those who used one physical sun barrier
- 43% lower for those using two physical sun barriers
- 53% lower for those using three physical sun barriers.

Of children who were sunburnt in the past 12 months, 69% were most recently sunburnt during a water-based activity. Older children (aged 12–17 years) were most likely to be with friends or siblings when they were last sunburnt, while younger children (aged 5–11 years) were most likely to be with their parents. The face or head was the part of the body that was most often sunburnt (55%) and the most common reason parents reported for their child's sunburn was because they didn't reapply sunscreen (47%).<sup>304</sup>

## At a glance

### Sun safety

*In Queensland in 2020:*

2 million (49%) adults and 390,000 (45%) children were sunburnt in the previous 12 months

810,000 (20%) adults practiced summer sun protection in 2020 (using SPF 30 sunscreen, wearing a wide brimmed hat, and long sleeves or pants when in the sun)



## Looking forward

The data above can inform and strengthen existing sun safe policies and approaches. For example, among adults, three-quarters nominated sunscreen as the most important practice to protect skin from the sun.<sup>334</sup> While sunscreen blocks UV radiation effectively in controlled conditions, population studies of effectiveness for reducing sunburn have been mixed.<sup>335-337</sup> Some reasons for this are that sunscreen is used more by people with fair skin who are more at risk of sunburn, that it is used when people expect to spend more time in the sun, that use makes people believe it is safe to stay in the sun longer, and that it is not applied or reapplied in sufficient quantities.

To increase the effectiveness of sunscreen at the population-level, one strategy is to recommend sunscreen be applied as part of one's daily morning routine. In 2020, however, only 16% of Queensland parents reported this practice for their child.<sup>304</sup>

Findings also support the importance of wearing clothes and designing environments that offer protection from the sun. Among children, schools are an important setting for providing shade and promoting sun safety. Recently, school uniform fabric requirements were strengthened to ensure greater UV protection. There are opportunities to extend these requirements to sports uniforms and more broadly in other settings.

New technologies are being used to support and monitor various healthy behaviours such as physical activity and diet. For sun protection, only 7.0% of parents reported they used an app or website to decide whether to use sun protection for their child.<sup>304</sup> This low uptake suggests strategies that require less pre-planning for individuals or provide more immediate cues to use sun-safe behaviours may be more effective.



See the [online visualisation](#) for more information

## Domestic violence and child abuse

Family and domestic violence is recognised globally as a major public health problem and affects all people irrespective of economic, educational, social, geographic or racial background.<sup>338</sup> Globally, 30% of all women who have been in a relationship have experienced physical and/or sexual violence by their intimate partner. Estimates suggest 38% of all murders of women are committed by intimate partners.<sup>339</sup> Gender inequality and norms on the acceptability of violence against women are fundamentally linked to this violence.

It is a complex issue and not just limited to physical and sexual abuse but also emotional abuse.<sup>340</sup> Nationally, it is estimated that 2.2 million Australians have experienced physical or sexual violence from a partner and 3.6 million have experienced emotional abuse from a partner. A third of women and 20% of men with a disability had experienced emotional abuse from a partner.

**One woman was killed every nine days and 1 man every 29 days by a partner from 2014–15 to 2015–16.<sup>105</sup>**

### How big is the problem?

In 2015, intimate partner violence accounted for 1.6% of the health burden (DALY) in Australian women aged 15 years and older.<sup>82</sup> This includes 0.9% of early deaths (YLL) and 2.1% of the disability burden (YLD). The majority (70%) of the burden due to intimate partner violence was experienced between the ages of 24–54 years. The health impacts of intimate partner violence include depressive disorders, anxiety disorders, suicide and self-inflicted injuries, homicide and violence, alcohol use disorders and early pregnancy loss.<sup>82</sup>

In 2015–16, violence against women and their children was estimated to cost \$21.7 billion (\$4.8 billion or 22% in Queensland).<sup>341</sup> Costs associated with pain, suffering and premature mortality accounted for 48% (\$10.4 billion) of the total cost, and an additional 6% for health costs. Survivors bear most (52%) of these costs.

In 2018–19, there were 30,307 domestic violence order (DVO) applications to Queensland courts initiated and a further 10,295 applications to vary existing orders.<sup>342</sup> This was a 13% increase in initiations and a 62% increase in variations since 2014–15. Three-quarters of DVOs protect females and 16% protect Aboriginal and Torres Strait Islander people living in Queensland. In Queensland, there were 14,737 defendants finalised in the courts for one or more family and domestic violence offences in 2017–18—a 9.9% increase from 2016–17.<sup>343</sup>

Breach of domestic violence protection order offences have been increasing steadily from 2009.<sup>344</sup> Increases of 11% in 2014–15, 40% in 2015–16 and 9% in the 2016–17 period were recorded.

In 2016–17, of 2120 sexual offence victims reported by the Queensland Police Service, 165 were committed by a partner and 570 by another family member.<sup>344</sup> For the 14,269 assaults

in the same time-period, 2186 (15%) were committed by partners, 191 (1.3%) by ex-partners, 532 (3.7%) by the victim's child and 1166 (8.2%) by another family member. It is known that a large proportion of domestic violence cases are not reported to authorities.

In the 2019 Queensland Social Survey,<sup>345</sup> 18% of adults were aware of domestic and family violence involving a family member or close friend in the last 12 months, 13% were aware of events involving neighbours and 27% were aware of events involving others. Fourteen per cent of participants reported they did not take any action in events involving a family member or close friend—31% of events in neighbours and 57% of events in other people. Nine per cent of respondents disagreed that it was important our culture respects gender equality and doesn't encourage traditional norms and stereotypes.

A comprehensive report on family and domestic violence in Australia was published in 2019.<sup>343</sup> A snapshot of key national statistics is provided here.

- People living in the most disadvantaged areas of Australia were 1.5 times as likely to experience partner violence as those living in areas of least disadvantage.
- In 2017–18, 159,000 children received child protection services: the rate of children receiving these services rose from 26 per 1000 children in 2012–13 to 29 per 1000 in 2017–18.
- In 2017–18, more than 10,900 calls were made to elder abuse helplines across Australia.
- People with disability are 1.8 times more likely to have experienced physical and/or sexual violence from a partner in the previous year and 1.7 times as likely to have experienced sexual violence (including assault and threats) since the age of 15.
- From March 2013 to June 2016, the Australian Federal Police received 116 case referrals for forced marriage involving young females.
- Women who identified as lesbian, bisexual, and mainly heterosexual were twice as likely to report physical abuse by a partner as women who identified as exclusively heterosexual.
- More Australians are recognising non-physical behaviours as violence—in 2017, 81% agreed that controlling or denying a partner money was a form of violence—up from 70% in 2013.

At the time of report production, the impact of COVID-19 on domestic violence in Queensland could not be quantified.

## Burden of disease

For intimate partner violence, the conditions ordered by the percentage of total burden (DALY) nationally in 2015 were<sup>82</sup>:

- 41% of homicide and violence
- 19% of suicide and self-inflicted injuries
- 18% of depressive disorders
- 19% of early pregnancy loss
- 12% of anxiety disorders
- 4% of alcohol use disorders.

Table A21 includes the early death (YLL) and disability (YLD) burdens attributable to intimate partner violence.

**Hospital burden:** The combined impact of intimate partner violence accounted for an estimated 11,800 hospitalisations and 34,400 patient days in Queensland in 2015–16.<sup>82,106</sup>

**Trends in burden:** In Australia, the total burden attributable to intimate partner violence remained stable from 2003 to 2015, when adjusted by age (2.9 DALYs per 1000 women). Nationally, from 2003 to 2015, the burden attributable to intimate partner violence increased by<sup>90</sup>:

- 25% for injuries
- 24% for early pregnancy loss
- 18% for mental and substance use disorders.

## Technical note

The health burden of intimate partner violence as a risk factor was only estimated in women aged 15 years and older as the required evidence was only available for women.

## Child abuse

Violence against children predominantly involves maltreatment (including neglect), bullying, youth violence, intimate partner violence, sexual violence (including voyeurism and sexual harassment) and emotional and psychological violence.<sup>346</sup>

## At a glance

### Domestic violence and child abuse

In 2018–19, there were 30,307 domestic violence applications initiated in Queensland courts

Violence against women and their children was estimated to cost almost \$5 billion in Queensland in 2015

In 2019, 18% of Queensland adults were aware of domestic and family violence involving a family member or close friend in the last 12 months

In 2015, there were an estimated 149 premature deaths in Queensland due to the effects of child abuse



Josue Verdejo from Pexels

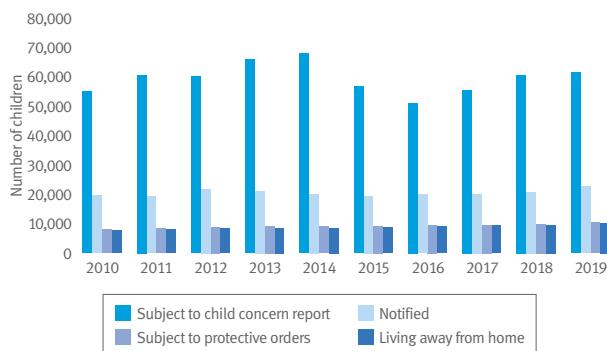
It is estimated that more than half of all children aged 2–17 years globally have experienced physical, sexual, and/or emotional violence or neglect in the past year.<sup>347</sup> As described in other sections of this report, it has profound and life-long impacts on the health and wellbeing of not only the victim but families, communities and nations. The causal pathway to child abuse is complex and dominated by social determinants across the lifespan at the individual, family, community and society level. Nationally, child abuse and neglect accounted for 2.2% of the total health burden (DALY) in 2015.<sup>82</sup> This includes 1.5% of early deaths (YLL, an estimated 149 deaths in Queensland) and 2.8% of disability burden (YLD). Child abuse and neglect was linked to anxiety disorders, depressive disorders and suicide and self-inflicted injuries.

It is particularly challenging to estimate the costs attributable to child abuse and neglect due to the long-term consequences and different approaches to quantify these effects. In 2012–13, the lifetime costs attributable to child maltreatment nationally were \$9.3 billion for financial costs (35% or \$3.3 billion were health system costs) and \$17.4 billion for non-financial costs (in 2014–15 dollars).<sup>348</sup> In 2016–17, these lifetime costs were estimated to be \$16.1 billion for financial costs (30% or \$4.9 billion were health system costs) and \$62.3 billion for non-financial costs. The corresponding annual costs in 2016–17 were \$11.2 billion for financial costs (16% or \$1.8 billion were health system costs) and \$23.0 billion for non-financial costs.<sup>349</sup>

It is estimated that about 2.5 million Australian adults (13%) have experienced physical and/or sexual abuse during childhood.<sup>350</sup> In 2017–18, among children aged 0–12 years who were the subject of child protection substantiations, 59% had experienced emotional abuse, 15% neglect, 15% physical and 8% sexual abuse.<sup>351</sup>

In 2018–19, there were 96,432 child concern reports for 61,438 children received by child protection services in Queensland. Figure 5.10 presents trends over time.<sup>352</sup>

**Figure 5.10 Children subject to selected child protection activities, Queensland, 2009–10 to 2018–19<sup>352</sup>**



From 2016 to 2019, there were 13 child deaths in Queensland as a result of probable or confirmed assault and neglect—a rate of 0.6 per 100,000 children. The average annual rate since 2004 was 0.7 per 100,000. Of the 13 children<sup>353</sup>:

- seven were female
- 11 children were known to the child protection system
- eight children were aged less than five years
- one was identified as Aboriginal and Torres Strait Islander

- none were from remote areas
- nine resided in low to very low socioeconomic areas of Queensland.

Infants under the age of one were over-represented in the rates of fatal assault and neglect across the 15 years since 2004, reflecting the higher degree of vulnerability of children in this age category. Seven deaths occurred in 2018–19 and of these, six were intra-familial cases of domestic homicide.

## Burden of disease

Nationally, the total burden (DALY) due to child abuse and neglect was 27% of anxiety disorders burden, 26% of suicide and self-inflicted injuries burden and 20% of depressive disorders burden in 2015.<sup>82</sup> Table A22 includes the early death (YLL) and disability (YLD) burdens associated with child abuse and neglect for each condition.

**Hospital burden:** Child abuse and neglect accounted for the equivalent of 15,800 hospitalisation and 59,100 patient days in Queensland in 2015–16.<sup>82,106</sup>

**Trends in burden:** In Australia, from 2003 to 2015, the total burden attributable to child abuse and neglect increased by 23%.<sup>82</sup> When adjusted for age, burden associated with conditions linked with child abuse and neglect increased by 3.3% from 2003 to 2015 (from 4.3 DALYs to 4.4 DALYs per 1000 population). For males, the DALY rate increased by 2.3% and for females by 4.1%.<sup>82,90</sup>

Nationally, from 2003 to 2015, burden attributable to child abuse and neglect increased by 31% for suicide and self-inflicted injuries, and 19% each for anxiety and depressive disorders.<sup>82,90</sup>

## Looking forward

The complexity of domestic violence and child abuse necessitates whole of government and community cooperation and response if it is to be prevented. Over recent decades substantial inroads have been made in encouraging the reporting of abuse, amending legislation, increasing penalties and providing support to victims. It is now recognised that while these tertiary interventions are important and need to be sustained, the way forward should be more focussed to preventing abuse. This includes, but is not limited to:

- working with young people to break the intergenerational cycle of violence
- working with victims and perpetrators to break the cycle of violence
- working with communities to educate against violence.

The public profile of domestic violence and child abuse is now at very high levels given several family tragedies in recent years, the Royal Commission into Institutional Responses to Child Sexual Abuse and the 2015 Australian of the Year award to Rosie Batty for her domestic violence campaigns. This environment places added emphasis on Queensland's *Domestic and Family Violence Prevention Strategy 2016–2026*<sup>354</sup> which began implementation of its Third Action Plan in July 2019.

# Immunisation

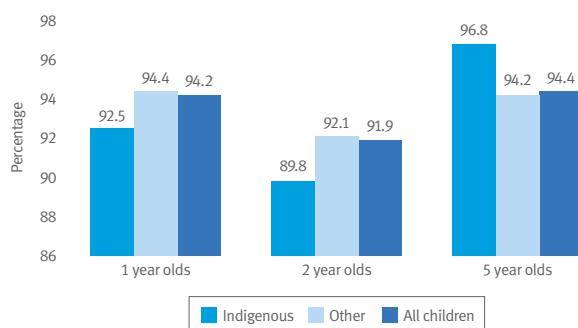
Immunisation is a successful and cost-effective health intervention with benefits to the individual, immediate and extended family and wider community. When sufficient numbers of people are immunised, disease transmission is effectively prevented, a benefit known as herd immunity. Vaccines funded under the National Immunisation Program (NIP) for children, adolescents and adults prevent measles, mumps, rubella, polio, diphtheria, tetanus, pertussis (whooping cough), varicella (chickenpox), herpes-zoster (shingles), hepatitis A and B, *Haemophilus influenzae* type b (Hib), meningococcal ACWY (from 1 July 2018), influenza, human papillomavirus (HPV) and pneumococcal and rotaviral diseases.

In addition to the NIP, the Queensland Health Immunisation Program provides other vaccines for certain diseases that are prevalent in some areas of Queensland such as Japanese Encephalitis vaccine for residents of the outer islands of the Torres Strait, and rabies post-exposure prophylaxis vaccine and immunoglobulin for all susceptible cases.

## Early childhood immunisation

Queensland has achieved high childhood immunisation coverage (Figure 5.11) and is very near reaching the target 95% at each age milestone with Aboriginal and Torres Strait Islander children at five years of age exceeding the target.<sup>355</sup> Variations in coverage by region of the State are also apparent (Table 5.4).<sup>28</sup>

**Figure 5.11 Child immunisation coverage, Queensland, 2019<sup>355</sup>**



## Adolescents

The School Immunisation Program (SIP) offers Year 7 and Year 10 students in all state and private Queensland schools the opportunity to be vaccinated within the school setting. In 2019:

- 76.0% of Year 7 students received a dose of diphtheria-tetanus-pertussis (dTpa) vaccine
- 66.7% of Year 7 students completed the two-dose course of human papillomavirus (HPV) vaccine
- 68.8% of Year 10 students received a dose of meningococcal ACWY vaccine.

The SIP uptake reports underestimate adolescent vaccination coverage because only those administered in the school setting are included. Some students elect to be vaccinated by GPs or other community immunisation providers.

Since 2018, all children in Queensland aged six months to less than five years have been eligible for free influenza vaccine through the Queensland Immunisation Program. From 1 January 2020, this group has been funded Australia-wide through the NIP.

**Table 5.4 Child immunisation coverage (%) by HHS, Queensland, March 2020<sup>28</sup>**

	1 year		2 years		5 years	
	Indigenous	Other	Indigenous	Other	Indigenous	Other
Cairns and Hinterland	90.5	93.1	89.8	92.5	96.4	94.1
Central Queensland	91.7	95.5	89.4	93	97.4	95.3
Central West	100.0	96.0	100.0	99.0	100.0	97.1
Darling Downs	94.8	94.2	90.5	92.6	97.4	94.4
Gold Coast	91.0	92.6	91.6	89.9	96.4	92.8
Mackay	94.8	96.6	89.2	93.7	94.9	94.5
Metro North	93.7	95.1	89.6	93.1	98.0	94.5
Metro South	92.2	94.5	89.2	92.0	96.3	94.4
North West	89.1	96.5	85.7	91.3	97.0	95.1
South West	92.0	97.4	89.7	96.7	96.3	97.1
Sunshine Coast	92.7	90.3	87.2	88.2	95.2	91.4
Torres and Cape	95.8	90.7	91.9	87.5	97.9	91.3
Townsville	92.1	95.9	89.7	94.7	96.1	96.0
West Moreton	93.9	95.1	89.6	93.2	97.1	95.1
Wide Bay	93.9	94.4	91.6	92.4	97.1	95.8

## At a glance

### Immunisation

Childhood immunisation coverage at one, two and five years of age was 94.2%, 91.9% and 94.4% respectively in 2019

Approximately two-thirds of adolescents have received two doses of the human papillomavirus vaccine

Influenza and pertussis vaccine uptake in pregnant women is improving

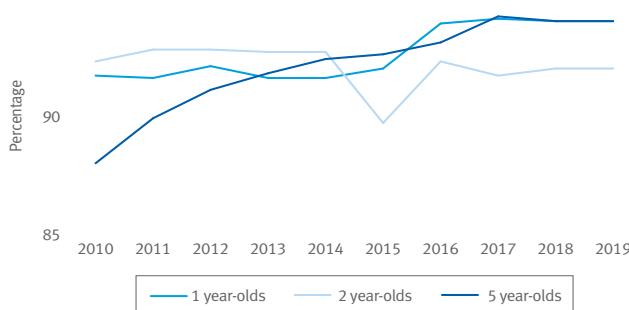
Influenza vaccine uptake in those eligible for free vaccine could be improved



## Trends

Over the past decade, the proportion of fully immunised one- and five-year old children increased (Figure 5.12), but the proportion of fully immunised two-year-old children slightly decreased.<sup>355</sup> In 2010, 91.7% of 1-year-olds were fully immunised. This increased to 94.2% in 2019. Coverage for 2-year-olds has slightly decreased from 92.4% in 2010 to 91.9% in 2019. Coverage rates for 2-year-olds in Queensland and Australia overall are consistently lower than the other age milestones. In 2010, 88.2% of 5-year-olds were fully immunised increasing to 94.4% in 2019.

**Figure 5.12 Trends in immunisation coverage, by age cohort, Queensland, 2010–2019<sup>355</sup>**



## Adults

Adults with risk factors that make them susceptible to certain infectious diseases are funded to receive some vaccines under the NIP. This includes older persons, people with high risk medical conditions, pregnant women and Aboriginal and Torres Strait Islander people. The vaccines funded include pertussis, influenza, herpes zoster (shingles) and pneumococcal vaccines. In Queensland, measles-mumps-rubella (MMR) vaccine is also funded for anyone born during or since 1966 without documented evidence of having received two doses of a measles-containing vaccine.

It is difficult to measure uptake of adult vaccination as the recording of adult vaccines on the Australian Immunisation Register (AIR) has only occurred since 2016. As such, data drawn from the AIR will largely underestimate coverage in adults. There are some limited studies that have been conducted in various communities, however, these do not necessarily reflect uptake of publicly funded vaccines (some will receive vaccines in the private sector) or coverage as per the NIP. Further, there are limitations in comparing vaccines received by different population groups given some will be eligible for funded vaccines and others will not. For example:

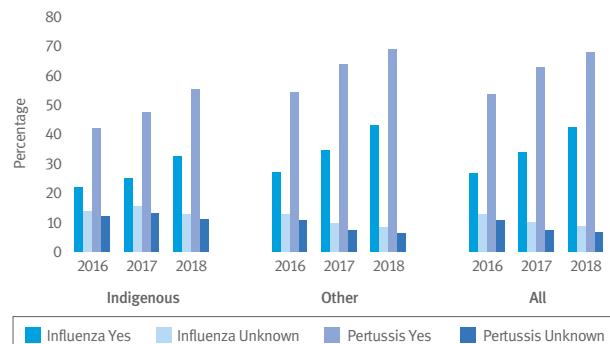
- An Australian study of 58,589 adults aged 60–64 years in 2010 reported 69% had received a pneumococcal vaccine by 2017.<sup>356</sup> Uptake was lower in those with no comorbidities (64.4%), in areas of higher socioeconomic advantage (67.7%) and in patients of practices in outer regional and remote areas (66%).
- A study in Australian adults with data collected from 2012 to 2014 indicated influenza vaccine coverage among Aboriginal and Torres Strait Islander people and other Australian adults aged from 49–64 years was 45.2% and 38.5% respectively.<sup>357</sup> For those aged 65 years and over, the corresponding coverage was 67.3% and 72.6%.<sup>357</sup> Vaccine coverage was higher in persons who were obese, had a medical risk factors and those who rated their health as fair or poor.

- Among Australian adults turning 70 to 79 years of age in 2017, coverage of the herpes zoster vaccines was estimated to be between 41.6 to 46.9%. The estimate was 48.0% for Queensland. Estimates were lower for those in remote areas (38.2%) and in areas of highest socioeconomic advantage (41.8%).<sup>358</sup>

## Pregnant women

Both influenza and pertussis vaccines are recommended and available for pregnant women free of charge. Uptake of both vaccines has been improving in Queensland (Figure 5.13) and the proportion of women with a record of unknown vaccination status at the time of the baby's birth is declining.<sup>119</sup> Vaccine coverage continues to be lower in Aboriginal and Torres Strait Islander women.

**Figure 5.13 Influenza and pertussis vaccination in pregnancy, Queensland, 2016–2018<sup>119</sup>**



## Looking forward

Australia has one of the best immunisation programs in the world and acceptance of vaccines remains high by world standards. Maintaining public confidence in the efficacy, effectiveness and safety of vaccines is, however, becoming increasingly problematic in many parts of the world, including Australia, and threatens the gains that have been achieved in reducing morbidity and mortality from vaccine-preventable diseases.

Vaccine hesitancy and refusal is largely driven by misinformation about immunisation circulating in the community, creating unnecessary confusion and concern. This has been recognised internationally as an urgent global health challenge over the next decade.<sup>359</sup>

There are, however, many positive examples of key initiatives to improve immunisation uptake and address vaccine hesitancy in Queensland, for example, '*Immunise to 95*' which to date has followed up more than 123,100 children who were overdue for immunisation. Aboriginal and Torres Strait Islander infants and families are being supported by '*Bubba Jabs on Time*' (to date, more than 9850 children have been followed up), '*Boots on the Ground*' in Townsville, '*Connecting Our Mob*' in Cairns, and the infant immunisation pre-call SMS project in Rockhampton.

# Cancer screening

Breast, bowel and cervical cancer are leading cancers in Australia with population-based screening available for early detection and intervention to reduce incidence and improve survival. Mammography may reduce mortality from breast cancer by 40% among those who attend screening.<sup>360</sup> Depending on the method, bowel cancer screening reduces mortality by up to 25% among those screened.<sup>361</sup> In high-income countries, cervical cancer incidence and mortality have more than halved over the past 30 years since screening programmes were introduced.<sup>362</sup>

## Breast cancer screening

Participation in the BreastScreen Queensland (BSQ) program has trended downwards since a peak in 2001–02 of 58.9% (Figure 5.14). It is now marginally above the national average (54.0%) at 54.3%.<sup>363</sup>

From 2016–17 to 2017–18, participation in breast cancer screening:

- increased from 45.3% to 50.6% for Aboriginal and Torres Strait Islander women
- increased from 53.7% to 55.4% for culturally and linguistically diverse women.

Both these estimates should be treated with some caution because of difficulties in calculating underlying population figures.

**More Aboriginal and  
Torres Strait Islander and culturally  
and linguistically diverse women  
are participating in breast cancer  
screening in Queensland.**

From 2016–17 to 2017–18, breast cancer screening participation<sup>364</sup>:

- decreased from 53.4% to 52.7% in major cities
- decreased from 60.0% to 59.1% in outer regional areas
- did not change in inner regional areas (from 56.1% to 56.0%)
- increased in remote (from 52.0% to 54.8%) and very remote areas (from 51.7% to 55.0%).
- changes were statistically significant.

In 2017–18 participation was<sup>364</sup>:

- 53.2% in the least disadvantaged quintile
- 55.0% in quintile 2
- 56.6% in quintile 3
- 55.1% in quintile 4
- 52.2% in the most disadvantaged quintile.

Most women screened by BreastScreen Queensland receive an outcome with no signs of cancer found, but a small proportion (5.2% in 2019) of women are recalled for further investigation. Of the women recalled, around one in ten is diagnosed with breast cancer (1425 cancer diagnoses).

## Cervical screening

In December 2017, the National Cervical Screening Program (NCSP) changed from women aged 20–69 years having a Pap test every two years to women aged 25–74 having a Cervical Screening Test (CST) every five years. Participation in the new program cannot be evaluated until five years since this change. An alternative measure during this period is to use a two-year screening interval.

In Queensland in 2017–2018, 51.8% of women (aged 25–69) had a Pap Smear or Cervical Screening Test compared with 53.4% in Australia.<sup>365</sup>

In 2018, 58% of Queensland women aged 25–74 years who attended screening were screened within the recommended two-year timeframe, 34% of clients had previously screened but were not within the recommended screening interval and 8% of clients were screened for the first time.<sup>366</sup> Data on cancer outcomes are not yet available for the renewed program.

The effectiveness of screening in terms of prevention is based on detecting abnormalities that may progress to cancer. Cancers detected through screening were 77% less likely to cause death than cancers detected in women who had never screened.<sup>367</sup>

## At a glance

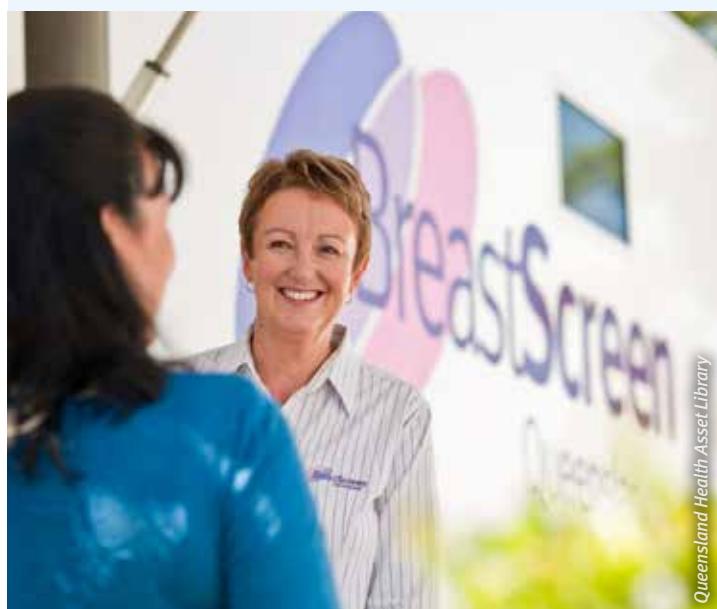
### Cancer screening

*In 2017–18:*

373,000 women aged 50–74 years participated in the BreastScreen Queensland program

659,000 women aged 25–74 years participation in the National Cervical Screening Program

414,000 adults aged 50–74 participated in the National Bowel Cancer Screening Program



**More than 70% of cervical cancers occur in women who had never had a cervical screen or who don't screen within the recommended interval.**



## Bowel cancer screening

The National Bowel Cancer Screening Program uses a non-invasive test which detects traces of blood in a stool sample, indicating the possible presence of bowel abnormalities that may be cancers or may lead to cancers. Once detected through screening, the pre-cursors to cancers can be removed and future cancers are prevented from developing. For program participants, a positive result from the bowel cancer screening test means that further diagnostic assessment (usually a colonoscopy) is recommended.

The 2017–18 bowel cancer screening participation for Queenslanders (40.8%) was lower than the national rate

of 42.4%. Queensland participation rates were the same in 2016–17 and 2017–18, while participation in Australia increased from 41.3% to 42.4%.<sup>364</sup>

Bowel cancer screening participation increases with age and is higher for females than males. In Queensland in 2017–18, participation was<sup>364</sup>:

- 29.7% for those aged 50–54 years
- 53.1% for those aged 70–74 years
- 42.7% for females and 39.0% for males aged 50–74 years.

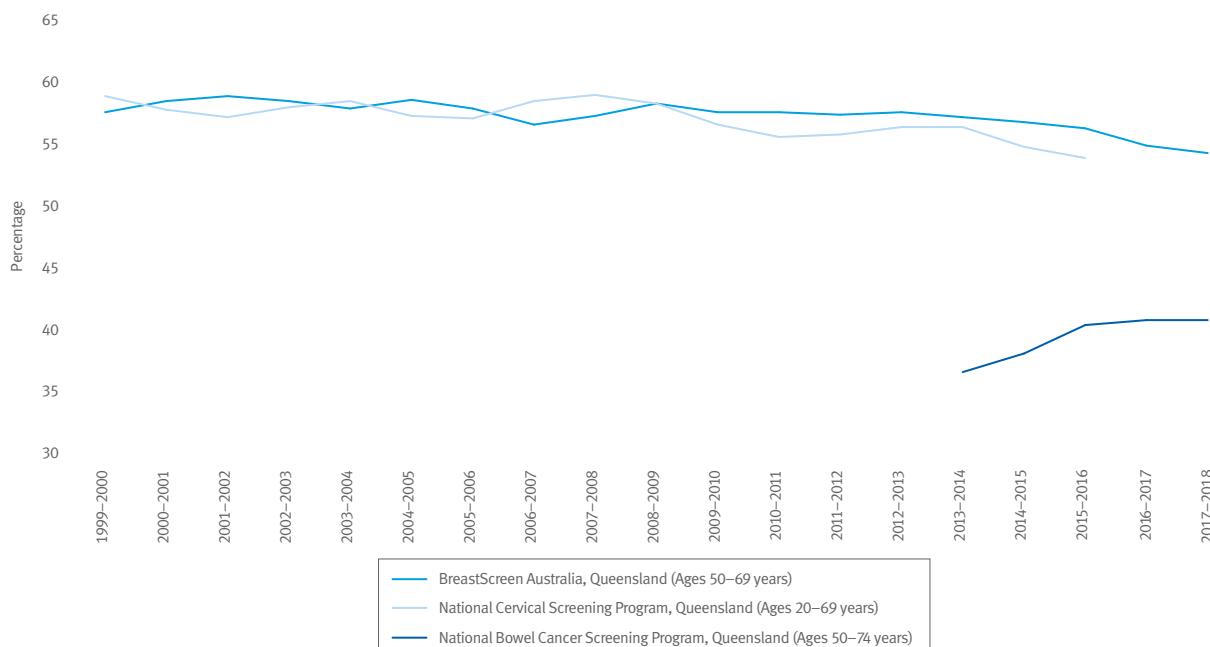
Bowel cancer screening participation was also lowest for those in very remote areas and those in the most disadvantaged socioeconomic group<sup>364</sup>:

- Major Cities—40.6%
- Inner Regional—43.2%
- Outer Regional—39.5%
- Remote—32.2%
- Very Remote—29.1%
- Most disadvantaged—38.3%
- Least disadvantaged—42.5%.

In 2017, the percentages of program participants who had positive screening test results were similar in Queensland (7.6%) and Australia (7.9%). Among those with a positive screening result attendance for follow-up diagnostic assessment (colonoscopy) was higher in Queensland (77.0%) than nationally (66.4%).<sup>320</sup>

The time between a positive screening result and a diagnostic assessment is an important measure of the timeliness of the program. In 2017, of those who had a positive screening result, the percentage receiving a colonoscopy within the recommended 120 days was 61.9% in Queensland compared to 56.5% nationally.<sup>320</sup>

**Figure 5.14 Screening participation trends, Queensland, 1999–2018<sup>364</sup>**



## Looking forward

Increasing participation and ensuring delivery of accessible screening services remain priorities as well as maintaining the provision of a timely, appropriate, high quality, safe and integrated cancer screening care pathway.

Findings of recent surveys of BreastScreen Queensland clients are guiding program reforms and enhancements. The vast majority had very positive experiences with the service, however, women reported that lapsed appointments were because ‘life got in the way’. Women suggested that the service could send more reminders via alternative means, such as SMS, to prompt them to make appointments. The importance of GPs in directing women to the program was also identified with suggestions for improved engagement with primary health care professionals.

An alternative pathway for cervical screening is being introduced that will help overcome barriers some women have in undertaking a clinician-collected test. This includes self-collection of vaginal samples for the human papillomavirus (HPV) for asymptomatic women who are aged 30 years or older and who are at least two years overdue for cervical screening or who have never screened.

Low participation rates, particularly among 50-year-old first-time invitees, remain a challenge for the national bowel cancer screening program. Focus groups were undertaken in 2020 to understand the barriers to first-time participation. Projects to encourage participation and to streamline processes for general practitioners to encourage participation among their patients will be implemented and evaluated.



## Rest and sleep

Adequate, quality sleep is necessary for maintaining long-term health and wellbeing. The role of sleep across the lifespan is receiving increasing recognition, particularly given its relationship with a broad range of social, physical, environmental and biological determinants of health. Lack of adequate sleep is both a risk factor for, and outcome of, poor health. As indicated in [Section 3](#), sleep has now been formally recognised nationally as the third pillar of health alongside diet and physical activity.<sup>368</sup> Sleep affects both physical and mental health in all ages. A recent estimation of the costs of inadequate sleep in Australia suggested it was approximately \$AU66.3 billion.<sup>369</sup>

Current sleep recommendations are presented in Figure 5.15. These were updated in 2015 by the US Sleep Foundation and include the “may be appropriate” category which accounts for individual variation.<sup>370</sup>

### At a glance

#### *Rest and sleep*

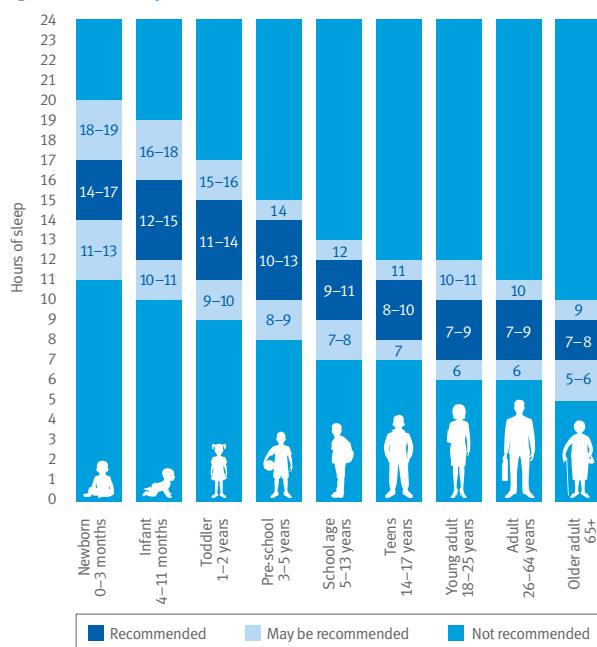
Up to 45% of Australian adults experience inadequate sleep duration or poor sleep health

Twelve per cent of students in Grades 5–12 are going to bed from 11pm onwards on weekdays

Sleep problems in infants are reported by 17% of caregivers



Budd photography

**Figure 5.15 Sleep duration recommendations<sup>370</sup>**

- difficulty sleeping alone peaked at ages 2–3 years (20.0%)
- problems with falling asleep fluctuated over time, with the highest prevalence at ages 10–11 years (17.6%).

An online survey in 2017 of 477 parents of young Australian children aged 0–4 years (mean age of child 33 months) reported 55% were not getting sufficient sleep across a 24-hour period, 38.6% were not following a bedtime routine and 63.1% were not settling easily to sleep at night.<sup>373</sup> Most respondents in this study were mothers with tertiary qualifications (74%) and in married/cohabiting relationships (93%) and so the results may not reflect Australian young children generally.

A cross-sectional survey on 934 students in grades 5–12 in a socially advantaged Western Australian school reported 74% of students met current sleep guidelines.<sup>374</sup> Weekday bedtimes from 11pm onwards were reported in 12% of students and weekend bedtimes from 11pm were reported by 31%. Ten per cent of students reported poor sleep.

### In adults

In adults, inadequate sleep loss is associated with<sup>375</sup>:

- cognitive and psychomotor dysfunction function including mood, thinking, concentration, memory, learning, vigilance and reaction times
- adverse effects on wellbeing, productivity and safety—it is a direct contributor to injury and death from motor vehicle and workplace accidents
- a range of health problems including hypertension, type 2 diabetes, obesity, cardiovascular disease and total mortality risk.

From 33% to 45% of Australian adults experienced inadequate sleep duration or poor sleep health in 2016<sup>143</sup>:

- 12% of Australian adults reported a sleep duration of less than 5.5 hours, and eight per cent reported sleep durations greater than nine hours
- three-quarters (76%) of those who sleep less than 5.5 hours report frequent daytime impairment or sleep-related symptoms
- 29% reported driving while drowsy at least every month, 20% have nodded off while driving, and 5% have had an accident in the past year because they dozed off
- 44% of adults are on the Internet just before bed almost every night, more commonly men (47%) than women (41%)
- 22% of people who report doing work related to their job in the hour before bed a few nights of the week or more—69% of these have two or more sleep problems.

The prevalence of sleep difficulties by age and sex is presented in Table 5.5.

## Inadequate sleep

### In children

Insufficient sleep has been associated with a variety of health deficits in children. These include<sup>370</sup>:

- impaired ability to concentrate and retain information
- mood disorders including anxiety, depression and hyperactivity
- impaired motor skills
- poorer overall health and immune function
- impaired academic performance
- an increased risk of injuries and accidents
- suicide ideation
- increased risk of drug and alcohol use
- an increased the risk of obesity.

There are limited Australian population-based studies of sleep in children. Data from the Longitudinal Study of Australian children reported<sup>372</sup>:

- the prevalence of caregiver reported overall sleep problems was highest during infancy (17.1%), 7.8% in children aged 6–7 years and 7.7% in children aged 10–11 years
- waking overnight was the most prevalent behaviour during infancy (40.8%) and decreased to 5.7% for children aged 10–11 years

**Table 5.5 Prevalence of sleep difficulties, Australia, 2016<sup>143</sup>**

	Sex		Age in years						
	Total N=1100	Males n=503	Females n=508	18–24 n=121	25–34 n=184	35–44 n=195	45–54 n=182	55–64 n=154	≥65 n=175
Difficulty falling asleep	33.2	26.4	40.0	41.3	31.5	29.7	34.6	33.1	32.0
Waking a lot during night	41.9	36.8	47.0	25.6	31.0	42.6	47.3	49.4	52.0
Waking too early and can't get back to sleep	33.8	31.4	36.2	28.1	30.4	32.8	36.3	33.8	40.0
Waking feeling unrefreshed	45.3	40.0	50.6	65.3	49.5	45.1	43.4	39.6	34.3
Got adequate sleep	49.4	51.5	47.2	39.7	41.3	47.2	51.1	54.5	60.6

## Looking forward

One of the main challenges in addressing sleep health in Queenslanders, and Australians generally, is the lack of population-based data across the lifespan to inform interventions and monitor changes over time. Incorporation of sleep health into representative health surveys can improve this knowledge gap. Addressing the social, economic and environmental determinants of sleep health is complex, however, capitalising on other public health messages is a way forward.

With sleep now achieving national recognition as a health issue as important as diet and physical activity, there are likely to be many opportunities both now and into the future to improve sleep health. Integration of sleep into state and national strategies that address healthy living and environments, mental health and wellbeing, workplace safety and educational attainment is feasible and readily achievable. The Sleep Health Foundation is developing a strong advocacy platform for increased awareness and education in the community and among health professionals of the importance of sleep and how best to assist patients with sleep problems.<sup>376</sup>

## Road safety

Road deaths and non-fatal casualties are largely preventable. Globally, 1.24 million people died from road injuries in 2017 out of 54.2 million episodes of road injuries.<sup>377</sup> While mortality rates have progressively declined since 1990 in most regions of the world, the incidence of road injuries has been increasing. Part of this increase has been attributed to increased access to and utilisation of motorised transport globally.

### Fatalities

From 2014 to 2019, an average of 238 people were killed on Queensland roads each year. In 2019, there were 219 deaths (4.3 per 100,000 population) as a result of 196 fatal crashes.<sup>378</sup> The road fatality rate for Australia in 2019 was 4.7 fatalities per 100,000 population and Queensland was fourth behind the ACT, Northern Territory and Tasmania for reductions in road fatalities in Australia.

The 2019 road toll was the lowest in Queensland since records began in 1952.<sup>378</sup> Of the fatalities in 2019:

- 112 were drivers
- 45 were motorcycle/moped rider and pillion
- 37 were passengers.

The highest number of fatalities (65) occurred in the Central Queensland Police Region, followed by Southern (57), Northern (53), Brisbane (28) and South Eastern (16).<sup>379</sup> There was a South-Eastern Region decline of almost 50% in 2019 compared

## At a glance

### Road safety

In 2019, there were 219 deaths as a result of 196 fatal crashes in Queensland

In 2019, there were 6959 hospitalised casualties as a result of road crashes in Queensland

Speeding, drink-driving and fatigue continue to be common factors contributing to road crashes

The impact of e-scooters on road casualties has yet to be evaluated, however, rider awareness of road safety requirements may need to be addressed



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to the 2014–2018 average—fatalities increased by more than 25% in the Northern Region.

- Speeding was a factor for 22% (48), drink driving for 21% (46) and fatigue for 14% (30) of road fatalities.
- There was a 18% decline in 2019 in speed-related fatalities compared to the 2014–2018 annual average.
- Almost a third of fatalities (31%) involved drivers/riders aged 16–24 years.
- In 2019, there was a 17% decline in the number of fatalities involving heavy freight vehicles compared to the 2014–2018 average.
- Drivers aged 75 years and older were a factor in 11% (24) of road fatalities, a 9% increase on the five-year average.

### January–May 2020

In Queensland, there was an 8.3% increase in road fatalities during the period January–May 2020 compared to the same period in 2019 (91 deaths compared to 84). Increases occurred in motorcyclists, pedestrians and pedal cyclists. There was a corresponding national increase in fatalities in pedal cyclists from 14 deaths in 2019 to 24 in 2020 (11 of which occurred during the period of COVID-19 restrictions in April and May).<sup>380</sup> Declines in motorcyclist and pedestrian deaths, however, resulted in an overall national decline of 14.5%. Queensland and the ACT were the only jurisdictions with increases in the road toll over this period of COVID-19. Of note is that during April–May 2020, there was a 41% and 56% decline in fatalities in young drivers/riders aged 17–25 years and those aged 65 years and older respectively compared to the previous five-year average but a 23% increase in those aged 26–39 years.<sup>380</sup>

### Hospitalised casualties

While road fatalities have been declining, the number of hospitalised casualties as a result of crashes has been increasing. During 2019, there were 6959 hospitalised casualties (Figure 5.16) as a result of crashes, which is seven per cent higher than the 2014–2018 annual average.<sup>378</sup>

For the full 2019 year, there was a seven per cent increase in hospitalised casualties involving speeding drivers compared to the 2014–2018 average and a 11% increase in those involving drink-driving. People disobeying the road rules was the leading factor associated with crashes.<sup>378</sup>

### Looking forward

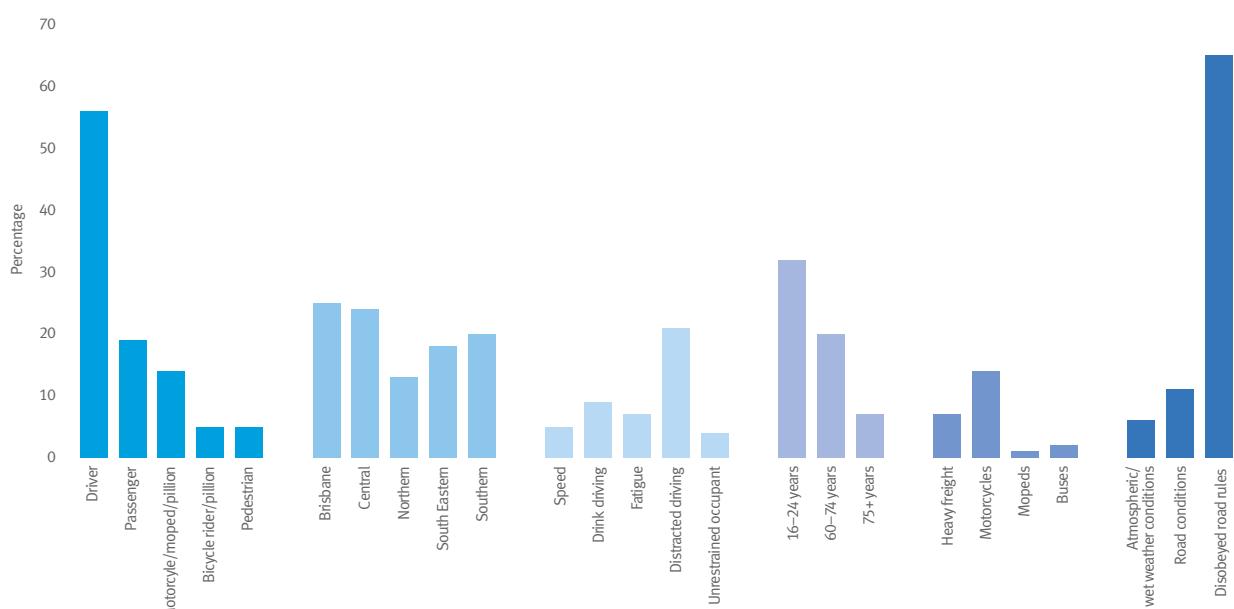
Road trauma continues to be an important cause of death and short- and long-term morbidity in Queensland and Australia as a whole. The successful decline in road deaths up to the end of 2019 has been offset by corresponding increases in crashes leading to hospitalised casualties. These data do not include the number of non-hospitalised casualties requiring medical attention, nor do they reflect the significant burden road trauma incurs on families, communities and the economy.

A new challenge in Queensland, particularly in Brisbane, has been the introduction of e-scooters. An observational study conducted over four days in Brisbane in February 2019 reported that 45% (785) of riders were doing so illegally with not wearing a helmet, or wearing a helmet incorrectly being the most common fault. Of these, 90% were using commercial shared e-scooters.<sup>381</sup>

The reason for the increases in road fatalities in 2020 are not yet clear, particularly during the COVID-19 restrictions and given the introduction of large penalties in Queensland for the use of mobile phones whilst driving. It may reflect increases in the number of pedestrians and cyclists on the roads during the COVID-19 period or changes in road behaviour more broadly.

A community-wide approach involving government, business, industry and communities is being implemented. Key aspects of the program target the predominant causes of road crashes that is speeding, driving under the influence of alcohol and other drugs, driver distraction (particularly mobile phone use), driver fatigue and lack of seatbelts and restraint use. Specific population groups such as heavy vehicle drivers, motorcyclists, young drivers, bicycle riders, pedestrians and school zones are also addressed.

**Figure 5.16 Characteristics of hospitalised road casualties,<sup>1</sup> Queensland, 2019<sup>378</sup>**



<sup>1</sup> Regions are for Queensland Police Regions

# Oral health risks

As presented in [Section 3](#), oral diseases, including tooth decay, gum disease and oral cancers, are leading causes of poor health for both children and adults in Australia. The risks for poor oral health are multi-factorial and begin before birth.<sup>382</sup> Poor oral health in early childhood is the strongest predictor of poor oral health across the lifespan.<sup>383</sup>

Major factors contributing to poor oral health include<sup>222</sup>:

- consumption of sugar, tobacco and alcohol
- poor oral hygiene and irregular dental check-ups
- a lack of access to fluorides either via a fluoridated drinking water supply or appropriate oral hygiene products
- access and availability of dental services, including affordability of private dental care and waiting periods for publicly funded dental care.

Here we summarise toothbrushing, dental visits and water fluoridation. Sugar, alcohol and tobacco are addressed in other sections of this report. The most recent population-based data on oral health for Queensland children are for the 2010–12 period,<sup>384</sup> while for adults, population-based data are available for the period 2017–18.<sup>222,384</sup>

## Oral hygiene and dental checks

### *Toothbrushing*

Twice daily toothbrushing with an age-appropriate fluoride toothpaste is strongly protective for oral health. It is recommended children's teeth be wiped or brushed from when the first primary tooth appears at around six months of age. Low fluoride toothpaste is recommended for children up to six years of age and a high level of adult involvement in toothbrushing is recommended until children are around eight years of age.

In 2010–12 in Queensland, 38% of Aboriginal and Torres Strait Islander children and 49% of other children aged 5–14 years had commenced brushing with toothpaste by 18 months of age,<sup>384</sup> slightly higher than the national figures of 32% and 34% respectively.<sup>385</sup> Of Queensland children aged 5–14 years, 72% reportedly brushed their teeth two or more times per day, 63% of Aboriginal and Torres Strait Islander children and 74% of other children.<sup>384</sup> Again, slightly higher than the national figures, in which 69% of children reported brushing their teeth two or more times per day, 54% of Aboriginal and Torres Strait Islander children and 70% of other children.<sup>385</sup>

Among Queensland adults, in 2017–18, 70% reported brushing their teeth two or more times per day, 47% of Aboriginal and Torres Strait Islander adults and 71% of other Queenslanders.<sup>224</sup> Of Australian adults, 69% reported brushing their teeth two or more times per day, 53% of Aboriginal and Torres Strait Islander adults and 68% of others.

### *Dental check-ups*

Regular dental check-ups improve oral health outcomes. Regular check-ups should begin in early childhood, with the first dental visit occurring before the age of two years. The frequency of dental check-ups reflects the individual's oral health risk, but should occur at least every two years.

In 2010–12,<sup>384</sup> only six per cent of Queensland children aged 5–14 years had their first dental visit before the age of two, while 67% reported regularly visiting a dental provider at least once every two years. These proportions were similar for Aboriginal and Torres Strait Islander children and other children. The reason for the first dental visit was reported as a check-up for 85% of Queensland children, including 79% for Aboriginal and Torres Strait Islander children and 86% for other children.

In Queensland in 2017–18,<sup>224</sup> 75% of adults reported visiting a dental practitioner in the previous two years. This was similar in Aboriginal and Torres Strait Islander adults and other Queensland adults, at 74% and 75% respectively. Comparatively, 74% of Australians also reported visiting a dental practitioner within the preceding two years,<sup>224</sup> however, slightly less Aboriginal and Torres Strait Islander adults reported this nationally (70%).

In a Brisbane study of Aboriginal and Torres Strait Islander adults, 33% of females and 25% of males had visited a dentist within the past 12 months.<sup>386</sup> The majority of those who had visited a dentist at any stage had done so because of a dental problem rather than for a general check-up (81% females and 87% males).<sup>386</sup>

## At a glance

### *Oral health risks*

#### *In Queensland:*

About 70% of children (5–14 years) and adults brush their teeth two or more times a day

67% of children (5–14 years) visit a dental practitioner at least once every two years

75% of adults report having visited a dental practitioner in the previous two years

72% of residents have access to fluoridated drinking water



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The proportion of Queensland adults who reported avoiding or delaying seeking dental care because of cost was 40% in 2017–18, a substantial increase from 32% in 2004–2006.<sup>224</sup> This increase is reflected across Australia with 39% in 2017–18 and 32% in 2004–2006. For Aboriginal and Torres Strait Islander adults in Queensland, 54% reported avoiding or delaying seeking dental care because of cost, a small increase from 52% in 2004–2006. Nationally, this was 49% in 2017–18, a large increase from 38% in 2004–2006.

## Water fluoridation

Water fluoridation is a safe, effective and inexpensive public health strategy to help prevent tooth decay. Decay experience among children is higher in areas where residents do not have access to a fluoridated water supply, including in Queensland, even after accounting for other sociodemographic and environmental risk factors.<sup>387</sup>

Nationally, about 89% of the population has access to a fluoridated drinking water supply,<sup>388</sup> while approximately 72% of Queenslanders had access to fluoridated drinking water as at March 2020. Access to fluoridated drinking water varies significantly however, according to residence. The Queensland HHS areas with access greater than the state average are Townsville, Metro North, Metro South, Gold Coast, West Moreton and Sunshine Coast. Approximately half of the residents in Darling Downs had access to fluoridated drinking water, and less than 15% of residents in all other HHS areas had access to a fluoridated drinking water supply.

## Looking forward

Given the importance of good oral health in childhood to maintaining a healthy mouth throughout life, there is an ongoing challenge to improve the effectiveness of the efforts to prevent dental decay in children. Early and regular dental visits, tooth brushing two times a day and access to fluoridated drinking water all contribute to young Queenslanders making a good start. The *National Oral Health Plan 2015–2024*<sup>389</sup> recommends actions that are universal, but with a scale and intensity that is proportionate to the level of disadvantage.<sup>389</sup> Opportunities exist to better align the delivery of oral health services, including prevention and health promotion, to improve access for those who need them the most.

Dental public health is transforming—driven by closer integration with general healthcare, technology and digital innovation and persisting disparities in dental health among the most disadvantaged in our communities. Some important challenges to public oral health are financial, access and health literacy barriers, particularly in socioeconomically disadvantaged communities, the downstream effects of poor oral health in an ageing population and addressing public perceptions of the risks and benefits of water fluoridation.

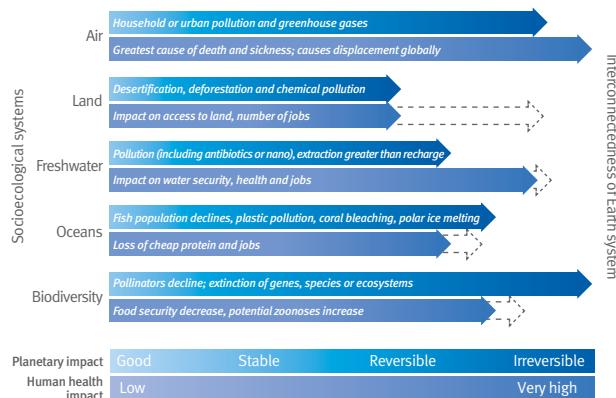
However, advances in technology mean that options such as teledentistry and digital solutions to promoting, monitoring and sustaining oral health present significant opportunities to address key gaps in knowledge, prevention and dental care. Pregnancy and early infancy is an ideal time-period in which the foundations for long-term oral health can be addressed and there are several opportunities associated with the integration of oral health into routine antenatal and postnatal care.

# Environmental factors

Environmental risk and protective factors are comprised of a broad range of physical, chemical, biological, cultural and ergonomic exposures that influence our health and wellbeing at home, in the outdoors and at work. They may be part of our natural and/or built environments and many exposures have been devised for human purposes such as the burning of fossil fuels, poisons (for example pesticides) and plastics that can contaminate our soil, air and water. Although human health has improved dramatically since 1950, this gain has been accompanied by environmental degradation globally that now threatens both human health and life-support systems.<sup>390</sup>

The types and impacts of environmental risk factors vary widely in complexity, severity and significance and the causal pathways to adverse health and wellbeing outcomes are as diverse as the people who interact with those environments.<sup>391</sup> Estimates of the share of environment-related human health loss are as high as 5% for high-income OECD countries, 8% for middle-income OECD countries and 13% for non-OECD countries.<sup>391</sup> Environmental damage is thought to contribute 2–6% of the total burden of disease in OECD countries.<sup>391</sup>

**Figure 5.17 Global impacts on health of the planet and human health, 2018–2050<sup>390</sup>**



*Length of bars indicates severity of impact on the planet or humans: the worse the impact, the longer the bar. Dotted lines reflect the cumulative nature of a locally occurring problem and its effects on the most vulnerable, showing that these effects might be more serious in some areas than others shown by the solid bar<sup>390</sup>*

Built and natural environment features can support or hinder activities which impact health. For example, accessibility to a wide variety of destinations, street connectivity, and close proximity to open green spaces and parks all promote increased walking, which in turn positively impacts physical and mental health. Conversely, factors such as exceedingly high or low temperatures, poor air and water quality and noise pollution can deter physical activities and reduce psychological wellbeing. We spend many hours in our workplaces and workplace design, processes and exposures are important components of the causal pathways for many diseases, injuries and disabilities. These range from coal dust exposures in our miners to repetitive strain injuries in those doing long periods of repetitive activity.

## Built environments

### Housing

Housing situation and condition strongly affects our health and wellbeing. Homelessness, poor quality housing, frequent moving and being in financial housing stress are associated with greater psychological distress and poor physical health outcomes. Additionally, affordable housing is often located further away from major employment areas. This increases travel times and reduces available time to engage in healthy behaviours. It also contributes to health disparity between different socioeconomic groups.<sup>104</sup>

In 2016:

- 26.6 per 10,000 Queenslanders lived in other crowded dwellings<sup>66</sup>
- 22% of Queenslanders living in other crowded dwellings identified as Aboriginal and Torres Strait Islander
- 41% of lower-income households in Brisbane were experiencing housing affordability stress.<sup>392</sup>

Other crowded dwellings refer to those where the dwelling requires three extra bedrooms to accommodate the number of residents living in the dwelling.<sup>393</sup> These residents are not considered homeless but they are considered to be in marginal housing and may be at risk of homelessness.

### Urban form

Urban form refers to the shape, size, population density and layout of a city. Urban form can have environmental, social and economic impacts which has flow-on effects to our health. For example, urban development can lead to loss of agricultural and natural green spaces, which reduces biodiversity, and areas for agriculture, social and recreational activities. Additionally, loss of tree canopy coverage leads to increased temperature. There are various guidelines and initiatives to promote healthy and sustainable development. For example, *QDesign*,<sup>394</sup> the Queensland Government's priority principles for urban development, outlines that development should create well defined, legible and connected streets and places. These principles are reflected in guidance material such as the *Model Code for Neighbourhood Design* which defines targets for street connectivity.<sup>395</sup> In 2017, 43% of residential street blocks in Brisbane met the length and width targets for street connectivity in order to create walkable block sizes within a maximum perimeter of 560m. Additionally, for the density targets<sup>392</sup>:

- 2% of Brisbane suburbs met the 30 dwellings per hectare target for urban neighbourhoods
- 13% of Brisbane suburbs met the 15 dwellings per hectare target in suburban neighbourhoods.

A walkability index which combines dwelling density, daily living destinations and street connectivity<sup>392</sup> found that walkability in Brisbane in 2017 was unequally distributed with the highest walkability scores for the inner suburbs and steep declines towards the outer regions. This pattern was similar with most other Australian cities evaluated.

### Travel

Effective transport systems can support health by promoting active and public transport options, reduce dependence on travel by cars, and minimise air and noise pollution. In 2018, the large majority (82.7%) of South East Queensland travel was done with private vehicles.<sup>396</sup> Only 9.9% of all trips used active transport (walking or cycling) as the main transport mode and 6.8% used public transport.<sup>396</sup> In 2017, 37.4% of the South East Queensland population had access to services via public transport within 30 minutes. This was a slight decrease from 2016 (39.5%).<sup>395</sup>

### Green and open spaces

Green and open spaces are important for both physical and mental health as these areas promote physical activity, facilitate social interaction and support biodiversity. More time spent in such environments leads to higher levels of self-reported health and wellbeing. In 2018:

- 56% of Brisbane LGA residences are within 400m of public open space of at least 1.5 hectares.<sup>397</sup>
- the areas identified as community greenspace in South East Queensland had increased from 2016 to 2018 (from 469,770 to 483,666 ha).<sup>395</sup>

## At a glance

### Environmental factors

Housing stress is affecting 40% of economically disadvantaged households

In 2017, 37.4% of the South East Queensland population had access to services via public transport within 30 minutes

It was the second-driest December on record for Queensland as a whole in 2019

Workplace safety is improving in Queensland with a 30% decline in serious claims and a 58% decline in fatalities since 2007



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## Climate

As noted in [Section 1](#), Queensland has faced several severe climate challenges in recent years, not least the persistence of the widespread drought affecting the state. In 2019 in Queensland<sup>398</sup>:

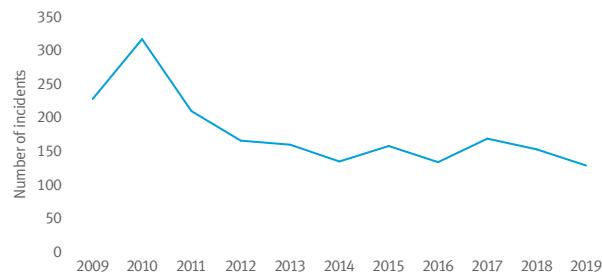
- rainfall was above average in the northern tropics and northwest, and below average in the south-eastern quarter of the State
- large areas of inland South East Queensland had the driest year on record
- temperatures were more than a degree warmer than average for the mean, maximum and minimum temperatures, with record warm days persisting in the south-eastern quarter of Queensland
- Queensland's mean temperature for the year was 1.27 °C above average, and the sixth warmest on record for the State as a whole
- the hottest day in the State was on 24 December where temperatures in Birdsville reached 49.3°C
- a delayed onset to the 2018–19 monsoon resulted in an extended period of hot days in the northwest, with both Cloncurry and Camooweal reporting a record run of days at or above 40°C
- in April, areas in the Darling Downs and Granite Belt reported rainfall totals in the lowest 10% of records, with the dry pattern continuing into May, and extending into southern inland Queensland by June
- from July to December, much of southern Queensland had below average rainfall, with large areas of the Warrego, Maranoa, Darling Downs and Granite Belt reporting their driest July to December on record
- it was the second-driest December on record for Queensland as a whole.

## Water quality

In Queensland, drinking water safety is overseen by Queensland Health and the Department of Natural Resources, Mines and Energy. A key regulatory requirement is that all drinking water supplies must be operated in accordance with an approved Drinking Water Quality Management Plan (DWQMP).<sup>399</sup> It is also a regulatory requirement for all DWQMPs to be audited regularly to ensure drinking water service providers are complying with their DWQMP and their plan remains relevant to the drinking water schemes they operate.

The number of drinking water incidents per year continues to decline (Figure 5.18), with 2019 having the lowest number of drinking water incidents recorded since the regulatory regime was introduced in 2009. This trend suggests an overall improvement in the management of drinking water supplies in Queensland.

**Figure 5.18 Number of reported drinking water incidents, Queensland, 2009–2019**



## Safe and Healthy Drinking Water in Aboriginal and Torres Strait Islander communities

The Queensland Government is working with Aboriginal and Torres Strait Islander local governments to improve the safety and reliability of their drinking water. The “*Safe and Healthy Drinking Water in Indigenous Local Government Areas Project*”<sup>400</sup> aims to improve the operation and management of drinking water supplies in Indigenous communities to ensure public health is protected.

The program commenced in early 2017 with a pilot in the Torres Strait, and is now active in 18 communities across Queensland and involves close collaboration between Queensland Government agencies and local governments.

The program adopts a new approach to building the capacity of Aboriginal and Torres Strait Islander water operators to ensure the ongoing safety and quality of the drinking water supply. It begins with an intensive six-month, week-on/week-off mentoring program where Queensland Health environmental health staff provide in-community mentoring and training to build water operators' skills, knowledge and capacity. This initial phase is followed by ongoing support.

Before the program was introduced, some Torres Strait Island communities had been subject to 14 boiled water alerts associated with the presence of *E. coli* in their drinking water. Since the program's introduction in those communities in 2017, this has been reduced to zero.

Queensland Health is expanding the program to all drinking water supplies operated by Aboriginal and Torres Strait Islander local governments. Queensland Health is also investing to develop and deliver a water operator training program that is relevant to Queensland Aboriginal and Torres Strait Island communities.

## Air quality

In 2018, air quality in Queensland was monitored in South East Queensland, Gladstone, Mackay, Townsville and Mt Isa. Major pollutants monitored at various places and times include carbon monoxide, nitrogen dioxide, ozone, sulphur dioxide, lead and particulate matter (PM). Particulate matter monitoring includes PM10 which measure particles less than 10 micrometres in diameter and PM2.5 which includes particles less than 2.5 micrometres in diameter.<sup>401</sup> The *Queensland air monitoring 2018: National Environment Protection (Ambient Air Quality) Measure report* includes detailed results of the monitoring.<sup>401</sup> The major contributor to air quality in the highly populated areas of the state is vehicle emissions.

From January to December 2018, there were no exceedances of environmental standards for carbon monoxide, nitrogen dioxide and lead at any Queensland monitoring station. However, some exceedances occurred for<sup>401</sup>:

- ozone concentrations at the Flinders View monitoring site in South East Queensland due to the presence of added ozone precursor pollutant emissions from vegetation fires during meteorological conditions conducive to ozone formation
- sulphur dioxide concentrations at the monitoring sites in Mount Isa due to industrial emissions
- 24-hour average PM10 (particles less than 10 micrometres in diameter) concentrations at monitoring sites in South East Queensland, Gladstone, Mackay and Mount Isa due to either windblown dust or smoke from bushfires or hazard reduction burning
- 24-hour average PM2.5 (particles less than 2.5 micrometres in diameter) concentrations at monitoring sites in South East Queensland, Gladstone and Townsville due to smoke from bushfires or hazard reduction burning.

All but three PM10 exceedances and all PM2.5 exceedances during 2018 were directly attributed to an exceptional event (emissions from a bushfire or jurisdiction authorised hazard reduction burning, or continental scale windblown dust) and were excluded from the determination of standards compliance with the relevant 24-hour goal.

Air pollution is associated with considerable health burden. In 2015–16, there were an estimated 4873 hospitalisations consuming 20,260 bed days that could be attributed to air pollution.<sup>82,106</sup> For Australia overall in 2015, air pollution accounted for 0.8% of the total health burden (Table A23).<sup>82</sup>



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## Work environments

In 2018, there were 39 workplace related fatalities in Queensland, 2 females and 37 males for a fatality rate of 0.2 and 2.8 per 100,000 workers respectively.<sup>402</sup> The most common cause of fatality was vehicle collisions (36%) which included cars, trucks, aircraft, boats, loaders, tractors and quad bikes. Fatalities were most common among machine operators and drivers (20, 10.4 per 100,000 workers) and the most common industries were agriculture, forestry and fishing (18.8 per 100,000), transport, postal and warehousing (10.3 per 100,000) and mining (3.0 per 100,000).<sup>402</sup>

### Queensland's workplace fatality rate has decreased by 58% from the peak in 2007.

In 2017–18, there were 26,709 serious claims lodged.<sup>402</sup> A serious claim is one in which the compensated disease or injury required one week or more off work. This equated to seven serious claims per one million hours worked and the median time lost was 5.2 weeks. The Queensland serious claim frequency rate dropped by 30% from 2007–08 to 2016–17. The most common causes of serious claims were body stressing (36%), falls, trips and slips (23%) and being hit by moving objects (15%). Mental stress accounted for 3% of claims. Labourers (30.3 per 1000 employees) and community and personal service workers (15.8 per 1000 employees) were the most common occupations associated with claims.

## Notifiable dust lung disease register

A notifiable dust lung disease is any of the following respiratory diseases caused by occupational exposure to inorganic dust:

- cancer, for example mesothelioma
- chronic obstructive pulmonary disease including bronchitis and emphysema
- pneumoconiosis, including asbestosis, coal workers' pneumoconiosis, mixed-dust pneumoconiosis and silicosis.

Examples of inorganic dust causing lung diseases, include dust from silica, coal, asbestos, natural stone, tungsten, cobalt, aluminium and beryllium.

On 1 July 2019, the Queensland Health Notifiable Dust Lung Disease Register (NDLDR) commenced, after changes were made to the *Public Health Act 2005* and the *Public Health Regulation 2018*.

The *Public Health Act 2005* requires that:

- occupational and respiratory medicine specialists must notify the Register within 30 days if they make a diagnosis of a notifiable dust lung disease
- if requested, the Department of Natural Resources, Mines and Energy and the Office of Industrial Relations must, if they have information about a notifiable dust lung disease, give the information to the Notifiable Dust Lung Disease Register.

The first report of the NDLLDR for the period July 2019–June 2020 has been recently published.<sup>403</sup> In 2019–20, there were 174 notifications of newly diagnosed cases of dust lung diseases in workers, 97% of whom were male and 45% were aged 60–79 years. There were five deaths reported. There were 185 diseases reported for the 174 workers. Of these, 47 (25%) were mesothelioma, 23 (18%) were COPD and 98 (57%) were pneumoconiosis, the most common types being silicosis (61) and asbestosis (18). The most frequently reported industries of occupational exposure were mining, resources and quarrying (30%), manufacturing (28%) and construction (19%) and the most common dusts were silica (38%), asbestos (38%) and coal (14%).

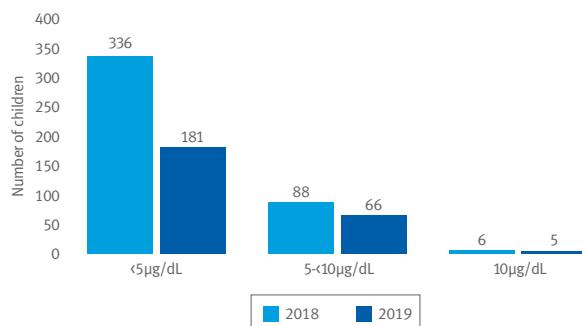
### Childhood lead exposure

Children are at an increased risk of being exposed to lead due to their higher hand to mouth actions, particularly those under five years and living in mining and smelting communities. To improve the identification of children most at risk, a Point of Care Testing (POCT) program was introduced in 2016.

From 8 September 2016 to 30 June 2019, there were 1676 presentations to the Mount Isa health service by this age group, where a capillary blood lead test was undertaken and a result recorded. This represents 1076 individual children that have utilised the POCT program since its introduction. The program has increased the number of children being tested within Mount Isa and has highlighted the community's support for the program.

A summary of the results from the POCT program during 2018 and 2019 (until 30 June) are shown in Figure 5.19. A blood lead level of  $\geq 5 \mu\text{g}/\text{dL}$  requires intervention.

**Figure 5.19 Child blood lead levels, POCT program, Queensland (to June 30 2019)**



### Looking forward

Most Australians have access to clean and healthy built and natural environments however population growth, increasing urbanisation (particularly along our coastlines), climate change and extreme weather events will continue to present challenges for our overall health and wellbeing. Those most socioeconomically disadvantaged, the elderly and those living in rural and remote areas are most at risk.

There are many state, national and international strategies in place to predict, prevent and mitigate these impacts. For example, a cross-government initiative is investigating relationships between Queensland built and natural environments and health. The “*Healthy Places, Healthy People*” initiative provides a framework to consider and integrate health outcomes into agency decision making.

